

TRIBAL LIVELIHOOD

Issues, Challenges and Opportunities

Jayanta Choudhury
Samrat Goswami
Arobinda Mahato



Tribal Research and Cultural Institute
Govt. of Tripura

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Edited By–

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Tribal Livelihood : Issues, Challenges and Opprtunities
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Message

The population of tribal communities scheduled in the Constitution of India and known as Scheduled Tribes (STs) was 8.43 crore as per 2011 census and accounts for 8.6 percent of the total population. The tribal population in India has the second largest concentration after that of African continent. Livelihood pattern of tribals is influenced by a number of exogenous factors, which are bringing out changes into the traditional system. As part of the tribal welfare programmes, the Government has opened a number of developmental programmes in the tribal areas. However, on many occasions, the tribal people are not aware of the developmental schemes, meant for them. Hence, they show much reluctance in accepting the modern day amenities. Livelihood for tribals is not merely a means of survival only, but also a cultural tradition of a community. There are many social and rituals connected with it, which establishes emotional ties between the tribal community and the type of livelihood they are adopting. India is blessed with rich and diverse heritage of cultural tradition.

Under this back ground an National Seminar on “Tribal Livelihood: Challenges & Opportunities” was held on 20-21 July, 2013 organized by Centre for Rural Studies (CRS), Department of Rural Management and Development, Tripura University in collaboration with Tribal Research and Cultural Institute, Government of Tripura. Many renowned academicians, dignitaries and policy makers participated the seminar and presented their valuable research papers.

Present edited volume is the outcome of the seminar and hope it will be immense helpful for the readers, researchers and policy makers.

I congratulate editors and wish a grand success of the present volume.



Shri. Sunil Debbarma

Director

Tribal Research and Cultural Institute
Government of Tripura

Foreword

At the outset, I wish to put on record hearty congratulations to Dr. Jayanta Chaudhury, Dr. Samrat Goswami and Dr. Arobinda Mahato in coming up with an outstanding volume “*Tribal Livelihood: Issues, Challenges and Opportunities*”, mainly dealing with one of the most have-not population in the country, which, though are custodian and protector of vast natural resources of the country, yet, are the worst recipient of benefits accruing from those vast natural resources. Across the world one can see without any doubts areas of highest natural resources are also the most populated and most poverty stricken areas. This reverse relationship calls of a very detailed analysis to set this imbalance right in favour of these population, referred by varied names, tribal, aboriginal, scheduled tribes, and so on.

It is in this perspective that I find the current Volume addresses all varied parameters associated with the holistic development of the tribal population, keeping them at the central helm of affairs lest these should not be lost sight of, as has been the case so far. It goes without saying that no amount of holistic development planning for tribal population is possible unless the intricate and inseparable relationship between tribal populations and natural resources is addressed in most competent manners. The entire social and cultural fabric of large number of tribal clans is woven around natural resources with which they (also referred to as ‘ecological people’) are born and lived with throughout their journey to life. Any disrespect towards this relationship would allow attempts taken towards tribal development fall flat without serving slated objectives. If one would recall, it may be considered valid to say that one most glaring miss and slip in tribal development related issues has been absence of a mandatory necessity to facilitate and confer land ownership rights to those tribal populations over natural resource rich-areas that they have been residing around for generations – both nurturing and utilizing in a way sustainable for them to reap long-term benefits, if only there are no external compulsions and extraneous factors compelling them to go for unsustainable exploitation to meet greedy needs that of non-ecological population. This lack of ownership has also made them feel alienated from plethora of development schemes and plans that have been undertaken by varied government departments, the fund allocation to those has also seen a constant rise, yet, without equitable outputs and outcomes. One most obvious reason of this failure to make an acceptable dent among the tribal populations has been lack of generation of ownership feeling amongst them for all those varied development programs. This lack of ownership clearly points at absence of synergy between what they (the ecological people) needed and what were they offered. The states have failed to mainstream and internalize the needs and aspirations of the tribal communities with the development packages being offered resulting in outright rejection

of such moves. The mainstreaming and internalization can only be achieved through empowerment, which could only be achieved through their (tribal populations) participation in planning, execution, monitoring, evaluation and finances related decisions. Most tribal communities being matriarchal, special consideration has to be given on women empowerment. Quick and assured results towards development paradigm could also be achieved by roping in the younger generation, specially the educated youths who are aware of unbound opportunities that lay outside their limited domain that has surrounded them and their forefathers for ages.

I once again congratulate the editors for presenting intelligent readers complete accounts on tribal development related issues, challenges and the opportunities by using their technical and academic expertise and excellence. This Volume shall prove a unique milestone in this field of enquiry and might prove useful for the readers from all walks of life, be it students, researchers, academicians, philosophers, managers, policy makers, officials, professors, and above all to the main stakeholders themselves.

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Key Note Address

by

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Given that the socio-cultural life of most tribal communities is woven around the natural resources, any kind of planning for holistic development of these tribal communities has to revolve around sustainable conservation and utilization of natural resource management. As such, the tribal populations are drawing benefits of natural resources for their livelihood and subsistence economy, yet, the sustainability and drawl of real benefits for long-term development is still an issue requiring redress. This has not taken place due to the fact that these have not been given any tenure rights over these resources besides severe lack of empowerment and capacity building to harness and value add to these resources. Since the reach of forest and environment wing of the government is very close to the tribal populations, the policies concerning natural resource management hold a major role in tribal development.

It has been an un-ending debate on the issue of reconciling conservation (of natural forestry and biodiversity resources) and livelihoods mainly of forest fringe tribal dwellers sharing varied natural resources in different degree of dependency. This debate brings in issues related directly and/or indirectly with food security, socio cultural aspects, decentralization, tenure rights, gender issues etc. of dependent people. During pre-British and post-British era till 1988, the National Forest Policy almost exclusively professed conservation and protection of natural resources as main approach, and attention on livelihood concerns for dependent people had been only a secondary consideration. This approach gave rise to timber centric policy addressing mainly commercial considerations, absolutely including non-commercial, socio cultural and traditional aspect of local people who had been the protector of such natural resources for ages in lieu of benefits (non-commercial) that they were drawing from such resources as a part of their sustenance economy. This commercial approach earned wrath of local people who found themselves deprived of genuine benefits even for their survival while the non-forest dependent communities were made rich without having any stake whatsoever. It has resulted into the depletion of the natural resources across the length and breadth of the country wherein it was realized that a pathetic attitude of the local people towards depletion of natural resources considered to be much more serious than the actual plundering done by the illegal fellers & encroachers. The next phase, of forestry put impetus on protection aspect resulting into enactment of various laws and Acts, a situation where the local people were considered the main villain under this act of plundering of natural resources. The punitive

measures that followed the enactment of different laws & acts could not, however, alienated the Forest Department from the local people who used to earlier help the department in more than one ways for the protection and conservation of the forestry and other natural resources.

This prompted the forestry authorities in the country to completely change from absolute commercial production and protection mode of forestry management to the participatory approach. This led to the formulation of a new National Forest Policy, which became operational from 1988 giving major emphasis on the involvement of local people for the conservation of forestry and biodiversity natural resources thus ensuring that the local people are also benefited for their help rendered in the conservation of biodiversity resources. This change in the policy was translated through a resolution on the Joint Forest Management (JFM) by Government of India in the year 1991 with stipulated involvement of the of local people for conservation of the natural resources across the country on usufruct sharing basis wherein provisions were also made to provide a minimum of 50 per cent usufructs sharing rights based on the Memorandum of Understanding. To attract the local tribal populations to join hands with the Forest Department in this new venture, suitable provisions were also made to provide basic infrastructure and other social amenities and facilities to the local tribal people by way of entry point activities. This was part of winning confidence of the local tribal populace for their willing and holistic participation to draw maximum benefits of this participatory approach.

The National Forest Policy, 1988 brought about a revolutionary shift in the forest management paradigm from the traditional protectionist approach to Participatory approach, lending full and conscious recognition that forest conservation is very much a shared responsibility of those stakeholders as well who draw direct and indirect benefits from the forests. This ‘Care and Share’ dictum was institutionalized as ‘Joint Forest Management (JFM)’ since 1991 across the country and is still in vogue, albeit with a mix success rate. This recognition has presented forests and forest personnel in direct interface with the people’s institutions, thus posing vast challenges in striking a right balance in imparting hardcore protection on the one hand and reaching economic benefits and incentives to the dependent populace.

The JFMC approach has been community-based where large number of families sharing the forest areas (within the 2 km vicinity of forest boundary) is grouped into a given JFMC. However, the individual rights over such forestlands are not recognized for those families and the relationship is purely based on usufruct sharing of benefits in lieu of ‘care’ supposedly to be provided by those families. The general conclusion has been that in spite of this direct interface of the people with the forests, neither their dependency on forests have reduced and nor their livelihood and economic needs are met with through this relationship, to desired levels, thus, negating an ownership feeling over the forestland by said communities.

With the advent of the Recognition of Forest Rights Act, 2006, the forest conservation has got a new impetus as it has facilitated to reach conservation related benefits at the family-level by conferring the Rights to the individual families as per the Act. In Tripura, more than 1.26 lakh families have been conferred rights over around 1.87 lakh hectare forest area. Various departments have been engaged in ensuring that these families, popularly known as ‘Patta holders’ get to self-sustaining measures for effective and just use of these forestlands.

My experience in the natural resource management sector for last 35 years and mostly in tribal dominated areas of the northeast India has unquestionably made me a strong believer in holistic development theory, though encompassing all, yet, pivoting around the land-ownership/rights-based empowerment fulcrum of these otherwise most vulnerable populations. It is this empowerment that provides a great sense of security to these populations and enabling them to secure all their needs and requirements once these non-alienable rights over land is conferred upon them through whatever means and schemes. Although, the JFMC approach was a welcome arrangement to reach to the tribal populations to address their needs and demands for the first time in a participatory mode, yet, the much-needed ownership has yet to take deep roots to allow this arrangement draws maximum benefits.

I am tempted to share with the learned readers about my experience of steering an Indo-German Development Cooperation Project (IGDC) in Tripura as Chief Executive Office and Project Director where it is proved beyond doubts that true empowerment of the targeted stakeholders would lead to development of much needed ownership, which shall bring in sustainability on its own. The IGDC Project is exclusively implemented taking into fold about 28,150 'Patta holder' families for reaching them all required Empowerment, namely, Institutional, Planning, Implementation, Monitoring and Financial to remove dependency of these families on the 'forests'. The Project has aimed at improving the natural resource conditions thus supporting enhanced livelihoods of the forest dependent communities, about 90% of whom were hardcore shifting cultivators – surviving on subsistence economy alone.

Subsequently, the IGDC project has taken up the challenge of sustainable management of these allotted patta lands through diverse land and non-land based activities. Plantations, nursery, and fishery in check dams were prominent land-based activities. Piggery, goatery, duckery, vocational trades, and several group activities under income generating activities were supported by the project to the patta landholders as non-land based income-generating options. Adequate trainings for their skill improvement were imparted. All the plantation activities in the form of 3-tier plantation models were also taken up on patta lands only.

The IGDC Project has provided a Model where a People's institution having direct linkage with the Panchayati Raj System, namely, Village Development Planning and Implementation Committee (VDPIC) in each of the 70 Project villages in Dhalai and North districts has provided a democratic, dedicated and decentralized institution at village level, which is responsible for overall planning and implementation of the project activities and are also the recipient of funds directly from the Project Management Authority at Agartala for various activities under digitized Direct Cash Transfer option. Each VDPIC prepared a Village Development Plans for the entire Project period with provision of mid-term revision in a participatory mode and with the approval at the Block (through Block Advisory Committee) and at District level (through DM chaired District Level Planning and Governance Board) to bring in convergence amongst varied line departments.

The sustainability of all the interventions has been ensured by skilling about 34668 beneficiaries through 1355 different short- and long-term training (including specialized and refresher) programs on livelihood, vocational, management and accounts, revolving fund management, monitoring & evaluation etc. aspects. Main stress has been given by involving

about 3120 women and educated rural youths in 264 such vocational training programmes in 21 diverse trades such as Tailoring, Handloom & Weaving, Motor Driving, Basic Computer Learning, Mobile Repairing, TV Radio Repairing, Solar Repairing, Handicraft, Chanachur making, Artificial Flower Making, Ornaments Making, Carpentry, Masonry, Candle Making, Two Wheeler Repairing, Plumbing, Beautician, Welding, Electrician, Bakery and Confectionery, Agarbatti machine repairing.

Post-training, these trained personnel have also been provided with the start-up funds through village based revolving funds and tools and material support to immediately build up enterprises of their choice. A total of 2082 families have successfully established Income Generating Activities (IGA) and now earning additional family income in a range of INR 3000-7500 (tailoring & motor driving) to INR 14300 (Carpentry)/month. Around 305 such families are also engaged in Candle making, Bamboo made toys, lamps, basket making, etc.

A total of 9162.91 ha 3-tier (lower, middle, and top canopy yielding short, medium and long term income) plantation (Hill Slope/Top: 95%) has been taken up over Patta lands involving at least 15050 families have been benefitted, including convergence with MGNREGA, Agriculture & horticulture departments. Specialized training and supervision is ensured through engagement of agri- and horticulture experts. It has led to an estimated average annual income of INR 90,000/patta per harvest, besides facilitating soil & moisture conservation on the hill-tops and reducing pressure on forests by more than 66% reduction in practice of shifting cultivation.

Additional income of patta families is also arranged to the tune of INR 8000 to 11000 per cycle of harvest from Quality Planting Material nurseries; 12 such nurseries are created and are still churning out the products and these are being registered under Tripura Horticulture Act. Five of these QPMs have been converted in to hi-tech nursery (construction of poly houses, installation of sprinkler and fogger etc.) that are now even engaged in production of off season crops for more economic gains.

Till date, 810 check dams and 21 Rainwater harvesting tanks are constructed covering 256 ha of water area where 4784 patta families (255 SHGs and 69 Villagers Group) are involved for fishery activity. Besides this, as part of the consolidation of the check dams, catchment area plantations over 68.28 ha with intercropping of high yielding banana and bamboo is also undertaken over 172 check dams by involving additional 2019 beneficiaries from 111 SHGs and Villagers groups. Average income of these groups from fishery activity and from harvest of banana and other crops over the catchment areas now stands at INR 86,000 per harvest.

A total of 137 patta holder beneficiaries belonging to 8 SHGs and 3 Villager Groups are benefitted from a new intervention of Integrated fish farming model associating fish farming with the duck rearing (Model I) and Pig-rearing (Model II). Estimated income (after first cycle): INR 35000/HH/year.

Besides integrated fish farming, intensive support was also provided to 29 SHGs/Villagers Group to manage 52 Check dams for commercial fish farming. At least 426 patta holder villagers are benefitted through these commercial fish farming models.

To meet the need of bio-compost in Project established QPNurseries, mixed plantations, Captive Bamboo Plantations and also for sale in open market, a total of 93 patta holder villagers were provided “Biotech Kit” consists of 18 different items viz., Bio-fertilizer, Bio-Pesticides, Bio-fungicides, Pheromone trap with lure and a sprayer. Estimated income: INR 10000/ month/HH.

Self Help Groups (SHG) have been instrumental for diversification of livelihood activities, economic empowerment of women and ST shifting cultivators. The technical support was provided wherever necessary to continue the SHG activities in a profitable manner. A total of 5064 patta holder villagers are running 460 SHGs. Of these, a total of 108 SHGs have been successfully linked with DRDA and received financial assistance. Besides, a total of 334 SHGs were linked with Fishary Department for enhanced fish farming. Each SHG member has been provided a dedicated passbook to record the savings made, loan taken, training received, refundable interest-free money received from the project, and income generated.

All 460 SHGs were supported by the project both technically and financially to strengthen their capacity and improve efficiency. The SHG members have been able to raise their HH income by INR 18145/year through MSEs.

A total of 3075 patta HHs from 60 informal groups (outside VDPICs and SHGs) are constituted for undertaking IGAs in 41 villages through Poultry (Croyler), Goat rearing, Piggery, Decoration-cum-tent house, Rice mill, Duckery, Egg layering, Ginger and Turmeric plantation, Generator rentals, Sewing machines, and Computer institutes. All these activities started in 2012 and are being continued. New activities with new informal groups are being organised under the new revolving fund guidelines.

In addition to the SHG and VDPIC activities as described in the preceding paragraphs, the project has been undertaking cluster level activities for selected bio-resources as a part of the rural livelihood component. These bio-resources include Banana, Fish, Turmeric, Bamboo (Agarbatti, Handicraft) and Mushroom.

Turmeric cluster was developed at Thumsarai para ADC village under Damcherra RD Block involving 150 patta holder villagers. Till date a total of 5 ha turmeric plantation (3 ha over *patta* land) sowing 3000 Kg rhizome have been under taken. They have already harvested 10500 Kg of raw turmeric market value of which pegged at INR 2.10 lakh

Fish cluster at J.B. Para ADC village under Dumburnaga was established involving 16 villagers. ICAR, Lembucherra has been roped-in to provide technical guidance. Testing of water and soil for the selected sites being conducted by ICAR. The cluster is being developed over 16 water bodies (25 *kani*/ 4 ha water area). A total of 3184 kg of fish was harvested at Jagat Bandhu para Fishery cluster. The entrepreneurs involved at Jagat Bandhu para fishery cluster earned an amount of INR 6.37 lakh in three harvesting cycles.

Fish cluster at East Satnala under Dasda was established involving 26 villagers. These households own 26 water bodies spread over approximately 43.5 *kani* area. A total of 2070kg of fish was harvested at East Satnala Fishery Cluster. The entrepreneurs involved at East Satnala fishery cluster have earned an amount of INR 4.14 lakh in one harvesting cycle.

The Agarbatti Rolling centers at South Kachucherra, Mendi (Salema RD Block) and Stick-making centre at Bagmara ADC Village (Ambassa RD Block) became fully functional.

About 40 women members in South Kachucherra ADC village and Mendi ADC village are involved in mechanized *Agarbatti* rolling and a total of 10 women members in Bagmara ADC village are now involved in *Agarbatti* rolling. Several rounds of trainings for the beneficiaries, group leaders, VCWs were organized. The S. Kachucherra centre has emerged as the best among the three. A total of 3721 kg rolled *Agarbatti* sticks has been produced in this centre during the reporting period, which has yielded a profit of INR 12,28,504/-. Beneficiaries involved in the cluster are now earning between INR 1400 – INR 4500 per month.

Mushroom cluster at Salema and Durga Chowmuhani RD Block in convergence with Forest Department and ICAR being developed. As of now, 160 families engaged in the Mushroom clusters in Salema and Durga Chowmuhani Blocks. Groups are earning in a range of INR 5000- INR 7000/ month. On investment of INR 25 they are earning INR 150.

A cluster involving the banana growers from 118 villages in 4 blocks is being organized to facilitate the marketing of banana produced from the plantations under IGDC Project. Banana plantations in Khakchang, Dasamoni para, S. K. Shermun, Kangrai, East Satnala (Dasda RD Block), S. K Para (Manu), Thumsarai para, Piplacherra (Damcherra) are now matured and producing banana in large scale for sell. This has necessitated creating some support system for marketing of banana. Under this cluster activity, a total of 57.46 ha plantation was raised involving 118 *patta* holders.

A Floriculture unit was established at S. K. Para ADC Village involving 06 villagers. The group has planted a total of 10000 marigold plants.

A unit for making bamboo made basketries, lamps and toys were established at Balaram ADC Village involving 11 Villagers. The production was started and a have received an order to supply 256 nos baskets costing around INR 151800.

In order to accelerate the economic development in the village and to provide further boost to various Income Generating Activities (IGAs) through SHGs, Joint Liability Interest Groups and individuals, the IGDC Project introduced a Corpus fund at village level to be managed as a Revolving Fund facility (RF facility) by a Revolving Fund Management Committee (RFMC) under the overall supervision of VDPIC. The VDPICs under the Project has been infused with a RF-venture capital, ranging from Rs. 7,00,000 – 12,00,000/- per VDPIC. The quantum of venture capital depends upon the ranking of the VDPIC on a matrix to assess its past performance and present capacity to implement the proposed activities.

The purpose of the RF Facility is to (1) improve access to credit for rural poor in project villages, for micro-enterprises / IGAs : The RF facility improves access to credit directly by providing part of the capital required for an enterprise / IGA. Lending from VDPIC can also encourage the formal financial institutions (banks) to provide more credit to the applicant to meet other requirements related to the enterprise which are not covered through RF facility. (2) Facilitate ‘sustainable development of *patta* land’ by providing credit support for adoption of best practices related to land and /or plantation management: *patta* holders who may be interested to develop their land beyond what is supported by the project or those *patta* holders who are not included as beneficiary but require financial support to develop their *patta* land could avail the RF facility, and (3) Establish a system of

community-based micro-finance governed and managed by community representatives: A model of community based MFI would be established (as opposed to the external MFI), which is managed by community representatives.

Till date, a total of Rs. 662.30 lakh is disbursed to 70 VDPIC as RF. Till date, a total of 1727 Business Development Plans (BDP) have been prepared and approved by VDPICs for which a total of INR 319.37 lakh was disbursed. A total of 1806 patta holder villagers are benefited under this component and counting

The need of the hour is to address tribal livelihood issue in an integrated and holistic manner with full participation of empowered tribal populations enabling them to draw maximum possible benefits through a justified and judicious mix of traditional and advanced technical knowledge, fused, merged and synergized with their own age-old practices that still hold good and are one of the best available tools in countering the ill effects of climate change induced vulnerabilities.

Preface

Life and livelihood are linked to the biological and physical world in a complex way. Human beings are bound by their physical and biological environment in terms of provision of food, water, shelter and other services related to natural environment. However, link to the environment are more than a rational and positivistic issue. They also encompass values and symbols, ranging from identity and solidarity to property control and power relations. This includes values and systems of norms as significant part of the management of resources, influencing human health and other feasible components of life and livelihood. A livelihood comprises capabilities, assets (stores, resources, claims and access) and activities required as a means of living (DFID). For a livelihood to be sustainable, it has to address people's capacities to generate and maintain their means of living. It must be able to cope with and recover from stresses and shocks. It should not exploit or prejudice the environment or other livelihoods, present or future – indeed it should enhance their well-being and that of future generations (Chambers and Conway 1992).

The population of tribal communities scheduled in the Constitution of India and known as Scheduled Tribes (STs) was 8.43 crore as per 2001 census and accounts for 8.2 percent of the total population. The tribal population in India has the second largest concentration after that of African continent. It is more than the total population of France and Britain and four times that of Australia. Most of the tribal communities live inside dense forests in hilly areas and consequently enjoy an effectively isolation from the main stream of the country. Their more or less isolated life prevents them from exploiting many of the advantages of modern civilization. On many occasions they are found rejecting the programmes of modernization implemented by the governmental and voluntary agencies. They still depend on their own traditional practices for their livelihood pattern. Their daily activities are guided by age old techniques and traditional wisdom. On the whole, it seems that the traditional systems help the tribes to maintain their livelihood pattern.

Livelihood pattern of tribals is influenced by a number of exogenous factors, which are bringing out changes into the traditional system. As part of the tribal welfare programmes, the Government has opened a number of developmental programmes in the tribal areas. However, on many occasions, the tribal people are not aware of the developmental schemes, meant for them. Hence, they show much reluctance in accepting the modern day amenities. Livelihood for tribals is not merely a means of survival only, but also a cultural tradition of a community. There are many social and rituals connected with it, which establishes emotional ties between the tribal community and the type of livelihood they are adopting. India is blessed with rich and diverse heritage of cultural tradition. These traditions are associated with their traditional livelihood pattern. Each ethnic community has its own way of living. Their ancient knowledge helps to integrate for larger cause maintaining solidarity in the society. All these *en masse* make

fundamental contributions to the tribal society of a particular geographical entity. Understanding the local peoples' indigenous knowledge in relation to biodiversity/resources management is one of the key issues for the development today. However, due to changing perception of the forest dwellers and due to commercialization, globalization and socio-economic environment transformation all over the world, there has been a general observation that the livelihood pattern/opportunity has changed severely. This changing and challenging livelihood pattern of the tribes had been a major concern for social scientists as well as planners and administrators.

In this backdrop, the National Seminar on Tribal Livelihood: Challenges and Opportunities has been organised by the Centre for Rural Studies, Department of Rural Management and Development, Tripura University with the financial support of Tribal Research Institute, Tribal Welfare Department, Government of Tripura on 20th and 21st July 2013 was organised to address the much needed issues of Tribal Development. The broad objective of the National Seminar was to create a platform so that the overall situation of tribal livelihood in India and particularly in Tripura can be discussed. The seminar also tried to capture the best practices on promotion of tribal livelihood, the challenges generally faced in implementing the practices and policy prescription for future to come out with better livelihood situation for tribals in Tripura. The two days seminar has been divided in six sessions to capture different dimensions of tribal livelihood and related issues. The subthemes, within which around thirty one papers had been short listed are as follows -

1. Conceptual and methodological understanding of tribal livelihood and assessment.
2. Cultural values, ethics, norms, adaption of strategies.
3. Management of resources, conflict solutions, negotiations and governance.
4. Gender aspects and social change.
5. Policy, Entitlement, Empowerment and Property.
6. The role of institutions, including the interrelation between local communities, educational and training institutes, NGOs and the state (various Government departments).

The first session concentrated on the concept and methodological issues of the assessment of tribal livelihood.

The 2nd paper presented in this session was authored by Mr. Jatan Kumar Diwan and Moungh Thowai Ching titled "Green Hill- A Successful Model to Graduating Tribal People from Extreme Poverty in the Chittagong Hill Tracts, Bangladesh". The paper portrays that the region is among the extreme poverty driven region of Bangladesh. The paper has depicted how the Green Hill introduced an innovative development model in 2009 with the support of SHIREE-UKAID and uplifted 1200 extreme poor households, ensuring food security, dignity along with improved livelihood.

The second session tried to capture the importance of cultural values, ethics, norms and adaptation of strategies to tribal livelihood. Biswanath Gupta presented his paper on Biopiracy and the Battle of Traditional Knowledge Rights over Patenting of Traditional Uses by the Tribal People. In this paper the author has opined that though the uses of earth's vast ecology and their uses has been discovered by the indigenous people over centuries but due to inability

to conduct research on such issues they are not properly protected and used. To solve this problem author suggests developing database management and prospective agreement through proper patenting.

Suman Ghimiray, Bipul Chhetry, Shakti Dutraj and Tulsi Sharma have presented their study titled “Sustainable Livelihood for Hills: A Case Study of Lepcha”. The paper portrays that tribals in different parts of the world significantly depend on nature. The paper presented in the seminar captures the sustainability of the livelihood of the Lepchas in Sikkim and Darjeeling Hills and their future prospect for sustainable livelihood. The next paper presented in the session was titled as “The Moving Realities in Chakma Society” by Rita Chakma where the author has tried to portray the dynamics of livelihood in Chakma society through some aspects of their cultural values and life style vis-à-vis the changing scenario. The third paper presented by Debabrata Barai titled “Sericulture and Traditional Craft of Assam: With Special Reference to Tribal Livelihood” has discussed the balance between the age-old sericulture and traditional crafts as means of livelihood in Assam and the modern contemporary life style. The paper focuses upon the art and crafts of the North East Tribes and its appeal to their lives. The paper titled “Livelihood Security through Conservation Agriculture in Tripura”, authored by Gulab Singh Yadav, M Datta, C Debnath and Subhash Babu depicted the risk factors of rain fed rice monocropping in Tripura. They have found in their study that conservation tillage/RCTs practice in maize-based cropping system are cost effective, restore soil organic carbon, conserve water and produce almost similar yield as in conventional tillage. Hence, practice of conservation tillage in medium upland, medium lowland and low land ensure better farm income. The next paper presented in this session was authored by Dr. K.C. Tiwari. The paper was titled “Contribution of Linguistic and Livelihood Pattern of Tribals in Nagaland, toward Employmentability” where the author tried to focus on the employment pattern amongst the Naga tribes in rural and urban areas, employment trends of Naga tribes in Indian army, unemployment trends in Naga tribes and restoration of traditional linguistic, social and cultural values for achieving better employment pattern in the Naga tribes.

The third session of the seminar focused on management of resources, conflict solution, negotiation and governance and there were seven papers presented in the session. The paper authored by Prof. Md. Safiul Islam Afrad, Foyez Ahmed Prodhan and Dipanwita Bhattacharjee titled “Agriculture and Tribal Livelihood: Experience from Chittagong Hill Tract of Bangladesh” aims to discuss, through their review study, the socio-economic conditions, agricultural production and livelihood situations of the indigenous people of Chittagong Hill tract of Bangladesh. The study has come out with suggestion that a single policy cannot assure the development of the tribal people of the region, hence, mixed policies have to be followed. The next paper authored by B Haldar, B Deb Barma, J Deb Barma, M. Hzorika, D. Chakraborty and M. Datta titled “Capacity building of the Tribal Farmers through Piglet Production Farming System under Tribal Sub Plan” pointed to the method of capacity building through piglet farming. They opine that piglet farming is new in Tripura and keeping in mind of scope of piglet farming Indian Council of Agricultural Research, Tripura Centre has started to provide hands on training to the farmers on piglet farming for the improvement of piglet production in an efficient manner.

They have found through a family-based micro survey that the training activity has increased piglet production in one year. The third paper authored by Bibhu Santosh Behera, Anam Charan Behera, S.K. Rout and B.P. Mohapatra titled “Contribution of Forests as a Sustainable Livelihood Approach in the Context of Tribal Economy: A Study from South Odisha” points to the importance of ecosystem services for human well being which can be accrued through environmental income. The present study investigates the issue of economic dependence on forest resources of the tribal community living around Ghumusara South Forest Division in the Ganjam district of Odisha. The authors have found out significantly high rate of participation by the tribal people in forest extraction and high proportion of forest income in household income, which increases with total income. The study proposes tribal friendly forest policy and forest base approaches to alleviate poverty. The fourth paper was presented by Dr. Rajesh Dubey which was titled “New Energy for Livelihood: Energizing to Power the Tribal Rural Poor”. In his paper Dr. Dubey has emphasized upon the hybridization of traditional knowledge with modern technological blend. He has opined that to assure improved well being through productive, social and environmental asset generation, the focus should be more on supporting innovation systems and should be demand driven having close link with clients. The paper suggests more of research on agricultural innovation through projects on the focused areas. The next paper was presented by Dr. Somenath Bhattacharjee titled “Role of Environment in Tribal Livelihood: Issues and Challenges”, where the author focused on the role tribals play in nurturing and preserving their natural environment. The paper tries to emphasize on the importance of tribal knowledge in preservation of natural environment in rural areas and to use the knowledge to achieve sustainable development. The sixth paper authored by L.C. Patel, D. Nath, N. Islam, S. Biswas, A.K. Nath and B. Das titled “Dissemination with Outcome of Climate Resilient Agricultural Technologies in A Tribal Village of Tripura” has conducted their study in North Pulinpur village, a water stressed village in West Tripura, which is a tribal village. The objective of the study was to develop required skills of the tribal people for alternate agricultural and allied adoptions against their seasonal rain fed monocropping. It has been evident from the study that after construction of community watersheds and rejuvenation of village ponds the agricultural productivity has increased significantly. Besides, the rural women farmers are also earning through their secondary income sources through rearing of poultry birds, scientific pig rearing, composite fish cultivation and vermicomposting. The next paper authored by Dr. Samar Kumar Biswas titled “Challenges of Tribal Livelihood: A Study with special reference to North Bengal” where the author has portrayed the challenges rural tribal people face in achieving livelihood in the region. In his paper the author has provided a general view about the indigenous people of India, with special focus to the tribals residing in North Bengal for a prolonged period of time. Author has opined that the tribals in West Bengal are facing problems of land alienation and deforestation and the section engaged in agriculture is becoming landless labourers. Hence, the author has opined that Government shall be sincere in making policies related to land, forest and water rights for the development of the tribals. The next paper of the session was authored by Dr. Arobindo Mahato and Ms. Barnali Roy titled “Impact of Rubber Processing among the Tribal Community in Tripura: With Special Reference to Livelihood and Environment”.

In this paper, authors have tried to examine the impact of rubber processing on the livelihood of tribal people in comparison with its impact on livelihood of non-tribals. They have also tried to examine the impact of rubber processing on environment. The study found that rubber processing has overall significant negative impact on health and environment and the case is more severe for the tribal people involved in the process. However, the study also found that rubber processing has increased the income of both tribal and non-tribal communities. Hence, government should have a deep look in the policies for expansion of rubber processing. The final paper of the session authored by Sandip Sinha titled “Livestock based Livelihood: With Special Reference to Piggery” focuses upon the role piggery can play in assuring rural livelihood for the tribal people. The present paper tries to evaluate the enormity of livestock in livelihood among the rural tribes, with primary focus to study the piggery management system and their constraints in rural Tripura, along with the contribution of piggery in rural livelihood. The paper has concluded with the findings that piggery has immense potential in the promotion of livelihood as there exists huge potential pork market within and outside the national boundary. Though, there are certain drawbacks for which it has not been flourished, but implementation of all the codes of scientific farming will be able to trounce the deadlock.

The 4th session focused upon the gender aspects and social change and its impact on tribal livelihood. In this session the first paper titled “Rights of Women over the Means of Livelihood in Nagaland: A study of Angami Tribe”, authored by Nazmul Hussain Laskar focuses upon the terrace cultivation practice among the Angami tribes. The paper tries to capture the women’s changing property rights and control over the means of livelihood in Nagaland, particularly for the Angami tribes. The paper discusses the occupational structure of the Nagaland, especially among the Angami tribe, the change in the property right enjoyed by the women and the change in the right along with its impact on livelihood. The second paper presented in the session was authored by Dr. Swapna Biswas titled “Change of Occupational Pattern among the Tribal Women in Tripura”. In the study, the author tried to estimate the socio-economic positions and the changing occupational patterns of the tribal women in Tripura. The study finds that over the years the literacy rate among the tribal women has increased significantly that have boosted up the moral of the tribal women. Moreover, the reservation policy of the Government has also provided an impetus to the tribal women and in turn, helped them to come out from their traditional jhum cultivational practice. The third factor reasonably improved the situation, was the movement from shifting cultivation towards rubber plantation. The next paper presented in this session was titled “Sericulture: A Challenging and Prospective Livelihood for Tribal Women in Tripura” authored by Soma Datta and Sharmistha Chakroborty. The authors have examined the role of Sericulture in Tripura to generate livelihood. They have portrayed that the Sericulture was started in Tripura during 1973-74 and in recent period it is implemented through cluster approach. The authors have also mentioned in their study that in almost all the districts of Tripura, except Unakoti, Sericulture practice is seen. With the help of primary data the authors have found that due to the development in both productivity and quality of silk, the economically challenged tribal women can now earn better and can enjoy greater social status. The forth paper of the session was presented by G.B. Singh, T. K.

Biswas, B.B. Bindroo and Nirmal Kumar titled “Sericulture – An Opportunity to Meet Livelihood Challenges of the Tribal Women”. In this paper the authors tried to capture the Sericultural practice of the tribal women of Champaknagar cluster of West Tripura where the tribal women were between 31 to 54 years age group and are either illiterate or poorly literate. The authors suggested that steps must be taken to motivate the tribal women to take silkworm rearing in an organised and scientific manner and for that production of quality cocoons is going to play a crucial role.

Session 5th of the National Seminar tuned the focus towards policy, entitlement, empowerment and property. The papers in the session discussed various aspects of tribal livelihood on the subtheme. The first paper presented in the session was authored by Dr. Ratan Deb titled “Financial Inclusion amongst Tribals in North East India: An Analytical Study”. In his study the author aims to examine the level of financial inclusion among tribal of North East India with special emphasis to Tripura. Mentioning the financial exclusion that is prevailing amongst the backward section of the population, the author tries to assess the financial literacy of the tribal and level of financial inclusion among tribal of Tripura. The author has also taken the pain to study the initiatives taken by the Reserve Bank of India on financial inclusion to promote inclusive growth. The second paper of the session was authored by Dr. Chandan Kumar Panda, titled “Empowering Tribal People for their Sustainable Livelihood: A Structural Alteration”. In his paper the author emphasizes upon the structural alteration under the quasi federal system of governance. The paper stresses upon democratic decentralization, as the starting point of empowerment that is over time shifting from administration to participatory nature of decision making. Hence, the author proposes structural change to bring in functional change to assure sustainable livelihood of tribal people. The next paper presented in the fifth session was titled “Sustainable Tribal Livelihood through Entrepreneurship Development” and authored by Mr. Sankha Pallab Chakrabarti. The author in his paper attempts to describe the role of Entrepreneurship Development Institute of Tripura plays through the entrepreneurship development among rural unemployed youth with special attention to the schedule tribes in the small state of Tripura.

The 6th session of the seminar provided the platform to discuss the role of institutions, including interrelation between local communities, educational and training institutes, NGOs and various State Government Departments. The first paper presented in the session was authored by Dr. Ala Uddin, title “The Role of Education in Livelihoods of the Chittagong Hill Tribes in Bangladesh”. In his paper the author frames the role of education in changing pattern of livelihood of the tribal people living in Chittagong Hill Tracts. The author has nicely narrated the livelihood condition of the hilly people of Chittagong and the evolution of their condition over centuries. Using both secondary and primary information the author examined the role of education, not only to improve the livelihood of the people in the Chittagong Hill region, but also its importance in building peace in the post-conflict hilly region. The second paper presented in the session was authored by Ms. Soma Debnath and Dr. Paramita Saha. The paper was titled as “A Pathway out of Poverty – MGNREGA as a Livelihood Option for Rural Tribal People in Tripura, India”. In this paper the authors seek to explore the extent of benefits or social security received by the tribal population. In the exercise authors have used both secondary

and primary data and they have come out with the findings that though the MGNREGA is unable to bring drastic change in the livelihood of the tribal people but it has many positive impacts over their life. The next paper of the session was authored by Mr. Sanjoy Das and Dr. N.B. Dey titled “Opportunity of Tribal Livelihood: Role of Higher education in Tripura”. In their paper, the authors aim to examine the opportunity extend by the higher education system of the state to maintain a meaningful livelihood of the tribal population of Tripura. The authors have tried to cover different aspects of livelihood through the facilitation of higher education to the tribal population. The main objective of the paper is to examine the linkage between livelihood opportunities and indicators of higher education development. The forth paper titled “Promotion of Tribal Livelihood through MGNREGS: An Assessment in Tripura” was presented by Ms. Solanki Debnath and Mr. Pran Krishna Banik. The authors, in their paper focus on the assessment of performance of MGNREGS in Tripura and its impact on the lives of rural tribal people. The study was conducted in two blocks of Tripura, namely Hezamara and Rupaicharri of West and South districts respectively. The study shows significant improvement in the supplementary income of the tribals in both the districts to fulfill basic needs but the non-food expenditure has not marked significant change. Hence, MGNREGA has positive impact on the livelihood of the rural tribal people of Tripura. The final paper of the sixth session was presented by Dr. Md. Arshad and Md. Selim Reza titled “Bamboo Value Chain Development – A Doable Tribal Livelihood Promotion in Tripura, North East India”. In their paper, authors have examined the role of bamboo value chain management in rural tribal livelihood. Authors, in the present study have focused on the bamboo value-chain aspects in light of knowledge management, livelihood promotion, networking and partnership for tribal livelihood promotion in the small North Eastern state of Tripura.

Dated, Agartala :

**Jayanta Choudhury
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**Understanding and
Assessment Tribal Livelihood**

Green Hill - A Successful Model to Graduating Tribal People from Extreme Poverty in the Chittagong Hill Tracts, Bangladesh

Jatan Kumar Diwan and Moug Thowai Ching

Introduction

The national poverty headcount rate in Bangladesh has declined to 31.5 percent in 2010 from 40 percent in 2005, according to the 2010 Household Income and Expenditure Survey (HIES). However, despite considerable gains made in the last decade, 17.6% of the population are living below the poverty line and are considered extremely poor (source: HIES, BBS, 2010).

The CHT region consists of three districts: Rangamati, Khagrachari and Bandarban, and unlike other regions in Bangladesh, the CHT is elevated and hilly. It is also the home to 11 ethnic communities who have their own language, enriched culture and tradition. Chakma, Marma, Tripura and Tanchangyas are the largest ethnic communities in terms of population size, advantageous position in education and development. The majority religions are Buddhism and Hinduism. However, a good number of other ethnic communities also follow Christianity. Anthropologically, the ethnic communities represent the Tibetan, Burmese and Mongolian races. The population of the three hill districts is 1.59 million (National population census, BBS, 2012) of which more than 50 percent are part of ethnic communities.

Despite significant development efforts of the Government and other agencies, the CHT still remains one of the most poverty stricken regions of the country. The region experienced political unrest for more than two decades that significantly affected the development process. In December 1997, the Government and local ethnic leaders who had been fighting on behalf of the ethnic communities for self-determination signed the CHT Peace Accord. This opened the region to social and economic development and brought in a number of local, national and international organizations.

Green Hill was established in 1994 by a local philanthropists and dedicated young group of leaders who aspired to bring about change in the development field. Green Hill aims to empower the poorest with a special focus on women, children, and the extreme poor, vulnerable

and ethnic communities living in hard to reach hill areas of the CHT. The organization has been actively engaged in building partnerships with different nationals, regional Himalayan-based¹ and international development partners and donors to empower the extreme poor in the CHT.

In 2009, Green Hill signed a contract with SHIREE (Stimulating Households Improvements Resulting in Economic Empowerment) to contribute toward the Economic Empowerment of the Poorest (EEP)², Green Hill undertook a small innovative project: Improving Markets and Poverty Alleviation through Cash Transfer (IMPACT). Green Hill involved International Development Enterprises (iDE), Bangladesh as a sub-partner to provide need-based technical assistance on agriculture and market development. The project ran from November 2009 to October 2012, targeting 1,200 extreme poor households.

IMPACT: Testing New Innovations to Bring Households out of Extreme Poverty

Among the three hill districts the severity of extreme poverty is found highest in Bandarban Hill District followed by Rangamati and Khagrachari (source: Updating Poverty Map of Bangladesh, 2009). The three hill districts contain some 25 upazilas/sub districts. Out of 25 upazilas, 11 upazilas have severe extreme poverty and 8 upazilas have medium level extreme poverty. The remaining six upazilas have a lower level of extreme poverty. Green Hill has set the following criteria for the selection of extreme poor households in light of the CHT context (see Table-1).

Insufficient economic opportunities, lack of access to markets and public services, food insecurity, health and nutrition vulnerabilities are some of the major constraints the extreme poor face in lifting themselves out of poverty. The local market is mainly controlled by mid-level brokers who deprive the extreme poor of fair prices for their agro products. Furthermore, extreme poor families often experience social deprivation and negligence. They are rarely involved in the social decision making process and due to their lack of voice and social capital they are often deprived of access to government safety nets. Considering the challenging context of the region and severe extreme poverty faced by thousands, Green Hill with support from EEP/shiree decided to test an innovative intervention aimed at supporting sustainable livelihoods for 1200 extreme poor households.

Project Summary

The IMPACT project ran from 2009-2012 in four Upazilas of Rangamati and Bandarban Districts in the CHT. The **Goal** of the project was to reduce extreme poverty and hunger in the proposed working area. The **Purpose** of the project was to create income opportunities for 1,200 extremely poor minor ethnic community households. Green Hill supported beneficiaries to create agri-businesses of high value crops as well as establish local markets with a workable marketing system (value chain) with external markets in order to stimulate the local micro-economy in the CHT and beyond.

Beneficiary recruitment was staggered across the three years of implementation with 200 households recruited in the first year, 400 in the second and 600 in the third. Uniquely amongst the shiree portfolio, the bulk of the project implementation was focused on the first year of

beneficiary enrolment with limited support for BHH in subsequent years. Conditional cash transfers were dispersed in three instalments during the first year of enrolment. The first transfer totalled between BDT 1000-3000 and was conditional on the purchase of food, payment of old debts and participation in programme training. The second instalment of between BDT 2000-4000 was earmarked for investment in a suitable agricultural enterprise and the third transfer, of a value between BDT 5000-7000, demanded additional investment in IGAs and basic household needs. Beneficiaries were grouped into clusters for the purposes of training based on their planned agribusiness. 'Collection points', intended to act as temporary markets to link produce with buyers, were established according to the geographic distribution of BHH.

The IMPACT project had three main outputs: the delivery of conditional cash transfers (the main innovation given that this modality was as yet untested in the context of the CHTs); the development of agro-businesses and improved market development in the working area; and the establishment of several collection points to facilitate improved market linkages. The conditional cash transfer element was designed to help BHH meet immediate needs including healthcare, school fees and consumption, therefore enabling them to comfortably invest later transfers in the development of a sustainable income generating activity (IGA). Green Hill partnered with iDE (International Development Enterprises) who were mandated to provide expert technical assistance in market and value chain development as well as the use of improved agricultural technologies.

The Innovation: Conditional Cash Transfer and Market Development

In the typical context of the CHT, the extreme poor often work as day labourers. Physical fitness is the only asset for them to manage food in the family. They do not have any other alternate source of income to buy food. Even though they remain physically fit they cannot always sell their labour. As a result, they are unable to manage food year round because of their income fluctuation. Due to lack of basic health services they often fall sick and have to depend on the mercy of other family members in the village. To improve their livelihoods, their children need to have access to education. However, due to lack of money they cannot afford school fees, clothes and the cost of buying books. Under these circumstances, the project introduced a conditional cash transfer system that ensured their food supply. Furthermore, while providing need-based cash they were motivated to fulfill some conditions, e.g. join in awareness raising sessions and skill development training, access to basic health services, education and proper utilization for suitable Income Generating Activities (IGA). IMPACT was a demand-driven conditional cash transfer (CCT) programme, which enabled agricultural and enterprise investment for the extreme poor through improved household conditions. Based on actual needs the first conditional cash stipend BDT 4,729 was given followed by awareness building and skill development. Once households met their basic needs, the second CCT BDT 2,158 was given to undertake an IGA and beneficiaries were provided access to basic health services and education. The third CCT BDT 4,255 disbursement was for additional investment in the IGA and was supplemented with market development and village savings and loan scheme.

The innovation was two-pronged. It combined the CCT approach with a market development approach to bring the extreme poor out of poverty, reduce their dependency on loans and improve their livelihood opportunities. Also, both approaches were implemented in the CHT for the first time. Participation of the community, specifically the village headman as well as local administration, was built into the delivery of project activities. The involvement and approval of the wider community, local elite and village leaders, was crucial to smooth implementation of the project.

How did CCT work?

IMPACT provided beneficiary households (BHHs) with cash transfers to help meet their basic needs. This allowed them to improve their health, resilience to shocks, and enabled lifestyle changes, such as sending children to school. With awareness building and their basic needs met, BHHs were enabled to use IMPACT's financial support and skill training to invest in an IGA, ensuring an increased sustainable income.

How did Beneficiary Households (BHHs) receive cash?

IMPACT provided BHHs with a CCT Card, which listed a menu of available transfers. These transfers were identified as responding to potential barriers to IGA development. Transfers were also available for directly developing IGAs. Three times a year, BHHs were invited to claim for the transfers they needed and cash as disbursed according to their demands. Emergency claims (to visit the doctor or available in the case of serious emergency), were available at any time during the project cycle. This prevented shocks from hindering the graduation of BHHs from extreme poverty.

How did we ensure BHHs used the money responsibly?

Each transfer had a condition. Conditions were regularly monitored, and if they were not met, BHHs were entitled to fewer claims at the next claim period.

On an average, BDT 12,287 was provided per BHH out of which BDT 11,287 (93%) was provided to BHH as a direct cash transfer. Additionally, BDT 825 (7%) was provided as in kind support that included cost of awareness sessions, skill development trainings, learning exchanges and village saving loans.

Lessons Learned

The IMPACT project proved challenging and the innovations itself went through a number of changes within the first year. The selection criteria of extreme poor households changed from a monthly income of 1,500 BDT to 2,000 BDT due to targeting difficulties in the first year. First year beneficiaries were initially receiving rice for attending trainings, but it was found that money was more useful so they started distributing small cash stipends at trainings. Green Hill also increased the IGA package from 3,000 BDT to 4,000 BDT in the second year and they also began distributing mosquito nets due to the high levels of malaria in the region. Health was realized to be a major barrier to increasing their gains and as such they decided to increase their emergency health support package from 500 BDT to 1000 BDT per year. Other changes

included moving the working area in order to avoid households who had taken out loans or credit from an MFI as well as some minor changes in the intervention package amounts. Green Hill also included five elderly beneficiaries in the first year and in order to effectively meet their needs, they incorporated a caretaker system to ensure they had sufficient support.

There were also specific intervention related challenges. At the beginning of the project, Green Hill found difficulties in explaining and understanding the CCT module and in some cases the beneficiaries would select an unsuitable IGA, but project staff could not tell them otherwise. Furthermore, there was always the risk that beneficiaries would use the CCT on something other than their IGA. In order to ensure transparency and accountability with beneficiaries, Green Hill decided to use the CCT card as a self-reflection on activities and progress. This also allowed field staff to monitor progress. It was also found that CCT was more effective when it was disbursed at the appropriate time (i.e. earlier in the production season).

The context of the working area proved very challenging. The remoteness of working area was an overarching problem throughout the project. The field officers would sometimes carry a lot of cash to remote areas for the cash transfers; although there were no robberies, it was a risky transaction. The use of context specific visual flashcards proved to be very helpful in explaining the project and monitoring change among households. The income earned from main IGAs gradually allowed beneficiaries to undertake additional IGAs and secure multiple income sources.

Baseline to Endline Survey Findings

The objective of the Endline Study was to assess the change in socio-economic status of the project beneficiary households since the baseline in 2009. From the Green Hill IMPACT project, 64 representative sample households were randomly selected to carry out an endline study. Taking advantage of the uniqueness of the household identities, the same 64 households were selected from the baseline database (which had been compiled as a census of all beneficiaries) to compare change.

Trained enumerators carried out interviews primarily of household heads on their socio-economic conditions using a pre-tested semi-structured questionnaire focusing on the following indicators:

- Demographic characteristic
- Household Assets
- Household income
- Household expenditure
- Loan and saving status
- Access to safe water, sanitation, electricity
- Housing condition
- Food security
- Access to safety nets

It should be noted that the data for the endline study for all the projects was collected during the same time period, but the baseline data was collected phase by phase at different times and seasons. Moreover, the data collected for the endline study was conducted by more

trained enumerators in comparison to the data collectors of the baseline information. Therefore, the data may contain seasonal variations particularly related to economic activities in the rural context where agriculture is the single largest employment sector. It may also contain some variation due to the different levels of understanding and experience of data collectors. In the following section summary findings from Green Hill's project are presented only on household income, expenditure, assets and savings.

Mean distribution of household monthly income (cash and kind)

Endline findings indicate a considerable change in income. The mean income in baseline was 1,663 BDT and SD 679 BDT while in the endline the mean monthly income is **13,788 BDT** and SD is **11,829 BDT**. The mean increase in income is 12,154 BDT. Here income includes both cash and in kind.

The mean monthly household cash income at the baseline was 1,435 BDT which increased to **9,811 BDT** at the endline. Similarly, change is also observed in kind income. The mean in kind income at baseline was 199 BDT while at endline it is **3,977 BDT**. Increased involvement in agriculture related activity might be responsible for this considerable increase in kind income which requires further investigation. Moreover, the daily per capita mean income also increased considerably between baseline and endline. The mean daily per capita income in baseline was 21 BDT which increased to **145 BDT** at the endline.

Endline findings indicate that income (cash and in kind) for 100 percent of households increased by more than **55 percent** in comparison to baseline.

After inflation adjustment for 2011, the percentage of households remaining below the extreme poverty line (daily per capita income below 48 BDT) at the endline is **34 percent**. However, **66 percent** of households have crossed not only the extreme poverty line but also the poverty line and their daily per capita income exceeds 55 BDT. The percentage of non-poor households increases further if kind income is included along with cash income. At the endline **75 percent** of households fall under the non-poor category and the percentage of households earning less than 48 BDT has decreased to 22 percent.

Expenditure

Endline findings indicate a considerable change in monthly expenditure. The mean expenditure at the baseline was 1,871 BDT while at the endline, the mean expenditure is **8,409 BDT**. The mean increase in monthly expenditure is 6,538 BDT. Here expenditure indicates cash expenditure and includes irregular expenditure such as house repairs, furniture purchases, etc. The daily per capita expenditure in the endline is **56 BDT** while in the baseline it was 22 BDT

Assets ownership

Increases in income may result in increases in assets. Endline findings indicate that considerable change is noticed in ownership of assets particularly under livestock, poultry and household categories. In the baseline most households did not own any poultry (88 percent), livestock (77 percent) or household belongings (100%). However, according to endline, **73 percent** of households currently have livestock and **44%** of households have more than three poultry assets.

The value of assets was not collected during the baseline. Furthermore, the endline information includes value of assets transferred under the projects. As such, it is difficult to mention anything about the change in value of assets since the baseline. Nevertheless, general shire selection criteria of the extreme poor is that all beneficiary households do not own assets that value more than 5000 BDT and the mean asset value of Green Hill project transferred assets is 10,295 BDT and the present mean asset value of Green Hill beneficiary households is **30,984 BDT**

Savings

Endline findings indicate that mean monthly cash income is more than mean monthly expenditure which indicates the possibility of cash savings by households apart from asset purchases. The endline findings on savings indicate change since the baseline. At the baseline no households had savings but endline findings show that **98 percent** of households have some amount of savings of which 55 percent have between 1000-5000 BDT, 13 per cent have between 5001-10,000 BDT, and 5 percent having savings between 10,001-15,000 BDT respectively while 5 percent of households have savings between 15,001-20,000 BDT.

Conclusion

In the typical context of the CHT, it is a herculean task to make a dramatic change in the lifestyle of the extreme poor within a short time with limited resources. Nevertheless, the project has successfully contributed in ensuring the basic livelihood requirements of the extreme poor. The change is not just limited to their economic empowerment but socially as well. They now enjoy an improved social class, dignity and positive behavior from other village members. However, some additional technical support could be continued to reinforce their economic empowerment. In the challenging environment of CHT, the project has proved to be a successful model for future replication. Accordingly, it is currently under process to be scaled up to cover an additional 2,500 extreme poor households.

The project has clearly demonstrated its potential to be replicated in other suitable areas at both home and abroad. The process of CCT disbursement has directly contributed to building economic empowerment of extreme poor families. It has primarily ensured sufficient annual food supply for them. Secondly, it has helped them build linkages with service providers to access basic health services, education and agriculture extension services and other inputs. Thirdly, the process has enhanced their IGA management skills allowing them to undertake additional IGAs. Fourthly, they are now empowered and involved in the community and social decision making process. For the first time for many of these families, they are now able to work toward a better future for themselves and their children.

TABLE 1: Selection Criteria of Green Hill for IMPACT Project

Essential Criteria	Supplementary Criteria
Consumption of meat or fish less than one day per week (except dried fish/napi)	One income earner
Currently cultivating less than 10 decimal of land (Jum land ¹ only)	No education
Household income is less than Tk. 2,000/month.	Illness-affected, and unable to afford to go to the doctor
Daily labour is only source of income for 12 months of the year	Widowed
No outstanding formal credit from any MFI (with the exception of consumption loans for food and medical emergencies)	No fixed assets (furniture, radio etc)
Productive assets value less than Tk. 1,000/-	Old age
No savings	Do not receive government safety nets

Annex 1: Findings of Focus Group Discussions

Part of the lesson learning process was to hear from the beneficiaries on how they perceived the impact of the interventions on their livelihoods. For Green Hill, two Focus Group Discussions were conducted in which approximately 19 male and female beneficiaries were interviewed to gauge their experiences with the interventions. Each FGD took two to three hours and was conducted by a three-person team: one shiree Programme Manager; one shiree Young Professional; and one Research Assistant¹ for help with translations. The discussions focused on discovering key findings relevant to economic empowerment given the geographical and social contexts of the working area.

As the FGDs were conducted in similar settings and the interventions were the same, the findings have been summarized as one.

Economic Security

All of the group members have some savings now both in kind and cash savings. Some have started saving in a local community savings scheme. They are all involved in multiple IGAs and have been gradually increasing their income since joining the IMPACT project. During the lean period they have some small vegetable production that provides enough income and they can grow papaya which is a year round crop. Some of them are trying intercropping, but as it is a new IGA for them they are nervous that they will not have the proper training to do it well. As such, they are continuing with their original IGA since they are well trained in it.

Empowerment and Confidence

Other people in the community have seen their transformation and now show them more respect than before. They are now seen as active community members. They are invited to community and religious events and are respected by community elites. They have increased their bargaining power with shopkeepers and social/political leaders, which they never had before. They also think they can further improve their positions in the community. They are all forward thinking now and keen to invest in their future, particularly the education of their children. They are also thinking to build bigger houses for their families.

IGA suitability

They have all selected their own IGAs with some advice from Green Hill. They all agreed that the best part of the project for them was that Green Hill provided them with cash and gave them the freedom to choose their own IGAs as well as use some of the money to meet their basic needs. Their money was better because it gave them the freedom to purchase what they thought was needed (i.e. better quality seed).

Some of them are growing turmeric or other vegetables, others are working with livestock. Since they were able to choose their own IGA, they have an increased level of ownership over their work. They also all received training specific to their IGAs, which has helped them maximize their benefits. They feel that the whole package was really useful for them and successful :

- The cash stipend allowed them to invest in an IGA that they chose based on their interest and knowledge
- The education stipend provided their children with education
- The sanitation interventions improved their health and made them feel better overall
- The trainings have given them lifelong skills on how to successfully and sustainably manage their livelihoods

The elderly people of the community explained that the field work is difficult for them to manage and they require some extra support from community members. The most suitable IGAs for them are small handicraft production.

Gender Awareness and Household Dynamics

They used to argue a lot in their household, but now they work together to have peace in the family. They all work together as a community and when they see that other families are quarrelling they try to resolve the conflict. They have received some training sessions from Green Hill on family solidarity and the importance of respect. They are encouraged to work together as a family. In most families, the women manage the savings. Both husband and wife have a mutual understanding of spending patterns. The men are in favour of the women controlling the business and money, but the decision making process is shared. They also try to include their children in household decisions.

Improved Health and Nutrition

Before working with Green Hill, they had very poor health. They used open latrines close to their homes and were very unhygienic. Now they have improved sanitary facilities and have been trained in proper hygiene and health. They have higher working capital because they are not as sick as often as before and have more energy to work in the fields. They also have improved nutritional intake with higher vegetable and protein consumption. They have access to local government health facilities for free treatment but it is only good for minor things and doctors are not always available. For more serious cases they have to go to the Christian Hospital. They received counseling from the local health facilitators that move from village to village. As Bandarban is the closest town with proper maternal health care facilities, it is important that they have knowledge of basic health care practices.

Community Engagement and Mobility

They have increased mobility in the village community because they have to move to meet traders and purchase agricultural inputs, such as seed and fertilizer. They feel they have had a radical change in their mobility now and they are all involved in community events. They have good relationships with other group members and have developed relationships with market actors. They also have increased negotiation power in the community. They receive respect from others and are greeted with formal titles. The community has been accepting of Green Hill's initiative to work in that area and they support the beneficiaries' progress. Other families have seen how they have progressed and are interested to get involved in the trainings and learn from the Green Hill beneficiaries on how to improve their production.

Access to Services and Market Engagement

The remoteness of the CHT and the lack of proper infrastructure (i.e. roads and bridges) results in many inhabitants having poor access to services and markets, particularly the extreme poor who often live in highly inaccessible areas. Part of Green Hill's intervention was to increase market access among adivasis in the CHT. Based on FGD findings, the beneficiaries responded to having improved access to markets through formed connections with market buyers facilitated by Green Hill. Now they group their products together so that they can sell it to the main market for better prices. They all receive fair market prices and are connected to Local Government Service agents. One group set up a storage system nearby where they store their products in bulk and a buyer comes to collect their products to sell at the main market.

They also have increased access to local services for vaccinations and immunizations. A local UNDP health clinic provides health services to them as well and the elderly and widows in the group all receive access to Social Safety Nets. The children are all receiving school stipends and are now attending school.

Environmental Challenges

They face some problems with irrigation as they do not have efficient water storage systems. A large herd of elephants also live nearby in the forest and sometimes cause problems for them. The elephants will come down from the forest and destroy their crops, not leaving their land for days. Tornados and high winds are also a concern for them.

Sustainability

All of the beneficiaries agreed that they would continue with their IGAs post Green Hill and that they will try to improve their livelihoods as much as possible. They have also all managed to save some extra funds and they try to keep some assets at home in case of a shock. They have group savings that they can take loans from without interest in case of emergency. This can be used as a coping mechanism if a shock happens. They feel confident that they can meet their basic needs.

End Notes

¹ From "International Centre for Integrated Mountain Development (ICIMOD), Nepal perspectives the region refers a region consists of 8 countries, Afghanistan, Bangladesh, Bhutan, China, India, Nepal, Myanmar and Pakistan.

² A nationwide programme supported by UKAID from the British People and implemented by Rural Development and Cooperative Division (RDCD) of Ministry of Local Government Rural Development and Cooperatives (LGRD&C) of Bangladesh.

³ Jum land: Like India, Nepal and Bhutan and many other countries of the world, the ethnic communities of the CHT significantly depend on jhum cultivation/shifting cultivation for their subsistence. According to the local context, the price of jhum land is significantly lesser than paddy land that exists in lower plain land.

⁴ Due to the local dialects of the CHT, the Project Manager from Tarango (a shiree pNGO) joined the FGDs to assist with the translations. In this case, a Research Assistant was not required.

Integrating Tribal Peoples' Voice and Livelihood in the Mainstream Development of India - Issues for Concern

Pranaya Kumar Parida

Introduction

The aboriginal tribes of India are the oldest inhabitants of the country. For millennia, tribal societies have been subjugated by more recently arrived groups; their land was taken away, they were pushed further into the hilly gorges and wilds, and they were forced to work for their oppressors often without payment. Today tribal groups, which number more than 40 million, require special attention from the government even though they live largely isolated from the national culture. In the past, many tribal groups were forced to assimilate into the dominant culture of the country. But some groups, such as the Bhils, Gonds, Santals, Oraons, Mundas, Khonds, Mizos, Nagas, and Khasis resisted change and assimilation to maintain their cultural identities and languages. According to many Indians, their continued isolation poses problems to national integration. Under various development programmes, the government of India and various state governments are trying to bring them into the national mainstream.

In recent political history of the Indian republic is witnessing tremendous amount of unrest, protest and rebellion against the political regime or the state itself by number of sub-altern groups. Hence naturally the question arises what are the problems of these 'sub-alterns'. The fundamental question is why this is happening in such a manner today? Though the tribal part of the country are full of natural resources, forests, minerals, the tribal's are at the bottom of everything. Hardly any parameter of the so called 'development' has reached to them, i.e.- primary schools, primary health centres, land holding for them who has accepted agriculture as occupation - whatever miniscule it may be, village networking roads, all these are lacking. A tribal is not feeling as a part of the state system. Their alienation from the State and the larger society is increasing day by day including land alienation. The massive exploitation by petty contractor, forest mafia, usurping land by big industrialists at a nominal price or free of cost, creating suspicion in the minds of a tribal.

Tribals in Contemporary India

India has about 532 scheduled tribes (STs) speaking over 100 different languages, with each tribe having its own ethnic and cultural identity. According to the 1991 census, the population of STs in the country was 67.8 million constituting around 8% of the total population. Over half the tribal population is concentrated in five states - Madhya Pradesh (15.4 million), Bihar (6.6 million), Orissa (7.0 million), Andhra Pradesh (4.2 million) and West Bengal (3.8 million). Madhya Pradesh accounts for 23% and Bihar 9.7% of the total tribal population in the country. Historically, tribal communities were characterized by a lifestyle distinct from agrarian communities. They subsisted on different combinations of shifting cultivation, hunting and gathering of forest products: all activities closely linked with forests. Their cultures celebrated and fostered this close bond with nature and emphasizing communal ownership and consumption, closely-knit kinship structures and minimal hierarchies.

The British colonial rule either appropriated their forests or drastically curtailed their access to them while suppressing shifting cultivation. It also imposed a system of revenue collection, which, while re-constructing natural communities into administrative 'revenue villages', also opened the doors for exploitative non-tribal moneylenders and traders to start settling in tribal areas. Tribal rebellions, both against State interventions curtailing their access to local natural resources and exploitation by outsiders, resulted in special laws being framed for many tribal areas in recognition of the unique self-regulatory cultural traits of tribal communities. The Scheduled District Act promulgated in 1874 delineated tribal areas as 'scheduled areas'. The Government of India Act of 1935 further classified these areas into two categories, i.e. (i) the north-eastern tribal region and (ii) other backward tribal regions. The former was totally excluded from the ambit of major Indian laws, whereas the latter were partially excluded.

After Independence, the tribals were accorded special rights and protection under Article 342 of the Constitution with the Government of India's tribal development policy aiming to bring them the benefits of economic development without eroding their traditional culture and identity. Independent India has continued with the 'scheduling' of tribal areas and tribes introduced by the British. Tribal areas outside the north-eastern region come under the Fifth Schedule of the Constitution. The State Governor or a Tribal Advisory Council Chair, can make special provisions for the administration of Schedule Five areas besides waiving or amending any existing law considered detrimental to tribal interests or in conflict with their traditional values and culture. The Fifth Schedule also makes the states responsible for promoting the educational and economic interests of the tribals and to protect them from social injustice and exploitation. According to the schedule, Central Government provides special financial assistance to the states under Article 275 for implementing schemes for the development of scheduled tribes. In reality the effect of this is not reaching to create benefits for the tribals. Apparently that is visible in the 'tribal alienation' across the states and the frustration of the tribals out of this, is gradually taking the shape of armed revolution against the state.

Tribal Assimilation to the Mainstream

Assimilation of tribal people into the mainstream with the rest of the population is one of the most important issues in this context. About assimilation, Kroeber (1948) is of the opinion

that normally, we may expect assimilation only when the outlook of one society is inclusive and when this society is definitely the stronger and its culture is more advanced. In India tribal people have come in contact with different Hindu and other communities and situations have different degrees of culture leading to assimilation in different parts. Some tribals have gradually accepted the Hindu way of life and others have converted to Christianity. This cultural contact has given rise to so many types of tribals and has created a set of different types of tribes on acculturation level. Assimilation of the tribals attracted a number of anthropologists. Prof. D.N. Majumdar said in 1947 that Hindu Influences responsible and gave a threefold classifications (i) real primitive, (ii) primitive tribe with degree of association with Hindu Caste and (iii) Hinduized Tribes. Similarly Elwin (1943) talked about 'external influences', and suggested four types of tribes, i.e. (i) primitive tribe, (ii) individualistic and used to outside life, (iii) de-tribalized (iv) tribal aristocrats. Similarly Prof. S.C. Dube classified them into five categories (i) aboriginal living in the seclusion, (ii) tribal group with some village folk association, (iii) tribals living in the mixed villages (iv) tribals who have been forced to live as untouchables and (v) tribals enjoying high social status.

The term tribal welfare has been used to cover an all round development of the tribals as a weaker section of the Indian population. They are in subsistence stage. Their comparative isolation, living in and around forest and hill areas, their simple economy and limited world views have placed them in a state of dearth. Prof. Vidyarthi supports Prof. Dube's view on these aspects and of the opinion that tribal welfare approaches as four: (i) anthropologists' approach, (ii) social workers' approach, (iii) missionaries' approach and (iv) administrative machinery for tribal welfare. Hence we found that there are broadly five approaches which have been employed so far the welfare of the tribals in India. These are: (i) Political Approach (ii) Administrative Approach (iii) Religious Approach with reference to Missionary Approach (iv) Voluntary Approach (v) Anthropological Approach.

Prof. S.C. Dube (1968) has reviewed the policy in the broader context of national unity and was of the opinion that in tribal India there is not one tribal culture but an admixture of so many tribal customs, traditions, and practices and there is no uniformity among them. It is contrary to the opinion that there is only one type of tribal culture or there is homogeneity. Therefore, he suggests, was to work for the integration of the tribes in the regional and national setting according to their genius.

Tribal Governance and PESA

It is argued by many scholars that PESA is very ambitious in nature, in terms of its implementation. Even some went to the extent of declaring it as a '*mini constitution with the constitution of India*'. It might pose great challenge while implanting in letter and spirit. For example, ownership over the natural resources. The PESA provisions are intended to intrinsically protect the resources of the tribal communities and empower them to act against the forcible acquisition. In recent time, the acquisition of individual's and community's resources for industry in violation of these provisions is leading to conflicts in several PESA areas. This is creating conflicts leading to loss of livelihood and resource and more so over the way of life. As regards to the acquiring the mineral resources for industries, the stakes are similarly loaded against the

functioning of PESA Act. If *Samata Judgment (Supreme Court, 1997)* could have been honored by both Union and State Governments, a model of sustainable mining which was respectful of the tribal community could have arrived and would have avoided many of the current conflicts witnessed on the ground. It is a fact that the size of the operational holding in the tribal land is eroding due to the State led acquisition and marketization process. The sale of tribal lands to the non-tribal in the Scheduled areas is prohibited. But the transfer continues to take place and have become more perceptible in the post-liberalization period.

The Recognition of Forest Rights Act, 2006 (FRA) was a result of the polity responding to protected struggles by tribal communities and movements to assert rights over the forest land they were traditionally dependent on. The Act turned the Government colonial policy on its head which it established the rights of the State over the Forest over traditional rights of the community. However, continuing bureaucratic control, resistant attitude of Forest Department officials to give ownership to the communities and inadequate efforts on awareness have led to slow implementation of the Act. It is evident from this that there is still poor recognition of various rights favoring the tribal's clearly violating the letter and spirit of PESA as well as FRA. However to undermine the legitimacy of tribal's for the land reclamation and forest rights or against the takeover of resources or displacement still persists. In other words, tribal community's effort for self determination and self governance are to be respected. Though PESA guaranteed in letter and spirit, but at the ground level, there is inadequate attempt for democratic dialogue to resolve the conflict. But the current alienation is a manifestation of mis-governance and a lasting solution also lie in an honest implementation of PESA and putting people aspirations at the centre of public policies in schedule five areas.

Panchayat, Gram Sabha, Environmental and Livelihood Issues

The effectiveness and efficiency of governance system at local level, particularly at village level is primarily based on the functioning of Gram Sabha. As it is observed from the field and in various reports and studies on Panchayats, lack of appropriate functioning of Gram Sabha has invited mis-governance to certain extent at village level, in spite of having certain constitutional provisions. Though the reasons are various, the modus operandi of function, discussion, participation at Gram Sabha plays a key role for the people at village level in terms of local governance. Keeping in mind the importance of this issue even PESA Act has given considerable amount of importance to Gram Sabha. Particularly it has imposed two vital conditions on Gram Sabha (i) no land can be transferred from a Scheduled area without the permission of Gram Sabha, (ii) mining activities if at all has to be carried out should be with the prior permission of Gram Sabha. Hence there is urgent need of exploring the ways Gram Sabha functions in Panchayat set up as well as suggesting some remedial measures for its improvement. As tribal areas of our country are undergoing substantial change in terms of its economic and political structure, it is natural that the epi-center of Governance system, which is a village, has proper functioning of 'gram sabha' under the broad structure of PRIs.

If we will look into the industrialization process carried out in contemporary times across the globe, we will find not only natural environment is getting polluted but also the socio-cultural practices, economic issues- livelihood, political factors-people's protest against this,

legal issues-who is the original owner- is it the state or people who are enjoying the nature for centuries and generations, are intimately involved in this. Particularly in India, since the new economic policy started due to the onslaught of globalization and opening of the whole market for private players -be it local industrial houses or MNCs, the people's displacement is becoming rampant, without proper rehabilitation policy. Their resettlement is becoming more problematic. People are becoming 'refugees' in their 'own home land'. What type of development is this?

In general, Government Policies have been enacted and are under implementation to:

- end bonded labor and other form of exploitation
- restore land to the tribals
- free them from indebtedness
- ensure speedy implementation of development schemes
- not to deprive them from means of production
- access to basic health and education
- access to consistent livelihood generation activities
- access to natural resources, i.e. NTFP
- preservation of their culture
- Integration with maintenance of uniqueness and 'specificity' of their socio- cultural-political system

Naxal Movement and Tribals

As a matter of fact, if we will minutely examine the naxalite movement in the present context, it is found that primarily these are happening in hilly, forest areas of East and Central India, which is dominated by tribals. None the less tribals are not naxalite as such. However when their exploitation, gradual alienation and frustration is taken care of and supported by naxalites, naturally tribals got some solace in it. There is spiral violence in the name of movements. What are the rights of a 'citizen' in such a situation? As a 'citizen' in a 'democratic state', where is the space for me to ventilate the grievances within the 'state structure' itself? Where is the channel of communication between the government and people? What is the alternative mechanism to address these problems? Is the naxalite movement is simply a 'law and order' problem or it has certain larger socio-political and economic dimensions involved with it? By the way Naxalite were ideologically in favour of militant armed struggle against the state, to abolish the state structure and transfer the state power. How to stop the violence created by them? It has its root in socio – economic issues, underdevelopment, bad governance system etc. Hence it is also a socio- economic problem which has culminated into a political problem having symptoms like law and order problem in the present context. Hence it has to be tackled at political level, which is totally undermined today. Where is the space for dialogue, discussion, debate with those groups, who are against the state in 'armed struggle'.

If we will look into the industrialization process carried out in contemporary times across the globe, we will find not only natural environment is getting polluted but also the socio-cultural practices, economic issues, political factors; legal issues are intimately involved in this. Particularly in India, since the new economic policy started due to the onslaught of globalization

and opening of the whole market for private players, the people's displacement is becoming rampant, without proper rehabilitation policy. Their resettlement is becoming more problematic. People are becoming 'refugees' in their 'own home land'. What type of development is this? If we will examine these issues more minutely, whole social movements in the post-independent India is primarily concentrating on control over natural resources and its rampant exploitation - Jal, Jungle and Jamin- water, land and forest. All these are part of the local ecology, where an individual is leading his day to day life on the lap of nature, without disturbing the nature which is also integrated with their cultural practices.

Conclusion

Hence there is a need to understand the plights of the tribal brethren from deeply looking into their history, culture, administration and their ethnic governance system. We must have to change various dimensions of public policy by integrating tribal problems, development issues as well as integrating the tribal in the mainstream by keeping their culture, identity and living system intact. If all these will be affected due to any of the activities of the so called mainstream development activities, then the tribal people has every right to question this. Where is the space for democratic process? Historically the 'state' has certain duties for the citizens, particularly protection of life, liberty, livelihood and creating a conducive atmosphere for their development and maintenance of law and order. In that context it can be argued that, if the state fails to fulfill its obligation, the tribal people have every right to question the actions of the government, particularly, when their life and livelihood is at stake, they might revolt against the state, otherwise their voice will be unheard. As most of the tribal belt of the country is undergoing a radical left wing armed struggle at the present context, which is also partly reflection of mis-governance in that part of the world. Hence it is necessary that the state must give some importance to the voice and demand of the tribals across the country, otherwise the situation might deteriorate further and state will be bound to be shaken by the cumulative actions of the tribal brothers and sisters.

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Application of Participatory Livelihood Action Plan (P-LAP) in Tribal Villages: A Case in Tripura

Jui Bhattacharya

Introduction

Livelihood is a means of securing the necessities of life. Livelihood comprises capabilities, assets (stores, resources, claims and access) and activities required as a means of living. The sustainable livelihoods approach (SLA) is a way to improve understanding of the livelihoods of poor people. It draws on the main factors that affect poor people's livelihoods and the typical relationships between these factors. It can be used in planning new development activities and in assessing the contribution that existing activities have made to sustaining livelihoods. (IFAD, 2002).

IFAD has identified two key components of the SLA:

- a framework that helps in understanding the complexities of poverty
- a set of principles to guide action to address and overcome poverty

The SLA framework places people, particularly rural poor people, at the centre of a web of inter-related influences that affect how these people create a livelihood for themselves and their households. Closest to the people at the centre of the framework are the resources and livelihood assets that they have access to and use. These can include natural resources, technologies, their skills, knowledge and capacity, their health, access to education, sources of credit, or their networks of social support. The extent of their access to these assets is strongly influenced by their vulnerability context, which takes account of trends (for example, economic, political, technological), shocks (for example, epidemics, natural disasters, civil strife) and seasonality (for example, prices, production, employment opportunities). Access is also

influenced by the prevailing social, institutional and political environment, which affects the ways in which people combine and use their assets to achieve their goals. These are their livelihood strategies. (IFAD, 2012)

SLA is used to identify the main constraints and opportunities faced by poor people, as expressed by them. It builds on these definitions, and then supports poor people as they address the constraints, or take advantage of opportunities. The framework is neither a model that aims to incorporate all the key elements of people's livelihoods, nor a universal solution. Rather, it is a means of stimulating thought and analysis, and it needs to be adapted and elaborated depending on the situation.

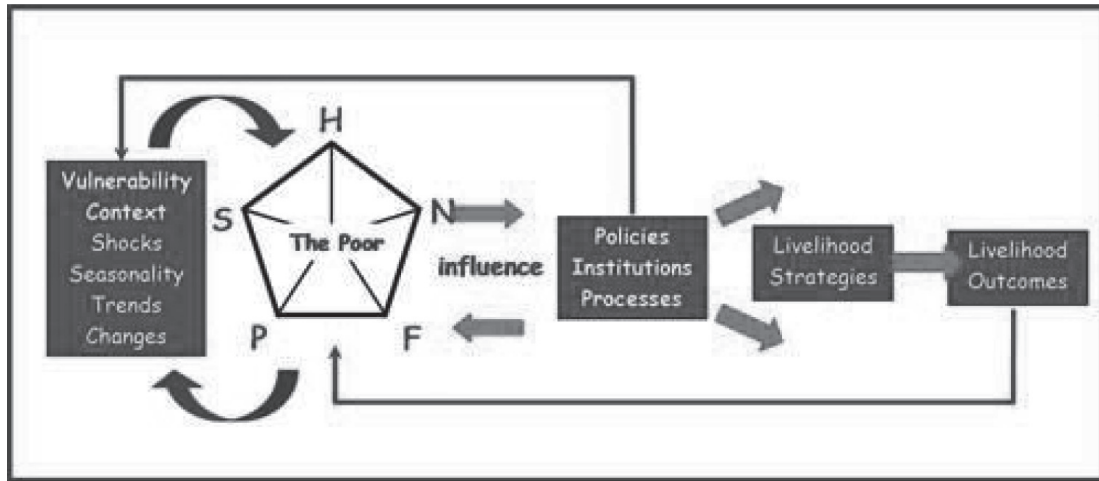
SLA has seven guiding principles. They do not prescribe solutions or dictate methods. Instead, they are flexible and adaptable to diverse local conditions.

The guiding principles for SLA :

- **Be people-centered.** SLA begins by analyzing people's livelihoods and how they change over time. The people themselves actively participate throughout the project cycle.
- **Be holistic.** SLA acknowledges that people adopt many strategies to secure their livelihoods, and that many actors are involved; for example the private sector, ministries, community-based organizations and international organizations.
- **Be dynamic.** SLA seeks to understand the dynamic nature of livelihoods and what influences them.
- **Build on strengths.** SLA builds on people's perceived strengths and opportunities rather than focusing on their problems and needs. It supports existing livelihood strategies.
- **Promote micro-macro links.** SLA examines the influence of policies and institutions on livelihood options and highlights the need for policies to be informed by insights from the local level and by the priorities of the poor.
- **Encourage broad partnerships.** SLA counts on broad partnerships drawing on both the public and private sectors.
- **Aim for sustainability.** Sustainability is important if poverty reduction is to be lasting.

The SLA framework is presented in schematic form below and shows the main components of SLA and how they are linked. It does not work in a linear manner and does not attempt to provide an exact representation of reality. Rather, it seeks to provide a way of thinking about the livelihoods of poor people that will stimulate debate and reflection about the many factors that affect livelihoods, the way they interact and their relative importance within a particular setting. This should help in identifying more effective ways to support livelihoods and reduce poverty." (IFAD, 2012)¹

Fig -1 : SLA framework



Planning and Participatory Planning

Plan is a sketch of activities or action to be done for achieving any goal. It is a futuristic process for fulfillment of predefined objectives. Different authors have given different definitions of planning from time to time.

“A plan is a blueprint for action- it points out a precise way to reach a pre-determined goal or a set of goals within a predetermined period of time with the means that are available with the planner and under the prevailing circumstance”.¹ (Singh,1999). “Planning is the thinking process, the organized foresight, the vision based on fact and experience that is required for intelligent action”, Alford and Beatt. “Planning is deciding in advance what is to be done. When a manager plans, he projects a course of action for further attempting to achieve a consistent co-ordinate structure of operations aimed at the desired results”, (Haimann. “A plan is a trap laid to capture the future”, Allen’²

The main features of planning are Planning focuses on achieving objectives, Planning is a primary function of management, Planning is pervasive, Planning is continuous, Planning is futuristic, Planning involves decision making, Planning is a mental exercise (FAO,)³

Planning can be done in macro level (national level, state level) and micro level (village level and individual level). At micro level planning by an individual does or a group of people, where the area to be covered under planning is small.

‘Participatory planning is a process by which a community undertakes to reach a given socio-economic goal by consciously diagnosing its problems and charting a course of action to resolve those problems. Experts are needed, but only as facilitators. Moreover, no one likes to participate in something which is not of his/her own creation. Plans prepared by outside experts, irrespective of their technical soundness, cannot inspire the people to participate in their implementation.’⁴

Planning done in participatory method is easier to implement and gives better results as people implement the plans prepared by themselves which gives a ownership feelings.

Some advantages of participatory planning are as follows:

1. Participation carries with it feelings of ownership, and builds a strong base for the intervention in the community. If people are integral to the planning of a community intervention, then that intervention will be theirs. They have a stake in it not only as its beneficiaries or staff or sponsors, but as its originators. They'll do what they can to see their work succeed.
2. It ensures that the intervention will have more credibility in all segments of the community because it was planned by a group representing all segments of the community. If people know that others with the same point of view and experience as theirs were instrumental in making the intervention happen, they'll assume that their interests were attended to.
3. Bringing a broader range of people to the planning process provides access to a broader range of perspectives and ideas.
4. A participatory planning approach avoids pitfalls caused by ignorance of the realities of the community or the target population. If, for instance, Muslims are part of the planning process for an intervention in a community which includes many followers of Islam, they'll know that lunch meetings during Ramadan, the Islamic month of daytime fasting, are not likely to work. Long-time community members will know what has failed in the past, and why, and can keep the group from repeating past mistakes.
5. It involves important players from the outset. If the intervention needs the support of a particular individual, or that of a particular agency or group, and they've been part of the planning from the beginning, their cooperation is assured.
6. It can provide an opportunity for often-disenfranchised groups to be heard, and teach the community that they have important things to say.
7. It teaches skills which last far beyond the planning process, and can help to improve the community over the long term. People learn to run meetings, to analyze data, to construct strategic plans - in short, to become community resources and leaders.
8. It can bring together and establish ties among community members who might normally have no contact. Such relationships - between low-income people and business leaders, for instance - are not only supportive of the intervention, but may help to create long-term relationships and break down barriers in the community.
9. A participatory planning process builds trust, both between your organization and the community and among the individuals involved. This trust can serve as a foundation for future community development and community action.
10. A participatory planning process generally reflects the mission and goals of grass roots and community-based organizations. With its underpinnings of collaboration, inclusiveness, and empowerment, a participatory approach embodies the ideals that form the foundations of most grass roots and community-based organizations.
11. It implies respect for everyone in the community, and thus sets a standard for community participation and empowerment that other organizations - and the community at large - may feel compelled to follow.

12. Logically, a participatory planning approach should be effective. The fact that it includes the views and perspectives of everyone affected by the intervention should work to assure that all assets and needs are identified and addressed, and that unintended consequences are minimized.
13. Finally, it does things the way they should be done. It respects everyone's intelligence, values everyone's ideas and experience, and affords everyone a measure of control. By empowering the community, and particularly the target population, rather than just superimposing its own ideas on a social structure that already exists, your organization can give substance to its ideals. In the final analysis, some level of participatory approach is almost always the most ethical way to plan a community intervention.⁵

For making our means of living smooth detail planning of livelihood is essential. Rural livelihood mainly depends on the natural resources available, their culture & tradition and their skills. Also it depends on the local demands of products. Also, it can be seen that, rural people, mainly tribal don't depend on a single activity but they undertake different activities as their livelihood (Oraon, Vijay, 2012). Some activities most of the people do to meet their consumption need and some for selling and fulfilling other needs.

Participatory Livelihood Action Plan

Livelihood Action Plan (LAP) of the tribal people can be done using Participatory Rural Appraisal (PRA) method. In this method people will be able to make stock of their available resources, resources to be required for their livelihood and plan accordingly to utilize those resources in the best manner without hampering future needs.

Different Participatory methods are used for preparation of livelihood plan for any village like Historical transect, Social mapping, Resource mapping, Village infrastructure map, Wealth ranking, Mobility chart, Venn diagram, Seasonal calendar of works, Daily working calendar/routine, Problem identification and ranking and Need assessment.

Application of P-LAP in Tribal Village : A case

Tripura is situated between latitudes 22°56' and 24°32' north, and longitudes 91°09' and 92°20' east. It has an area of 10,491.69 sq. km. Tripura is a land-locked State, surrounded by Bangladesh on its north, south and west. The length of its international border with Bangladesh 856 Km (84 per cent of its total border), while it shares 53 Km border with Assam and 109 Km border with Mizoram. Tripura is connected with the rest of the country by only National Highway-44, which runs through the hills to Cachar District in Assam. Total forest area in the state is 6, 29,429 hectare.⁶ There are 19 tribes in Tripura consisting 27.06 percent of total population (Census, 2011) and most of them live in the hilly and forest area.

'They could be divided into 2(two) major groups as (i) Ab-original and (ii) Immigrants. All the aboriginal tribes have been migrated in this territory from a place in-between Tibet, up hills of Burma like Arakan Hills Tracts and Shan State and adjacent to China. Aboriginal tribes are Tripuri, Reang, Jamatia, Noatia, Lusai, Uchai, Chaimal, Halam, Kukis, Garos, Mog and Chakma. Other tribes like Bill, Munda, Orang, Santal, Lepcha, Khasia, Bhutias are the immigrant

tribes came and settled here for economic reasons. Most of them are Central Indian Tribes and came from Madhya Pradesh, Bihar, Orissa and West Bengal. Some of these tribes are however Northern-Frontier tribes came from Bhutan, Meghalaya, Sikkim and North Bengal. Chakmas and Mogs are Arakan Tribes entered Tripura through Chittagang Hills Tracts.

Linguistically tribes of Tripura could be divided into 3 (three) groups (i) Bodo Groups, (ii) Kuki-Chin Groups and (iii) Arakan Groups. Tripuri, Reang, Jamatia, Uchai and Noatias are Mongoloid tribes and belong to Bodo linguistic group of tribes. Kukis, Lusai and most of the tribes under Halam tribes are linguistically belongs to Kuki-Chin group and speak in Kuki-chin language. Mog and Chakmas speak in Arakan Language. By religion, most of the Tripura tribes follow Hinduism. But Lusai-Kukis are mostly Christian. Chakmas and Mogs follow Buddhism.⁷⁷ They mostly depend on nature and its resources of their livelihood.

The Indo-German Development Cooperation (IGDC) Project is a forest based bilateral project between the Government of India and the Federal Republic of Germany aiming at socio-economic development of tribal shifting cultivators, rural poor and conservation of natural resources in the state. The basic purpose of the project is to improve the natural resource conditions supporting enhanced livelihoods of forest dependent communities in Tripura. The broad concept of the project was originated with Government of Tripura in a programme concept document submitted to the German Government in 2003.

Total project area under IGDC is 3,43,100 ha (of which 65% forest area) in earlier districts of Dhalai and North districts, covering previous named 11 blocks of Ambassa, Ganganagar, Salema, Durgachowmuhani, Dumburnagar, Raisyabari, Manu, Chawmanu, Dasda, Damcherra and Jumpui Hills. Total villages cover under this project is 70 and all are within the TTAADC. Under IGDC scheme village wise participatory micro livelihood plan based on the available resources has been done in 70 villages in project area. Objectives of the plan are -

1. To assess the livelihood assets including natural resources.
2. To analysis the livelihoods support system.
3. To prepare livelihood action plan.

Following steps were followed while preparation of participatory planning.

1. Sound Rapport building with the village
2. Organizing Meeting for Constitution of a Village
3. Formation of Village level Planning Committee
4. Orientation of Village Committee regarding village plan
5. Preparation of P-LAP
6. Share of P-LAP
7. Implementation of P-LAP

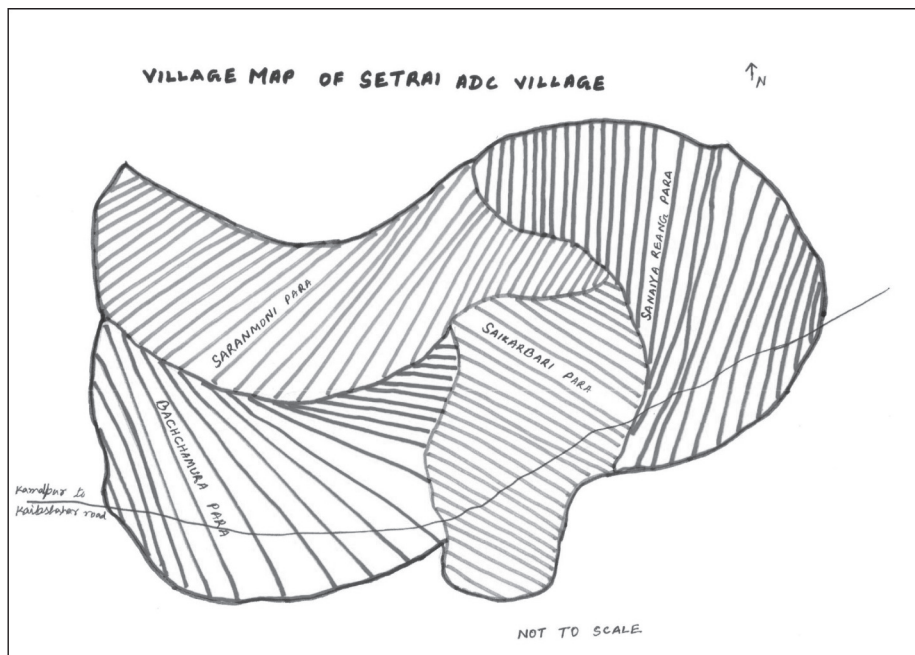
For the present paper, Participatory Livelihood Action Plan of one village under IGDC project namely Setrai ADC village in Salema in Dhalai district of Tripura has been discussed.

Village Location and Structure

Setrai ADC village is situated about 17 Km from Salema in Dhalai district of Tripura. It falls under Ambassa Forest division and Durgachoumuhoni R.D Block (Block Advisory Committee). The total number of household (hh) is 339 with 1,495 populations. Of the total 339 hh, 80 hh received Below Poverty Line (BPL) card whereas still there are 47 hh those who do not have any ration cards yet. Our village comes under the administrative jurisdiction of Tripura Tribal Area Autonomous District Council (TTAADC) and consists of nine *paras* which are listed in Table 1.

Being an ADC village, the administrative hierarchy of our village is TTAADC (at district level and corollary to Zilla Parisad), Block Advisory Committee (corollary to Panchayat Samittee) and Village Committee (corollary to Gram Panchayat) (Table 1.2). All our villagers are recognized Scheduled Tribes. The dominant tribes are Debbarma, Darlong, Reang, Halam and Tripura. Our main occupations are daily wage earning and shifting cultivation (*Jhum*). Dependency on forest is very high and most of us live a hand to mouth life. Because of *Jhum*, uncontrolled tree felling, and absence of any natural resource management system, a large tract of our forest land in the village has now been converted into degraded forest.

In order to address these issues, village (Map 1) was selected as one of the project villages under the Indo-German Development Cooperation (IGDC) Project.



Map 1: Village map of Setrai ADC village

Out of all the four *paras* socio- economic and biophysical resource profile of one of the *para*, Bachchamura Para is described here.

Bachchamura Para

This *para* is situated nearby Kamalpur to Kailashahar road. Bachchamura Para is 20 km from Salema. The villagers belong to Debbarma, Reang, Halam and Tripura tribes and are largely dependent on daily wage earning and jhum for livelihood.

Socio- economic Profile

The total number of households in Bachchamura Para is 56 household and total population is 160. The average size of the hh is 3. The sex ratio is 0.77: 1 (Table 2) All the villagers belong to Debbarma tribe and all of them are Hindus by religion and (Table 3). The livestock population in the *para* is low and among which local chicken is widely reared followed by goat (Table 4).

Occupational structure

Daily wage earning is the main source of income for all the villagers of the *Para*. Shifting cultivation is also the other main occupation for some of the villagers. Selling of bambo and agarbatti stick making are the other subsidiary sources of income (Table 5). As is evident from from this table, a majority of the hh are engaged in more than one main source of income.

Annual Labour Calendar

Annual labour calendar presented in Figure 1 shows different IGAs undertaken by a hh.

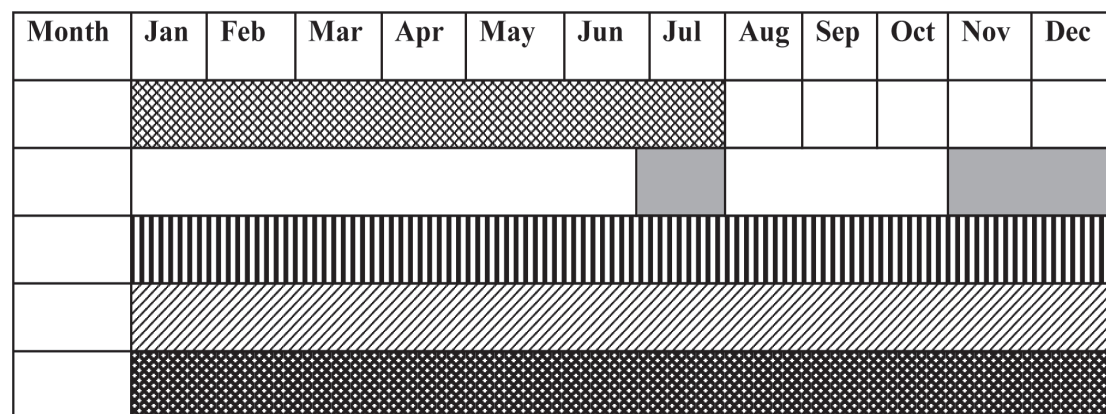
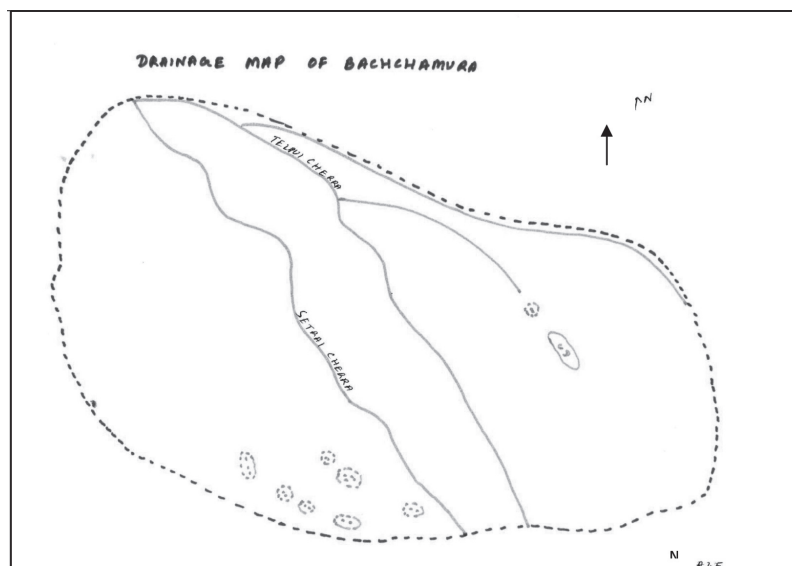


Figure 1: Calendar of activities undertaken annually by a hh.

Legend	
	Jhum/Shifting Cultivation
	NREGA
	NTFP collection
	Bamboo selling and agarbatti stick making
	Daily wage labour



Map 3: Drainage map of Bachchamura Para

Natural resources available in Para

Important natural resources found in Bachchamura Para are provided in Table 9.

Bamboo forest: Important bamboo species are *Bambusa vulgaris* (Jai), *Dendrocalamus longispatus* (Rupai), *Bambusa tulda* (Mirtinga), *Bambusa balcooa* (Barak).

Wetland: The wetlands are quite rich in biodiversity with rich macroflora such as *Eichornia* spp., *Ipomea aquatica* etc. A large variety of fishes, mollusks and crabs are found in these water bodies.

Forest: Total forest area in the para is about 35 ha. The important forest species available are *Tectona grandis*, *Gmelina arborea*, *Schima wallichii*, *Stereospermum* sp., *Callicarpa arborea*, *Clerodendron* sp., *Bauhania purpurea* etc.

Degraded land: The degraded land either is devoid or has scanty vegetal growth.

Home garden: Home gardens are rich in medicinal, edible and commercial species such as *Psidium guava*, *Carica papaya*, *Atrocarpus heterophyllus*, *Areca catechu*, *Cocos nucifera*, *Spilanthes emblica*, *Cajanus cajan* (Pigeon pea - Arhar).

Shifting cultivation

Since shifting cultivation is their main source of livelihood and the availability of land is extremely scarce, now the cycle has reduced to only 3 years. The cropping period in a typical jhum cycle is now only one year and fallow period is a maximum of 2 years. The total area in which we practice jhum is about 50 ha. They clear the forest in the month of December, burn during February and cultivate during April-June. The harvesting starts from July and continues up to December. The harvest of main crop i.e. paddy is done during August-September. They harvest vegetables from jhum field till December. The crops harvested from jhum field are given in Figure 3.

Figure 3: Calendar of Jhum activities and crops harvested from *Jhum*.

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Start cutting forest. while preparing for next Jhum	■											■
Clear Forest		■	■									
Set Fire in the jhum area				■								
Sow seed					■	■						
Weeding					■	■						
Vegetable harvesting							■	■				
Cucumber and Pumpkin (1), Pumpkin (2)							■	■				
Paddy									■	■		
Bringle										■	■	
Beans, Sesame										■	■	
Cotton											■	
Raddish & Pigeon pea	■											■

RFR

The villagers have applied for land *pattas* to be allotted under RFR Act through their village level statutory committee. The details of house hold applied for *patta* and area to be allocated are presented in Table 10.

NTFPs collected

The villagers collect many NTFPs from the forest such as fuel wood, bamboo, bamboo shoot, banana flower, broomstick, diascoria, mollusks, fern leaf and other leafy vegetables. The NTFP seasonal calendar, quantity collected, their utility (consumption and selling) are given in Tables 11 and 12.

Fuel wood

Fuel wood is the only source of energy in every hh and is collected from the forest. The total annual hh fuel wood consumption is estimated to be 6.6 tons (Table 13).

Bamboo

Bamboo is the most important forest product used by the villagers. The use pattern of bamboo and its requirement is presented in Table 14.

Market linkages

The villagers sell very little agricultural or horticultural produce. Mostly NTFPs and vegetables are sold in the market. As such, the marketing of the products is a difficult area and needs to be addressed if any substantial amount of agri-horti products is to be produced. The existing market details are given in Table 15.

Infrastructure in the *Para*

The *para* is poor in infrastructural facilities. There is inadequate electricity, drinking water supply, road and lack of health facilities. No other modern amenities are available in *para*. The available infrastructure and the distance from the village are given in Table 16.

Village level institutions

JFMC: Almost all the households of this *para* are included in the Setrai JFMC, under IGDC Project in the year 2010 and got it registered with Divisional Forest Officer, Ambassa. Out of total 51 members of the JFMC 45 are male and 6 are female. The activities undertaken by the JFMC are construction of a checkdam, bamboo plantation (10 ha), horti-forestry plantation and polybag nursery (both bamboo and horti-forestry).

SHG: There is one SHGs in this *Para* including one new SHG formed under IGDC Project. The details of the active SHGs are given in Table 17.

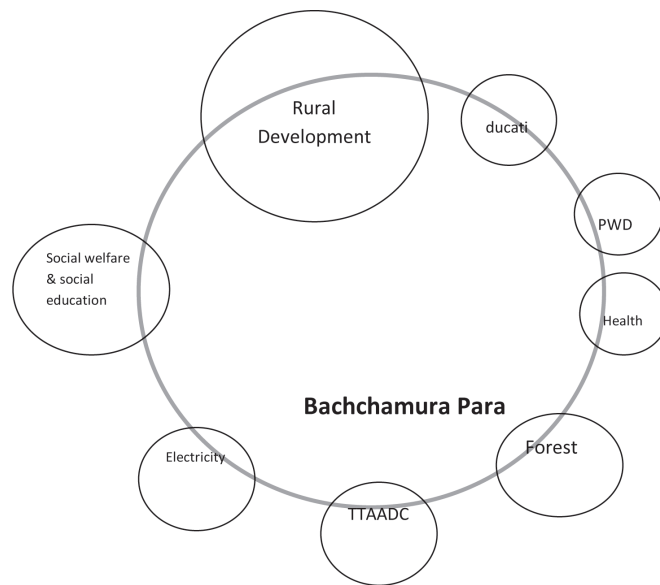
Details of existing schemes

The activities undertaken by different departments in our *Para* are shown in Table 18.

Linkage of the village with different departments

The various departments that have undertaken various activities in the *para* are RD (check dam, sanitation plate, solar plate), Electricity (electricity tower), Social welfare & social education (ICDS), Health (Asha worker under NRHM), Education (S.B School), PWD (construction of road) and Forest. The relative importance of these departments for us is presented in Figure 4.

Figure 4: Venn diagram showing the relative importance and distance of line departments from Bachchamura Para



Need assessment

For understanding the problems faced by the inhabitants of this *para* a group meeting was organized in the *para* in which care was taken to include men, women, landless, small land holders, female-headed household, disabled. The facilitators suggested to the group that while identifying, assessing and ranking the needs special emphasis should be given to address the aspirations and needs of the various segments mentioned above.

The group deliberated extensively, kept the concerns of disadvantaged groups, and listed the following problems arranged in descending order of preference.

Problem identification and ranking

All the villagers ranked their problems as given in Table 19; Electricity is the most important problem that needs to be addressed.

Possible solutions of identified problems as suggested by the villagers

While suggesting solutions to various identified problems in the *para*, the villagers gave utmost importance to ensure that the solutions are cost efficient and effective, sustainable and will cater to the needs to disadvantaged segments of our *para* (Table 20).

Need assessment

Bamboo

Starting from construction of houses for shelter to income generating activities for livelihood, bamboo is used in the villager. The requirement of bamboo is relatively high in the *para* as depicted in Table 21.

Fuel wood

Table 22 shows our requirement of fuel wood.

Drinking water sources

In order to solve drinking water problem, the villagers propose the water sources to be constructed as depicted in Table 23.

Employment need

As most of the villagers are involved in shifting cultivation, gap between mandays required and mandays available is quite high as shown in Table 24.

Fishery check dam

Considering fishery as a potential income generating activity, the requirement of check dam to be used for fishery is shown in Table 25.

Livestock

The requirement of livestock is shown in Table 26.

Horticulture

The requirement of plantation using horticultural species is shown in Table 27.

Forestry for timber

Requirement of timber and the area for plantation is shown in Table 28.

Infrastructure

Essential infrastructural facilities required for the *para* are shown in Table 29.

Capacity building

Some selected villagers may be trained in different training/capacity building programmes as Master Trainers as presented in Table 30.

Activities Planned

Table -31- 34.

Lesson learned

From the analysis of the participatory Livelihood plan as applied in one of the Tribal *para* in Tripura, it was realized that Participatory livelihood plan can -

- Reduction of Uncertainty
- Better Utilities of Resources
- Increases Organizational Effectiveness
- Reduces the Cost of Performance
- Concentration on Objectives
- Helps in Co-ordination
- Makes Control Effective
- Encouragement to Innovation
- Delegation is Facilitated

Conclusion

Participatory Livelihood Action Plan is very much useful tool to assess the livelihood situation and resource base of any particular villages with active participation of the villagers. This method should be applied to all the villages in general and Tribal villages in particular as it is very easy to understand and can be effectively applied to enhance the livelihood status.

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Table 1: Demography of the constituent *paras* of Setrai village.

<i>Para</i>	No. of hh	Male	Female	Total
Bachchamura	56	90	70	160
Saikarbari	57	175	110	285
Sanaiya Reang	174	400	450	850
Saronmoni	52	120	80	200
TOTAL	339	785	710	1,495

Source: Primary data, Field survey

Table 2: The demographic profile of Bachchamura Para.

Total no. of hh	Population			Average size of hh.
	Male	Female	Total	
56	90	70	160	3

Source: Primary data, Field survey

Table 3: Religious affiliation of inhabitants of Bachchamura Para.

Tribe	No. of hh	Religion
Debbarma	44	Hindu
	7	Christen
Reang	3	Hindu
Halam	1	Hindu
Tripura	1	Hindu

Source: Primary data, Field survey

Table 4: Total livestock population in Bachchamura Para.

Category	Number
Pig	10
Goat	40
Cow	10
Poultry	500
Total	560

Source: Primary data, Field survey

Table 5: Occupation profile of inhabitants of Bachchamura Para.

Main source of income		Subsidiary source of income	
Activities	No. of hh involved	Activities	No. of hh involved
<i>Jhum</i>	8	Bamboo selling	3
NREGA	56`	Agarbatti stick making	56
Daily wage labour	56		
Settled agriculture	3	NTFP collection	20

Source: Primary data, Field survey

Table 6: Economic status of villagers of Bachchamura Para.

Economic Status	No. of hh	%
BPL	22	38.60
Antoday	14	21.05
APL	14	21.05
Villagers without any card	11	19.30
Total	56	

Source: Primary data, Field survey

Table 7: Land holding pattern of the villagers of Bachchamura Para.

Land status	No. of hh	Total area(ha)
<i>Jote</i> land	5	12
Land less	51	0
Total	56	12

Source: Primary data, Field survey

Table 8: Land use pattern in Bachchamura Para.

Land use Category	Approximate area (ha)	Percentage of total geographical area of the <i>para</i>
Fallow land	1	0.48
Open Forest land	35	16.97
Plantation	155	75.17
Home garden	1.75	0.85
Wet land	8	3.88
<i>Jhum</i> area	2.4	1.16
Habitation area	2.56	1.24
Settled agricultural land (kheti/ <i>Binda jami</i>)	0.5	0.24
Total	206.21	100

Source: Primary data, Field survey

Table 9: Details of natural resources available in Bachchamura Para.

Natural resource	No.	Area(in ha)	Status
Bamboo	-	95.00	Dense bamboo forest with good growth
Wetland/ Check dam (dam length in ha)	8	1.50	Good condition and well maintained
Open Forest	-	35.00	Very less area under dense category and most areas are of open category
<i>Jhum</i> area	-	25.60	No vegetal cover
Home gardens	-	1.75	Species- rich and well-maintained

Source: Primary data, Field survey

Table 10: Status of land allotted under RFR in Bachchamura Para.

No. of hh applied	No. of hh received <i>patta</i>	Total area allotted (ha)	Average area per hh (ha)
36	14	14	1

Source: Primary data, Field survey

Table 11: Seasonal calendar of Non Timber Forest Products in Bachchamura Para.

Name of NTFP	an	eb	ar	pr	ay	une	uly	ug	ept	ct	ov	ec
Bamboo shoot												
Banana flower												
Wild potato												
<i>Gandugi</i>												
Bamboo												
Fuelwood												
<i>Lati</i>												
<i>Lebroi</i> (Mushroom)												
Arjun flower												

Table 12: Collection, consumption and selling of NTFPs per household/year in Bachchamura Para

NTFP	Collection per month	No. of months available	Total collection	Annual self-consumption	Annual selling
Bamboo shoot (kg)	80	3	240	80	160
Banaba flower (no.)	45	12	540	240	300
Wild potato (kg)	30	2	60	24	36
<i>Gandugi</i> (kg)	20	12	240	20	220
Bamboo	20	12	240	50	190
Fuelwood	10	12	120	120	0
<i>Lati</i>	120	2	240	10	230
<i>Lebroi</i> (Mushroom)	70	3	210	210	0
Arjun flower	300	12	3,600	180	3,420

Source: Primary data, Field survey

Table 13: Household consumption pattern and sources of fuel wood in Bachchamura Para.

Months	Fuelwood consumption (kg/hh/day)	No. of days	Annual consumption (kg)	Source
Summer	20	240	4,800	Reserved Forest (Natural forests and plantations)
Winter	15	120	1,800	
Total			6,600	

Source: Primary data, Field survey

Table 14: household consumption pattern of bamboo in Bachchamura Para.

Use	Species	Average consumption per hh per year (no.)
House construction	<i>Meloconna baccifera</i> (Muli)	600
	<i>Dendrocalamus longispathus</i> (Rupai)	50
	<i>Bambusa tulda</i> (Mirtinga)	60
Fencing	<i>Meloconna baccifera</i> (Muli)	500
	<i>Bambusa tulda</i> (Mirtinga)	70
	<i>Dendrocalamus longispathus</i> (Rupai)	50
Agarbatti stick making	<i>Bambusa tulda</i> (Mirtinga)/ <i>Dendrocalamus longispathus</i> (Rupai)/ <i>Bambusa polymorfa</i> (Poura)	60
Kharan	<i>Dendrocalamus longispathus</i> (Rupai)	5
Total		1,395

Source: Primary data, Field survey

Table 15: Distance of market places from Bachchamura Para.

Name of the market	Distance from the market (km)	Mode of transport	Market Day
Halahali	18	By vehicle	Sunday, Thursday
Durgachowmuhoni	8	By vehicle	Wednesday, Saturday
Saikarbari	2.5	By vehicle	Everyday

Source: Primary data, Field survey

Table 16: Infrastructure details of Bachchamura Para.

Infrastructure facilities	Present/Absent	Quantity	Quality	Distance from the village (km)
Road (quantity in km)	Present	7.5	Black top	0
		12.5	Kachcha	0
Drinking water	Present	5	Ring well (All damaged)Kachcha kuya	0
Electricity	Absent	Nil	-	1.5
Hospital (PHC)	Absent	-	No regular immunization camp and health camp held	14
S.B School	Present	1	Good	0
Anganwadi	Present	1	Poor quality	0
Mobile connection	Present	3	Poor quality	0
Land telephone line	Absent	-	-	6
Check dam/Pond	Present	8	Well maintained	0

Source: Primary data, Field survey

Table 17: Details of the active SHGs in Bachchamura Para.

Name of SHG	Member		Started on	Opened bank a/c	Gradation	Loan amount	Internal lending	Economic activities undertaken
Bachchamura Mahila Committee	0	11	01/01/2008	21/11/2008	Passed 1 st gradation in 2009	50,000	Yes	Piggery

Source: Primary data, Field survey

Table 18: Activities undertaken by different departments in Bachchamura Para.

Department	Scheme	Details of activities	Period
PWD		Brick soiling	1970
Electricity		Electricity tower	2000-01
Health	National Rural Health Mission(NRHM)	Asha worker (Tirthakanya Debbarma, Biswakumari Debbarma)	2005, 2007
Education		J.B School	1950
		J.B School upgradation to S.B school	2005
Rural Development (RD)	National Rural Employment Guarantee (NREGA) Act	Checkdam (4no. each of 0.25)	2009
	Block	Sanitation plate (2hh)	2008
	IAY	House (6)	
		Solar (3hh)	2007-08
Forest		Teak plantation (6ha)	1985
		Bamboo plantation (10 ha.)	2009
Social welfare & social education	ICDS	AWC	2000
TTAADC	Sub-zonal	Rubber plantation(9.6ha, 2ha)	2008-09, 2009-10

Source: Primary data, Field survey

Table 19: Ranking of problems for Bachchamura para.

Problem	Ranking
Electricity	1
Place for shelter	2
Road	3
Drinking water	4
Plantation	5
Children education	6
No bridge	7
Lack of meeting place	8
Veterinary support	9
Lack of water area for fishery	10
Education	11

Source: Primary data, Field survey

Table 20: Possible solutions for the problems in Bachchamura para.

Rank	Problem	Solution
1	Electricity	HT line, LT line, household connection
2	Place for shelter	Houses
3	Road	Brick soiling
4	Drinking water	Masonry well, Checkdam, pump, tank
5	Plantation	Forestry species for timber, fuelwood and bamboo and hortiplantation.
6	Children education	ICDS centre
7	No bridge	Culvert
8	Lack of meeting place	Community hall
9	Veterinary support	Veterinary hospital
10	Lack of water area for fishery	Checkdam
11	Education	J.B. School

Source: Primary data, Field survey

Table 21: Bamboo plantation needed in Bachchamura para.

Species	Per hh consumption per year (no.)	Consumption per year for <i>para</i> (no.)	No. of bamboos produced per ha	Area to be planted (ha)
Mirtinga	320	40,960	7,500	5.46
Muli	3,000	3,84,000	7,500	51.20
Rupai	550	70,400	7,500	9.38
Poura	1,000	1,28,000	7,500	17.06
Total	4,870	6,23,360		83.10

Source: Primary data, Field survey

Table 22: Fuel wood plantation required in Bachchamura para.

Total requirement for <i>para</i> (kg)	Total requirement (m ³) (1 kg = .0017 m ³)	Fuel wood production per ha (m ³)	Area required for fuel wood plantation for the <i>para</i> (ha)	Preferred species
3,69,600	628.32	10.5	59.84	Teak

Source: Primary data, Field survey

Table 23: Sources of drinking water needed in Bachchamura para.

Water source	Total No.
Checkdam	1
Masonry well	3
Pump	3
Tank	3

Source: Primary data, Field survey

Table 24: Employment status of the villagers of Bachchamura para.

Total No. of hh	Employment potential	Annual man days requirement	Available man days	Gap (man days)
56	112	40,880	14,945	25,935

Source: Primary data, Field survey

Table 25: Fishery check dam required in Bachchamura para.

I No.	Tota	Water area (ha)	Total length of check dam (m)
5		5	100

Source: Primary data, Field survey

Table 26: Requirement of livestock in Bachchamura para.

Category	No of hh opted	Total unit	No. per unit	Total No.
Goat	20	4	5	20
Pig	15	3	5	15
Milch cow	20	10	2	20
Hen	30	30	10	300

Source: Primary data, Field survey

Table 27: Requirement of horticultural species in Bachchamura para.

Species	No. of hh opted	No. of seedlings required per hh	Total no. of seedlings required	Area (ha)
Tea	5	600	3,000	5
Beetle leaves	5	352	1,760	1.60
Pine apple	4	17,245	68980	1.28
Banana	25	640	16,000	8
Arecanut	25	200	5,000	4.54
Coconut	56	5	280	1.60
Orange	4	128	512	1.28
Total	124	19,170	95,532	23.3

Source: Primary data, Field survey

Table 28: Requirement timber in Bachchamura para.

Species preferred	No. of hh opted	Requirement/hh (m ³)	Total requirement for para (m ³)	Area required to be planted (ha) (1 ha = 6 m ³)
<i>Gmelina arborea</i>	56	0.5	28	4.66
<i>Albizia procera</i>				

Source: Primary data, Field survey

Table 29: Infrastructural facilities needed in Bachchamura Para.

Infrastructure	Quantity	Work description
Drinking water	3	Masonry well
	3	Pump
	3	Tank
Road (km)	4	Brick soiling
Electricity	1.00	HT line (km)
	1.50	LT line (km)
	56	hh connection
Culvert	1	Establishment
Community hall	1	Establishment
ICDS centre	1	Establishment
J.B. School	1	Establishment
IAY Houses	28	Establishment
Veterinary hospital	1	Establishment
Health facilities (no.)		
(i) Training of village boys and girls on Ayurveda and Allopathy	4	Training
(ii) Health camp (No./yr)		Camp
	2	

Source: Primary data, Field survey

Table 30: Capacity building requirements in Bachchamura para.

I. No	Intervention	No. of hh/ person	Unit
1	Fishery	6	4 days
2	Tea plantation	5	1 days
3	Banana plantation	10	1 day
4	Training on agriculture	10	1 day
5	Agarbatti stick	5	1 day
6	Training of village boys and girls on Ayurveda and Allopathy	4	10 days

Source: Primary data, Field survey

Table 31: Village Level Infrastructure

Sl. No	Activities	No.	Dept./ Agency
1	Drinking water-Masonry well	3	DWS
2	Pump (0.5hp)	3	DWS
3	Tank for storing water (6,000lt)	3	DWS
4	Electricity-House connection	=56	TSECL
5	Electricity-LT line(km)	1.5	TSECL
6	Electricity-HT line(km)	1	TSECL
7	Road –brick soiling (km)	4	RD
8	Culvert	1	RD
9	Community hall	1	RD
10	Health camp	2/ yr	Health
11	House	28	RD
12	AWC	1	Social welfare & social education
13	J.B.School	1	School Education
14	Veterinary hospital	1	ARDD

Table 32: Land based activities

Sl. No	Activities	Area (ha)	Dept./ Agency
1	Tea Plantation	5	Tribal Welfare
2	Beetle leaves Plantation	1.6	Horticulture
3	Pine apple Plantation	1.28	Horticulture
4	Banana Plantation	8	Horticulture
5	Arecanut Plantation	4.54	Horticulture
6	Coconut Plantation	1.6	Horticulture
7	Orange Plantation	1.28	Horticulture
8	Horti-forestry Plantation	44.5	Forest
9	Bamboo Plantation	67.1	Forest
10	Soil Conservation(check dam)	3	Forest
11	Horti-forestry Plantation	20	IGDC Project
12	Bamboo Plantation	16	IGDC Project
13	Soil Conservation (check dam)	2	IGDC Project

Table 33: Animal Husbandry

Sl. No	Activities	Quantity (Unit)	Dept/Agency
1	Cow through stall feeding	10	ARDD
2	Fishery	3	Fishery
3	Poultry	30	IGDC Project
4	Fishery	2	Fishery
5	Piggery	3	IGDC Project
6	Goatery	4	IGDC Project

Table 34: Capacity building

Sl. No	Activity	No. of person to be trained	Total person days	Dept/ Agency
1	Training on Fishery	6	64 (16 persons x 4 days)	Fishery
2	Training of village boys and girls on Ayurveda and Allopathic	4	160 (16 persons x 10 days)	Health
3	Banana cultivation	10	12 (12 persons x 1 day)	Agriculture
4	Training on Tea cultivation	5	29 (29 persons x 1 day)	Tripura Tea Development Corporation
5	Training on Advance method of cultivation	10	27 (27 persons x 1 day)	Agriculture
6	Training on Agarbatti stick making	5	5 (5 persons X 1 day)	IGDC Project
7	Basic orientation training for SHG members			IGDC Project
8	Capacity building for preparation of business plans		5 person days	IGDC Project
9	Capacity building for village women (other than SHG members)		40 persondays	IGDC Project
10	Capacity building IGA-training on nursery, medicinal plants etc.	Trainees involved SHG members & other villagers selected by village committee	400 persondays	IGDC Project
11	Awareness raising among the allottees and committee members		100 persondays	IGDC Project
12	Other livelihood training (Piggery, bee-keeping etc.)		500 persondays	IGDC Project
13	Exposure visits			

**Cultural Values, Ethics, Norms,
Adaption and Strategies**

Biopiracy and the Battle of Traditional Knowledge Rights over Patenting of Traditional Uses by the Tribes People

Biswanath Gupta

Introduction

Traditional knowledge has always been vulnerable to misappropriation being an easily available treasure. Taking the assumption that since it is in public domain, communities have given up all claims over it - traditional knowledge is merely taken and packaged into a patentable invention. The appropriation of elements of this combined knowledge of societies into proprietary knowledge for the commercial profit of a few is one of the concerns of the developing world because indigenous peoples claim it to be theft of their discovered property, which they failed to patent themselves due to lack of resources. Thus the need was to focus on community knowledge and community innovation. But the problem had no easy solution since overprotection of the knowledge will hinder probable future discoveries by limiting the base on which innovations can be carried. This called for an urgent protection of this delicate knowledge through national policies and international understanding linked to intellectual property rights, while allowing its development and proper use for the benefit of its holders.

The theft of such traditional knowledge relating to various uses of flora and fauna of our vast ecology discovered by indigenous people of countries and patenting of such knowledge uses by rich developed countries has led to something called Biopiracy. Such cases of Biopiracy had been increasing day by day and the multinational companies instead of taking the traditional knowledge claim it to be their innovation with minute changes in them.

The project focuses on Biopiracy of traditional knowledge associated with various plants and their diverse uses. After considering the problems of traditional knowledge and impact of Biopiracy on them, the project looks at the viability of the existing solutions and finally tries to come up with some solution to the problem.

Plants are composite chemical storehouses that hold many unknown biodiverse compounds with unrealized prospective uses in modern medicine.¹ Throughout the world much of these potential uses of plants are first discovered by the indigenous groups in whose local vicinity these plants grow or are found. This knowledge has great value in various industries, pharmaceutical companies in particular, due to the wide range of medicinal uses of these plants. The knowledge is also of immense value to the researchers and scientists around the world who are regularly developing new technologies to assess the chemical makeup of plants, realizing the fact that using medicinal plants identified by native peoples makes research cheap and more efficient.

Traditional Knowledge : Meaning and its Significance

Traditional knowledge means and includes the knowledge, practice and innovations of local communities or indigenous people of a country. Such knowledge passes from one generation to the next generation within the indigenous communities. The traditional knowledge of such indigenous people pertaining to the diverse uses of plants, particularly their potential use as drugs have been one of the major concern of Biopiracy. From the history, it is evident that the wide-ranging uses of various plants are first discovered and practiced by the natives throughout the world. An example can be that of knowledge that a particular plant, if used in a certain way, cures a particular ailment.

This traditional knowledge relating to the various uses of plants, particularly as traditional medicines, became so valuable because of the following reasons:

- The efficacy of the medicinal uses of such plants have been time tested, since the natives have been using them successfully since time immemorial and the uninterrupted intergenerational transfer of such uses amongst them guarantees their effectiveness.
- The traditional uses of plants as medicine are still practiced heavily around the world, and even in many developed countries, seventy to eighty percent of the population relies on such traditional medicines as an alternative or complementary medicine. It has been estimated that up to eighty percent of Africa's population uses this type of medicine for its healthcare.
- They help in facilitating further developments of the uses which will be beneficial to mankind, and at the same time helps in screening such future researches, as the research companies' researchers could now narrow their searches to plants which are particularly rich in biodiverse medical properties, i.e. they can start their work from what is already known to be effective. This has a potential to reduce the both the expense and time for conducting research and at the same time increases new advancement in the field.

Limitations of Traditional knowledge

With so many consumers and demand in the world, the value of such knowledge has gained considerable significance. But the problem is that this form of knowledge has certain limitations. They are as follows:

1. Much of such knowledge is not recorded. The indigenous people use them in practice in their day to day lives but did not realize fail the need to organize or codify them so that they can be protected.
2. Most of this knowledge is found to come from the natives of poor developing countries that have very limited bargaining power. Hence they neither have the knowledge, nor the means to safeguard their property in a system, which has its origin in very different cultural values and attitudes.
3. Moreover, since the indigenous peoples lack the ability and resources to conduct further research themselves, deep pocketed companies exploit their knowledge and monopolize their discoveries in the disguise of patents and other intellectual property rights.
4. Last but not the most important drawback of such knowledge is that no individual holds a property claim to this knowledge, because it has been in practice in public domain since ages. Therefore it is not possible to find out who was the first to discover the beneficial properties of such plants. Hence it remains as a part of community wisdom and often unprotected as patents cannot be granted to community.

Biopiracy- The Problem and its Impact

Since there are no property rights assigned to such knowledge, and because most of this understanding is located in developing regions of the world which cannot pay for the fight of its protection – this precious knowledge about plants is often taken and misappropriated by researchers and pharmaceutical companies of the rich developed nations, paving the way for Biopiracy. In other words, the process of taking indigenous peoples’ traditional knowledge and biodiverse resources freely, from biodiverse rich developing countries, without their consent and without paying any compensation to them is called ‘Biopiracy’. For instance, the natives of Madagascar knew the medicinal properties of rosy periwinkle. Later it led the pharmaceutical giant Eli Lilly to research on it profoundly, thus finding treatments for Hodgkin’s disease, childhood leukemia, and malaria.

Biopiracy of Codified and Non-codified Traditional knowledge

As discussed that one of the main reason for theft of traditional knowledge has been lack of codification of such knowledge. Most of such knowledge is easily susceptible to exploitation due to non –codification. But at the same time we have also witnessed the instances of successful Biopiracy of codified knowledge. So let us consider then one by one:

- The problem with non-codified traditional knowledge is understandable from the face of it, since something which is not recorded in writing is not available to the patent examiners when they search for them in the Patent literatures or non-patentable literature. Thus the claim over such non-codified traditional knowledge fails initially in the test of prior art, because patent offices mostly do not recognize any practice in public domain unless a written record can be produced, as happened in the *Neem case*², wherein USA granted patent on the use of neem oil as fungicide and insecticide holding that although such use of was in practice in India, yet it passed the test of ‘novelty’ since it was not ‘codified’ anywhere and hence not ‘published’.

- The difficulty with codified traditional knowledge is a bit different because in this case the knowledge is pirated even being codified. In this case the problem is the language barrier the patent offices like WIPO and EPO might have conducted the search before granting the patents in both patent literatures and non-patentable literature, but have been unable to unlock the relevant information due to inability to break the language codes of the natives. Thus in such cases also patents were being granted satisfying prior art, what happened in the famous *Turmeric* case.

Effects of Biopiracy

The transnational companies are rushing to apply to patent the new products containing the collected genetic materials, so as to prevent competitors from using them, so that they can then obtain larger profits from being able to hike up prices for the products, or by charging royalties to other firms wishing to use the technology. Moreover, with the help of TRIPS and other international trade agreements, the greedy multinational companies and pharmaceutical industries ended in not only patenting the plant product having the specific use, but also the technique employed to extract the product or the medicine from it. Such patent monopolies result in the following severe effects:

- Raising prices of the patented new invention, produced out of the traditional knowledge of these biological resources (here plant extracts) to such extent that the local indigenous people themselves, being the actual originator of those knowledge, loose access to the benefits of these new developments.
- It blocks local production of the product, if the patent owner so desires.; since if the process of extraction of the plant product is protected through patent, then the natives can no more produce them without paying royalty to the patentee, which they had so longer done freely in their natural habitat.
- In case of agricultural crops, it might result in preventing the farmers to continue breeding them which they had been doing for thousands of years.
- As we have witnessed earlier, that cases of involving Biopiracy have been successfully challenged and there have been instances of revocation of such patents, for example in *Turmeric* case, *Neem* case, etc; yet the expenses incurred in this process by the developing countries have been huge. This is the reason why the Indian government has denied continuing with the challenge of the patent of basmati rice.³ Therefore, if the government has no money and the political will to challenge and fight, which is a culturally and politically sensitive issue and an economic factor as well, it is futile to expect any meaningful challenges to any more cases of Biopiracy.

The Dilemma

However, inspite of all these negative impacts of Biopiracy, we cannot ignore the fact that Biopiracy, after all contributes to new innovations. Although the knowledge of the natives are pirated in this process, yet considering the great value of such knowledge and accepting the fact that the biodiverse rich poor developing nations of the world, due to technological and

infrastructural limitations, have not attained the position to conduct the researches with such plant resources even if they are provided financial assistance – it has to be accepted that Biopiracy, in a way ensures researches and leads to new discoveries of drugs which might cure some incurable diseases. Moreover since the knowledge itself is priceless, hence overprotection of such knowledge is also not desirable, as it will obstruct potential future discoveries. Therefore, what is required is a policy which:

- Does not obstruct the advancement of knowledge;
- Provides for valid and sustainable use;
- Ensures adequate intellectual property protection; and
- Secures just and equal benefit sharing.

Existing Solutions and their Efficiency

The problem's nearest solution was felt to be the need for 'documentation' of such traditional knowledge – as it is evident from few historical cases as regards to turmeric, neem etc. Let us now consider some of the existing solutions to this problem and their viability.

Granting of patent on Traditional knowledge to indigenous people

One solution can be to grant patent on such plant products and their varied uses to the indigenous people themselves whose traditional knowledge is actually the source of such new uses. But this solution is not feasible due to following reasons:

- The ability to protect traditional knowledge through the use of patents is unlikely because most indigenous peoples lack the funds and resources to obtain a patent.
- Obtaining protection on the plant, is also likely impossible, because to patent a plant successfully, it would need to be improved beyond its natural state.
- Moreover, since such knowledge is part of community wisdom, hence no individual can claim a right to such knowledge. Community patent was also not initially granted, because there have been instances that such knowledge was first discovered by nomadic people, and then the problem arose to whom the patent should be granted: the people or the country within whose geographic boundaries the plant grew. However, recently, some recognition have been given to community rights, as in the case of *Hoodia cactus*⁴ case involving San people of Africa.

Database

An easy solution to the publishing problem is to put into operation a "database system". If traditional knowledge is put in a public database then it would be "published" and it is well settled that anything which is published, i.e. available to public database, is not patentable.²⁷ The idea is to process all available traditional knowledge in "database" form and make it available in the leading languages of the world so that the patent examiners can figure them out while dealing with the patent applications. The purpose being to guard traditional knowledge by publishing it in a 'searchable format' - allowing patent offices to distinguish what is novel and what is already known. For example, India has set up a Traditional Knowledge Digital

Library (TKDL) in 2001, to process all existing traditional knowledge in India, in database forms and make them available in five international languages of the world, which are English, German, Spanish, French and Japanese.

But, the system has the following drawbacks.

- a) It might end up in promoting Biopiracy in a legitimate way, because
 - the database is very difficult to search, as the terms used by indigenous people are different from those used by the scientists;
 - the patent applications are themselves so complex that they make the search more difficult; and taking the advantage of these limitations, give ample time to the inventors to take advantage of such knowledge and with minute tinker or value addition of it, qualify legitimately for patent. Let us consider the case of a patent granted on the illness of 'dry eyes'. In Indian literature, the cure for 'dry eyes' control has been spelt out through the use of solution prepared from extract from crushed leaves of the '*kumari*' plant (aloe vera) mixed with clean water. But USA granted patent to solution which cures dry eyes where in the patent application, the only difference was that clean water has been replaced with chlorinated water.
- b) It is difficult to collect the information from local people as well, because they are reluctant to share their knowledge, especially if they do not receive any benefit in return. The goal of documentation being to prevent piracy of traditional knowledge, it however fails to provide any economic benefits to the knowledge holders. Hence the natives' knowledge are now taken legally with their consent without giving them any monetary benefits and their position as such remain the same.
- c) It makes the traditional knowledge available to the researchers and inventors free of cost legally.³⁴ Earlier, they had to make at least some search in order to get access to the traditional knowledge pertaining to plants, but now with such database systems, they can get that information just with a click of mouse.
- d) It is hard to take oral traditions and put them in writing correctly. It is laborious, expensive and time consuming; and still does not guarantee that all traditional knowledge has been included in the database,
- e) In order to prevent Biopiracy, all traditional knowledge needs to be recorded which is not possible. Such partial database is more dangerous since it has restrictive use and may also create additional problems; and any subsequent patent granted on such partial database shifts the burden of proof on the challenging party to prove the patent does not meet the novelty requirement which can lead to costly litigations.

Contracts and Prospecting Agreements

Since database system can be pricey and can lead to inadequate results, prospecting agreements are becoming a more-widely-used alternative. This type of agreement occurs when a research company contracts with a country for rights to biological material and traditional knowledge. Generally, a preliminary fee is paid, and royalties are negotiated. The Convention on Biological Diversity (1992) was brought with the objective of promoting fair and equitable

sharing of benefits arising out of the utilization of genetic resources and Articles 15 and 16 of which specifically provide for Asset Sharing Benefit. One of the most famous examples of a prospecting agreement was between the Costa Rican government and the United States pharmaceutical firm Merck.⁶

But unfortunately, it also has a drawback, i.e. often in such cases it is seen that the inventor ends up being a bankrupt, because it may happen that after paying so much at the very beginning to get access to the resources- he could not come up with anything novel, for instance Merck's contract with Costa Rica did not yield any new drugs. Hence we found that none of the existing solutions are self-sufficient to combat the evil of Biopiracy singlehandedly.

Conclusion and Suggestions

From the above discussions so far, it is evident that the traditional knowledge rights of the indigenous people is a very delicate issue which needs to be protected from being pirated and at the same time should be permitted to pave way for new innovations. The problem is unique since most of this traditional knowledge originates from some of the poorest developing countries of the world, which even if equipped with funds, do not have the ability to conduct the research works and further developments of such knowledge, and hence if we protect them, they will not be used effectively for the benefits of the mankind. Therefore a balance needs to be struck that can provide benefits to both developing and developed countries and to do this -both databases and prospecting agreements should be utilized hand in hand, overcoming their limitations as far as possible.

Hence the following can be suggested as the most convenient solutions to this issue

1. Database system and Contract or Prospecting Agreements should work conjunctively and not separately. We have to take it in this way and understand that Database does not legalize Biopiracy; rather it prevents theft and promotes new innovations and discoveries. While on the other hand, Contracts and Prospecting Agreements guarantees monetary compensation and benefits to the indigenous people and the source country.
2. If we analyze carefully, we realize that Database ensures monetary benefits to the natives indirectly; it makes the traditional knowledge of a particular country available to the world, which in turn paves the way for the researchers and pharmaceutical companies to approach the relevant country and get access to those resources through Prospecting Agreements.
3. In order to make the database maximum exhaustive, monetary benefits should be given to the natives at the time of collection of such knowledge which will encourage them to share the knowledge to the fullest extent.
4. In pending cases of patent revocation, the fact of reimbursement of the costs of the litigations in cases of successful revocation of patents, should considered seriously by the judges in order to prevent Biopiracy.

These are the best possible solutions to the problem, at least as long as indigenous peoples of the developing nations do not have the financial means and technological infrastructure essential to profit from direct use of their traditional knowledge. In such a situation, the next

best thing is to make sure others are not stealing it for their own use and to attract researchers to pay for this knowledge; or in other words which will help to promote Bioprospecting and not Biopiracy. And this indigenous knowledge if protected and get patented, the benefits out of these knowledge can be used for the betterment/economic development of the tribal people and can be used as a huge source of tribal livelihood and can open the door of new opportunities for earning and development to the tribal people.

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End Notes

1. Prior art, in patent law, constitutes all information that has been made available to the public in any form before a given date that might be relevant to a patent's claims of originality. If an invention has been described in prior art, a patent on that invention is not valid.

2. Neem (*Azadirachta indica* A. Juss.) has been used in India by indigenous peoples in insect repellent, medicine, and cosmetics for years. In 1993, AgriDyne (a United States company) filed a patent application for the use of neem in the United States and the European Union. The patent application claimed an oil extract of the tree could be used as an insecticide and fungicide. Once the patent prosecution was initiated, a clear distinction between United States and European Union law was shown. In the European Union, the patent was struck down for lack of novelty. To be novel in the European Union, the claim must not have been made available "to the public by means of a written or oral description, by use or in any other way, before the date of filing of the European Union patent application." The European Union does not draw a distinction between knowledge that is foreign or domestic. As long as the knowledge is available anywhere, published or unpublished, the patent is not novel. In this instance, it was held that the information was available in India, and consequently the patent was not novel and was thus not granted. Patent law in the United States draws a distinction between foreign and domestic products in barring approval due to previous publication on grounds of novelty. The novelty requirement is not met if knowledge is available in any form within the United States, but knowledge outside the United States must be published to bar a patent for lack of novelty. The lore regarding neem's characteristics in India was not published and therefore did not bar the novelty requirement, and the patent was upheld in the United States. On the other hand, had this been established learning of Native Americans, the patent would have been barred in the United States because knowledge within the United States does not have to be published to prevent patenting.

However, In 1999, the EPO determined that according to the evidence all features of the present claim were disclosed to the public prior to the patent application and the patent was not considered to involve an inventive step. The patent granted on was Neem was revoked by the EPO in May 2000. EPO, in March 2006, rejected the challenge made in 2001 by the USDA and the chemicals multinational, W. R. Grace to the EPO's previous decision to cancel their patent on the fungicidal properties of the seeds extracted from the neem tree.

The rhizomes of Turmeric, (*Curcuma longa* Linn.) are used as a spice for flavouring Indian cooking. It also has properties that make it an effective ingredient in medicines, cosmetics and dyes. As a medicine, it has been traditionally used for centuries to heal wounds and rashes. In 1995, two expatriate Indians at the University of Mississippi Medical Centre (Suman K. Das and Hari Har P. Cohly) were granted a US patent (no.5, 401,504) on use of turmeric in wound healing. The Council of Scientific & Industrial Research (CSIR), India, New Delhi filed a re-examination case with the US PTO challenging the patent on the grounds of existing of prior art. CSIR argued that turmeric has been used for thousands of years for healing wounds and rashes and therefore its medicinal use was not a novel invention. Their claim was supported by documentary evidence of traditional knowledge, including ancient Sanskrit text and a paper published in 1953 in the Journal of the Indian Medical Association. Despite an

appeal by the patent holders, the US PTO upheld the CSIR objections and cancelled the patent. The turmeric case was a landmark judgment case as it was for the first time that a patent based on the traditional knowledge of a developing country was successfully challenged. The US Patent Office revoked this patent in 1997, after ascertaining that there was no novelty; the findings by innovators having been known in India for centuries.

3. In the case of basmati rice, the challenge came only from India, while the scented rice is also grown in neighbouring Pakistan. Despite first making claims that it too would join the battle against basmati rice, Pakistan chickened out when the cost of the legal battle was found to work out to around US \$ 3,00,000. Not only developing countries, even rich industrialised countries find it difficult to fight legal patent battles in US courts. A British company, BTG, for instance, had filed a case for patent infringement over the use of hovercrafts by the Pentagon. BTG won and the Pentagon was forced to fork out US \$ 6 million in penalties. But the lesser known fact is that the company spent a whopping US \$ 2 million towards lawyers' fees.

4. For thousands of years, African tribesmen have eaten the *Hoodia* [*Hoodia gordonii* (Masson) Sweet ex Decne] cactus to stave off hunger and thirst on long hunting trips. The Kung bushmen, San who live around the Kalahari desert in southern Africa used to cut off a stem of the cactus about the size of a cucumber and munch it.

Hoodia is now at the centre of a bio-piracy row. In 1995, South African Council of Scientific & Industrial Research (CSIR) patented Hoodia's appetite-suppressing element (P57) and hence, its potential cure for obesity. In 1997 they licensed P57 to British Biotech Company, Phytopharm. In 1998, Pfizer acquired the rights to develop and market P57 as a potential slimming drug and cure for obesity (a market worth more than £ 6 billion), from Phytopharm for \$ 32 million. The San people eventually learned of this exploitation of their traditional knowledge, and in June 2001, launched legal action against South African CSIR and the pharmaceutical industry on grounds of bio-piracy. They claimed that their traditional knowledge has been stolen, and the South African CSIR had failed to comply with the rules of the Convention on Biodiversity, which requires the prior informed consent of all stakeholders, including the original discoverers and users.

Phytopharm conducted extensive enquiries but were unable to find any of the knowledge holders. The remaining San were apparently at the time living in a tented camp 1500 miles away from their tribal lands. The South African CSIR claimed that they have planned to inform the San of the research and share the benefits, but wanted to make sure that the drug proved successful. The two sides entered into negotiations for a benefit-sharing agreement, despite complications regarding who should be compensated: the person who originally shared the information, their descendants, the tribe, or the entire country. The San are nomads spread across four countries.

However, in March 2002, a landmark was reached in which the San will receive a share of any future royalties. The settlement will not directly affect Phytopharm or Pfizer since the San would be paid out of the CSIR's royalties, as South African CSIR is the patent holder. South African CSIR will probably receive a royalty of around 10% from Phytopharm, which itself will receive royalties from sales from Pfizer. Thus San are likely to end up with only a very small percentage of eventual sales.

CULTURAL VALUES, ETHICS, NORMS, ADAPTION AND STRATEGIES

5. India has already signed an agreement with the European Patent Office (EPO) to allow the EPO to search India's new database in order to prevent traditional knowledge from being patented. India is currently in negotiations with the United States, United Kingdom, Sweden, and Japan to have each country's patent office search India's database to prevent further patents that are not truly novel from being granted.

6. Merck paid a government-created entity of Costa Rica, \$1 million, furnished \$130,000 worth of equipment, provided training and technology transfer, and agreed to pay a royalty for any drug that was discovered.⁹⁵ The initial fee and any royalties went to conservation efforts, among other things. In return, the Costa Rican entity agreed to provide Merck with ten-thousand samples of plant and animal germplasm, with help from both the government and native population. This type of agreement creates a contractual relationship and gives the government a cause of action if Merck were to breach its contract.

Sustainable Livelihood for Hills: A Case Study of Lepcha

Suman Ghimiray, Bipul Chhetri, Shakti Dutraj and Tulsi Sharma

Introduction

Sikkim (22nd state of India) is known for its natural beauty and tradition. Similarly, Darjeeling (Hill district of West Bengal) is popularly known as Pahad ki Rani (Hill Queen). Hills and its natural vegetation, springs etc consider as a auspicious gift of god to a human being. Gorkha, the term refers to Nepali community, and some time even to (collaborate) Lepcha, Bhutia. Majority of population of Sikkim and Darjeeling are Gorkhas. Total Population in Darjeeling is about 0.9 millions of which 3.8 percent (approx) are Lepchas. In Sikkim the total population is about 0.6 millions (Census 2011) out of which 5.8 percent are Lepchas. Darjeeling district, consist of three sub division viz Kaliampong, Kurseong and Darjeeling under which majority of Lepchas live in Kaliampong sub division. Sikkim has four district (East, West, South, North), the majority of Lepchas live in North district (Dzongu area).

Livelihood directly means to live the life with the help of means (it may be assests, resources etc). 'A livelihood comprises the capabilities, assets (material and social resources), and activities required for a means of living. Assets important in livelihoods are natural, physical, human, financial and social assets (Kusters et al. 2005)'. The concept of 'sustainable livelihood' was coined as a development concept in the early days of 1990s.

'A livelihood comprises people, their capabilities and their means of living, including food, income and assests. Tangible assests are resources and stores, and intangible assests are claims and access. A livelihood is environmentally sustainable when it maintains or enhances the local and global assets in which livelihoods depend, and has net beneficial effects on other livelihoods. A livelihood is socially sustainable which can cope with and recover from stress and shocks, and provide for future generations.' (Chambers and Conway, 1991).

Tribal, the communities who are directly depend on nature for survival. Division of the people in different category in present scenario is becoming irrelevant especially in hills to some extent. It means the way of categorizing on the basis of caste is becoming irrelevant. If we are not mistaken, then division of tribes must be on the basis of way of living. If in reality, categorizing are to be done on the basis of way of living then majority of people (presently consider as general on the basis of caste) will fall under tribal category and vice versa.

The chapter on India's Scheduled Tribes, represents 8.6 percent of the population, recognizes that the land is not only a productive resources base for tribal peoples, but also occupies an important place as a part of their cultural and religious practices. The Tribals are the children of nature and their lifestyle is conditioned by the eco-system. India due to its adverse eco-systems has a wide variety of tribal population.

Environment is main factor which influence the livelihood of the tribals. So that importance should to be given to analysis of environmental sustainability in a holistic, people-centred manner that views the sustainability of natural resources as an integral component of wider livelihood sustainability.

Lepchas are among one of the indigenous tribal of hills (Sikkim and Darjeeling). Presently Lepchas are in the street for the movement to have LDC (Lepcha Development Council). Movement are especially to protect their ethnic tribal identity and to restore dignity⁵ (S. Sudipta, 2012). So that they are able to secure their rights and able to enjoy the different Governmental schemes available to them. This movement has some introspective relation with their livelihood pattern. Identity matters for sustaining livelihood. This movement led to the recognition that there is a need to review the approaches and strategies of development approaches of the state as well as streamline the developmental programme.

This paper tries to assess the impact and changing perspectives regarding development programmes of Government that affect the livelihood pattern of the tribal people. Besides this it even tries to analyze the pattern of Lepcha's way of living and its sustaining prospect with some alternative.

Methodology

This paper is formulated on the basis of primary and secondary information. Mainly ethnographical approach followed. Lingsey Gram Panchayat Unit and Lingsey Kha GPU of Kaliamong Sub Division II, is taken as main study field of Lepcha community. The reason behind considering this village as study area is because of its location⁶. Most of the information collected by interviewed senior citizen of Lepcha community and first graduate of the Lepcha community of surveyed two GPU⁷. Mostly qualitative analysis approach used to make this paper.

Lepchas and their Livelihood Pattern

India has the largest concentration of tribal population in Asia and it is the second largest in the world in terms of tribal population (Upreti 2007). Among them, hill indigenous community is Lepcha. They believe that their ancestors were made from snow on Kanchenjunga's summit. They regard Kanchenjunga as their guardian deity and relate their livelihood on Kanchenjunga.

Main means of livelihood of the Lepchas is the agriculture. Rural Lepcha households highly rely on forests for a diverse range of resources that provide direct household inputs of fuelwood and timber and even varied inputs for farming systems in the form of grazing land, tree fodder, bedding material and grass collection. They use irrigated fields (Khet) for rice cultivation and rainfed terraces (Bari) for maize and millet cultivation. This mixed farming outputs are the main livelihood of the hill Gorkha as same to Lepcha tribes. These indicate, that to sustain life in hill is not so difficult and even not that easy.

Agriculture tends to be a primary occupation with cattle rearing and forest produce collection. Mainly they produce staple food like Rice, Maize and Millets and cash crop Cardamom and Ginger. They follow multi crop pattern¹ in year. For farming livestock plays a pivotal role. Livestock is mostly of local breed. Survivals of indigenous tribals are entirely dependent on land and forest resources.

In earlier days, Lepcha's traditional agricultural practices ensured them their food security and earning from cash crop like Cardamom and Ginger and NTFP (Broom, bamboo product etc) product to meet their household expenses to fulfill their need. The practice of using bamboo and cane for the household artifacts is as old as the tribe exists in the foot hills of Himalayas. They believe that keeping the cane and bamboo artifacts at their home keep them away from ill effects of evil spirit. In addition to that, bamboo and cane is also an indispensable part of their livelihood mostly in the form of food (Bamboo shoot), roofing, ceiling, bows, traps, ornaments, fishing, rod, traditional suspension bridge, etc. therefore, the tribal population believes that their domestication of bamboos nearby their home is mandatory for its sustainable use². The traditional livelihood system of tribal people has been based on shifting cultivation and collection of edible forest produce. Such a system was rendered sustainable by a level and pattern of utilization of land and forest resources, which ensured their self generating capacity.

To sustain the fertility of agricultural resources government have started framing new programmes like as an Organic Mission in Sikkim and other areas. But the fact is that the method of agriculture practices which Lepchas followed were totally traditional in nature in which Cattle dung were mostly used as manure rather than fertilizer and other inorganic manure. The new approach that the government at present is trying to implement has already been in use among the Lepcha community which implied that their own way of livelihood and farm practices were more sustaining.

Dzongu, is place of North Sikkim, known for Origin of Lepcha community. The Lepchas are living in the foot hills of Himalayas on the southern and eastern slopes of Mount Kanchenjunga and are aboriginal inhabitants of Sikkim. Sikkim was closed to outside world for centuries. The Lepcha tribe with no contact with outside world remained in primitive stage for centuries. Having seen this ground reality, the government of Sikkim, in the 2005, granted the status of "Primitive Tribe" to the Lepcha community, officially¹¹. With new developmental approach of the Sikkim government to utilize local natural resources and to generate revenue and employment mainly Hydel Power Plants have been set up which has threatened the habitat of the Dzongu.

Sumok thyaktuk (traditional hat), is unique and an oldest craft form of the Lepcha tribe. This hat is a symbol of hard work and the skill of the craftsmanship. But, with the advent of the modern outfits, the tribal of the Sikkim hills tend to lose their own traditional dress including the hat. Apart from that, being one of the unique craft, it posses immense potential for filling of Geographical Indication (GI) registration under Intellectual Property right for the benefit of the craftsman¹². It is due to the lack of prominent industries for tribal handicraft, initiative has to be taken in this field to preserve ancestral pattern of livelihood in advancing society.

There are scope to follow their own traditional methodology for sustaining their livelihood rather than to go for modern approach.

Impact of Governmental Schemes

To safeguard the interest of the tribal population in India several programmes have been initiated by the government both at the national level and the state level. Various constitutional provisions emphasize on need of strong vigilance and protection of tribal identity, their livelihood and natural wealth. The special programmes for Tribal Development have been implemented in the country to benefit the tribal population under backward class sector in different five year plans by creating many schemes like chronologically Multi-Purpose Tribal Projects in Certain Tribal Areas, Tribal Development Block System, Tribal Sub Plans (TSP), Modified Area Development Approach (MADA) under TSP all these come under the Integrated Tribal Development Programmes.

Tribal structure has deteriorated and changed because of economic and social transformation throughout the country, mainly with the introduction of government services and scheme and modern outlook. Considering many challenges prevalent in the Indian society including tribal people, to promote them in the development process of an economy and to reduce the gap from the main streaming India many new Governmental schemes have been implemented like Forest Right Act especially for tribal, Financial Inclusion programme, Employment Guarantee Programme etc. All these above programme have been implemented for the purpose of sustaining the rural livelihood in self sufficient manner. Even, in recent years there are official recognition and support for community based natural resource management even in the hilly regions of Himalaya.

Large-scale eviction of tribals from 'encroachments' on forest lands during May 2002 and 2004, and the widespread protests that followed form the backdrop against which the Schedule Tribes and Forest-Dwellers (Recognition of Forest Rights) Bill, 2005 was conceived (M. Indra, 2005). Even in hills, people are not allowed to use forest which they usually use for fodder, firewood and other purpose. That makes them to rely on other material sources like governmental scheme and in other sector rather than primitive sector.

The Forest Right Act (FRA), 2006, is considered an important landmark in the history of forest resources use and management in India. The Act aims at restoring traditional rights of forest-dwellers on the one hand, and maintaining the ecological balance on the other with a view to provide sustainable livelihood options to forest-dwelling scheduled tribes (STs) and providing other traditional forest-dwellers, including those who were forced to relocate their dwellings due to state intervention (S. Jyothis, 2010).

If this act is implemented as it is, then this to some extent can sustain the livelihood of hills. It is because this act tries to give priority to traditional pattern of use of natural resources especially forest. Here emphasis is given to traditional method rather than modern approach to livelihood due to its negative past experiences.

But the problem is that Joint Forest Management Committee (JFMC) has not yet been formed in many areas of Darjeelling hills as Section 6 of the Forest Right Act has made certain procedure for this. And Sikkim despite of having such committee are not able to work properly in tribal areas like Dzongu, North Sikkim.

This Act can establish tribal rights in the forest within the broader perspective of greater inclusion of all forest communities in the management, protection and regeneration of forests

for sustaining the livelihoods of the hills. For this purpose tribals are the core group due to the fact that they have greater interest in protecting forests, due to their high dependency in nature, which are their sources of livelihoods.

The fundamental Law of creation is that water and seed are the two essentials for any type of growth. There can be no creation in the absence of water and seed. Both these are complementary and supplementary to each other. This shows how perseverance and protection leads to growth.

Employment has always played an important role in rural India and tribal development. The provision of employment opportunities to the tribal societies residing in the remote areas have always formed integral part of the development and process of planning. It was during the Fifth Five Year Plan that the unemployment and poverty was recognized as the principle objective of economic planning in India. The seventies and eighties scheme for the rural development in India were Integrated Rural Development Programme (IRDP), National Rural Employment Programme (NREP), Rural Landless Employment Guarantee Programme (RLEGP), Jawahar Rojgar Yojna (JRY), MGNREGA. All these programmes were initiated at the village level to solve the problem at the village level thereby improving their livelihood and source of income. During the Tenth Five Year Plan the employment strategies mainly focused on the labour intensive sectors of the economy (Hazara, 2011)

Special provisions have been made for the protection and development of tribal population in India. The aim is to safeguard educational and economic interest and protection from social injustice and all other forms of exploitation. The constitution protects the tribal rights and also permits the states to make reservation in public services in case of inadequate representation and requiring them to consider their claims in appointments to public services.

Employment generation programme is achieving good momentum in hills especially in Darjeeling (recently award received for good performance in MGNREGA). No doubt, whatever work has been done for the benefit of the society, however there are some loopholes which may have impact on the sustained livelihood of the tribals. The Rural Employment Guarantee Scheme on one hand does not provide the guarantee of the job as well as the payment, on the other hand this employment guarantee scheme, hampers the agricultural activity. Now tribal people have started lessening their agricultural fields, so that they can sale their labour in governmental scheme to earn direct cash rather than product (which are by doing agricultural activity). Now the question is whether this type of scheme will continue in future. If yes, then to what extent? If no, then how will the people cope up this situation with less agricultural activities?

Similarly to the programme of financial inclusion is pushing the people on cycle of debt. In the name of financial inclusion to every corner of society (Including Tribal) innovative mechanism is being implementing in our diversified nation with the help of MFI (Micro Finance Institute) via NGOs and SHG (Self Help Group). Instead of this scheme, the tribals are not able to benefit and those who are benefited are in the situation of 'debt cycle' as quoted by Rahman (1999). This debt cycle generated is due the easy and low interest availability of loan. The main motive of this facility is to make people self sufficient with that money by creating productive assets. But beneficiary (tribal population) are not using that money properly that

lead to problem at the time of repayment. This makes people force to find other source (money lenders) for borrowing money to repay to loan amount of bank. This makes ‘debt cycle’ among the tribal population.

Despite many efforts to promote the sustained human livelihood, policies are not adequately addressing the problems of hill tribal. Majority of hill tribal in Darjeeling and Sikkim are depend on terrace farming, which is rain fed in nature and lack of proper irrigation facility, proper cultivation cannot be done which itself leads to the problem of productivity in terms of quality and quantity. This, results in loss of traditional skills and ability to carry these activities for the future generations and the most important being the loss of food sovereignty and nutrition.

Conclusion and Recommendation

In many cases, destructive activities is done in the name of development, the tribal and other communities who also depend on forest are facing problem due to overexploitation of the natural resources in the name of materialistic development. Tribal who are rich in tradition, are coping the adverse situation by using their traditional knowledge for sustaining livelihood. At ground level, it is needed to shift the power of decision making from official level to marginalized tribal people for whom the policies are actually implemented for developmental approach.

It is complicated to provide specific statement to explain the sustainable livelihood. ‘Sustainable livelihood’ is usually understood in material terms – in terms of access to and sustainable management of livelihood resources. However, in a broad sense, sustainable livelihood particularly in the context of tribal people – is perhaps more appropriately seen in terms of enhancement of capabilities.

To achieve the goal of sustainable livelihoods of hills especially tribals, firstly we need to acquire knowledge of the people and other influencing factors so that we can use their own knowledge to sustain their livelihoods with existing resources. Alternative management strategy must be formulated with the help of research institute, NGOs and respective governmental departments in collaboration with community member.

We need to emphasize on their own traditional knowledge for sustaining with innovative approach to optimize the resources. Analysis requires understanding of the current use of natural resources and changes in resource use caused by local adaptive strategies in order to assess whether the productivity of natural resources are reduced, conserved or enhanced for use by future generation.

Focus on tribal handicrafts SMEs (Small Medium Enterprises). It has unique feature like Self Employment, Regular Employment with demand of the product. New programmes must be made for the promotions of NTFP (Non timber forest product like Broom) based livelihood generation by developing a different cultivation technique. Platform must be provided to young researchers to find out more fruitful things in this field.

Efforts has to be initiated to strengthen hill tribal by providing training and awareness programme for income generating activities by utilizing natural resources like organic farming , medicinal plant cultivation and alternative high value cash crops. Even empowerments of women are needed in this field as women play important role in tribal livelihood and in general as well.

Immediate step to preserve sustaining livelihood of traditional methodology with the help of senior citizen of Lepcha community by writing their experiences and pattern of cultivation and livelihood strategies. Even by organizing community discussion to disseminate the knowledge for farming and other livelihood approach.

We also need to investigate the impact of Community Forestry on agricultural sustainability. In an every approach our main concern should for poverty alleviation considering it as a way to environmental sustainability. Effective implementation of JFMC (Joint Forest Management Committee) and its policy can lead to optimistic result. Forest has great potential to contribute to improved livelihoods and more specifically, to poverty reduction.

If we have to adjust the 'Livelihood' pattern of the hills tribal in 'Sustainable' manner then we should make approach of development which is based on ethical view point of community (consider value judgment) with modern technology without hampering the traditional believes and cultural knowledge. Keeping all this developmental aspects in mind, the development of sustainable livelihood among the tribal population can be preserved and maintained even in the adverse scenario of social, economic, cultural and political influences.

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End Notes

¹Varieties of crop grown within a year

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The Moving Realities in Chakma Society

Rita Chakma

Introduction

While giving his observation regarding the tribes of India for policy formulation Pundit Jawaharlal Nehru said: 'I am not at all sure which way of living is better, ours or theirs. But in some ways, I am quite certain theirs is better. A great deal of things could be learnt from their culture especially in the frontier areas. . . .'. Perhaps he being such a sensitive intellectual could presume the gravity of the matter and wanted to let the tribes take their own way. Generally tribes are identified by a distinct culture having diverse ethnic texture. Wikipedia defines them like this: 'A tribe is viewed, historically or developmentally, as a social group existing before the development of, or outside of, states. Many anthropologists used the term tribal society to refer to societies organized largely on the basis of kinship'. They have been referred to as aboriginals, indigenous people, primitive group etc. also. Whatever denomination they are given, it seems that tribes possess at least some traits that distinguish them from the mainstream society and the some policies have widened the gap further.

With such a tag these people numbering about 150 million in the world (as per Survival International) and 84,326,240 in India (Census,2011) have always been at the receiving end in one way or other. In the post independence era it was one of the critical issues that how to deal with the tribes. The approach of segregation followed by the colonial rulers remained alive in the post independence period also. Political thinkers and anthropologists put forward two lines of approaches – one is of segregation and another is of complete assimilation. In the process the Indian Constitution had come up with some safeguards for tribes considering their remoteness and backwardness compared to other communities of the society. The Sixth Schedule of the Constitution (Administration of Tribal Areas in the States of Assam, Meghalaya, Tripura and Mizoram) provides for constitution of District Council and Regional Councils aiming at safeguarding tribal rights and ensuring their welfare. How and to what extent those safeguards have benefited or achieved their goals is a matter of debate in many fields. The bottom line is the process of social change has not let them remain aloof from the outer forces.

Today the government, experts and socially concerned people are talking about preservation and promotion of tribal customs and culture. Of course, why not, as we see that

the modern civilization is making inroads into these arenas and we are losing some traits of their culture or characteristics. In Tripura officially 19 tribes are recognized, one of them is the Chakmas. Before we go into details of what is going to be discussed in the coming paragraphs it would be better to give a brief introduction to Chakma tribes who formed barely 6.5 per cent of the state population as per 2001 Census. As per the most recent history of the Chakmas it is known that they had migrated from Chittagong Hill Tracts. They are said to have originated from the Tibeto-Burman race but no clear theory is available on their origination and political chronology as the early history of the Chakmas is shrouded in assumptions, sparse documents and oral traditions. While other tribes of Tripura or Northeast India follow Hinduism, Christianity or animism at most, the Chakmas have predominantly been Buddhists since distant past.

As belief is a driving factor for any entity it has a major role to play in the development of a social group or community also. This study attempts at showing how socio-religious factors, apart from other forces, influence the wheel of change in the Chakma society as far as their system of corpse disposal and livelihood pattern are concerned.

Corpse Disposal & Funeral Rites

For a society to lead a wholesome life disposal of corpse becomes a necessity, as human beings are perishable. In the name of scientific reason, environmental aspect or tradition and religious preferences different human societies have practiced different systems of corpse disposal.

As per archaeological records in the ancient days cremation started sometime around 20,000 years back. In Europe, there are traces of cremation dating back to the Early Bronze Age (c.2000 B.C.) in the Pannonian Plains. Hinduism and Jainism are maintaining in favour of cremation while the Persians believe in natural disposal; Christians and Jews frowned upon cremation, although there are instances when the exponents of burial had to give a second thought in the face of increasing population and space crisis. Cremation many a times had also been opted as a method of punishment to the war criminals. Among the tribes also we notice a variety of customs and rites being carried forward from time to time. The variation has often been a result of their religious inclination, for, different tribes following different faiths.

Traditional Practice & Changes with Passing Time

Being traditionally Buddhists or claiming to be Buddhists the rites and rituals associated with disposal of corpse and funeral rites have been influenced by Buddhist culture to some extent. The term 'to some extent' is used as subsequently what Buddhism prescribes and what has been prevailing among the Chakmas will be explained later. Now let's see what is the common practice among the Chakmas.

At the instance of a death in a Chakma family the villagers are immediately informed about the incident. Whenever someone learns about a death the women folk of that family prepare an 'Aaljye'¹ on the belief that it would avert the evil spirits trying to enter the house. With passing time this practice has come to the verge of extinction. The affected family i.e. in which the death has taken place will keep eating out (in relatives' or neighbours' house) till the corpse is not taken out for cremation or disposal as cooking / eating is prohibited in a house containing a dead body. The 'eating out' is still in vogue in the Chakma society but Aaljye is hardly seen nowadays and it may be out of practice totally in coming days.

And the prohibited period varies as there is no fixed time for disposing a dead body and more so it depends on a lot of factors, like requirement of waiting for a family member to reach (which has become more common nowadays with the changing pattern of livelihood, many people taking up a profession requiring the person to stay out of the home town), problems in the process of preparation and a universal tradition of the Chakmas i.e. a Wednesday. Chakmas never cremate a dead body on Wednesday, although no logic has been found behind doing so. The Wednesday taboo is still followed without any question.

On receiving the news of a death the relatives start gathering but it is the responsibility of the villagers to decide as to what should be done and how the disposal of the body will be carried out. In consultation with the deceased's family the course from disposal to funeral rites (coming at a later stage when the cremation is over) is decided. Although the general practice is that the deceased's family bears all the expenditure related to cremation and funeral rites, the villagers may collectively extend financial help also in some cases if the affected family expresses its inability due to financial reasons. A dead body is never cremated in the morning; it is an activity to be done always in the afternoon.

Now some lights should be shed on the process involved with the corpse from death upto the cremation. Soon after a death is confirmed a structure (made of bamboo or wood) called 'Somreng-ghar' is made and the body is placed on it. The body rests on this structure till other arrangements are made for taking it to the cremation ground. As all preparations for taking the body away are done another structure namely 'Aalong-ghar' comes in; the body placing on it, is carried off mostly by male members of the society. However, there is no such prohibition that may deprive a female, if she desires, to be a part of the procession as well as being a bearer of Aalong-ghar. On reaching the cremation ground the dead body is kept on a different structure known as 'Radha-ghar'⁴ ultimately to be placed on the 'Rubha-kur'². A myth associated with this custom should be described in brief.

The myth goes like this – the Radh-ghar is a symbolic structure of king Sadengiri's journey to the heaven. It is said that king Sadengiri was a very pious and kind hearted person who, in his human body, went to visit the heaven for seven days. The king on his chariot took along a monkey and a dove. Now the Chakmas, replicating the chariot of Sandengiri prepare this 'Radha-ghar' whereon a symbolic monkey and a dove is made. However, this myth does not have any evidence to support its authenticity. One more practice that could not be justified with reasons is – writing 'Kaa' and 'Laa' in Chakma script on the structure of Aalong-ghar.

The corpse dressed in new clothes and carried on shoulders is taken for seven or five rounds around the pyre. Then it is placed on the pyre and offered food (including country liquor even, if necessary). The eldest son of the family, if available, sets on fire afterwards, first of all. In case of not having a son, someone (a male) from the same 'Gojha'³ takes the onus of setting fire on the pyre first. Before setting fire on the pyre the practice of taking 'Panch-Sheel'⁴ is also noticed among the Chakmas and often Buddhist monks are invited to perform this rite. One more spectacular system is – hanging a canopy like white cloth supported by four bamboos in four corners. The canopy is fitted on top of four bamboos so that the fire of the pyre does not damage it. This canopy is known as 'Chaanno kaani'. However, this custom is now being questioned for its utility and practicability. Because Theravada Buddhist texts do

not prescribe any such practice and the change has already started with some Chakmas giving up this tradition. At the same time the specific structures used for disposing a dead body are becoming things of the past (only being practiced to some extent in rural areas) due to non-availability of ingredients, advent of modern life, changes in outlook etc.

Cremation & Burial – Why and How

Although cremation is the common practice in the Chakma society but burial is not a taboo either. Specially burial is opted for when the deceased is a child or depending on the reason for death i.e. whether the death is a result of deadly and contagious diseases like leprosy, cholera etc. So far the process of corpse disposal as per prevailing social customs has been depicted and the people in general have accepted the tradition without putting any question to any of these customs. But Buddhist texts and experts tell a different story.

As already mentioned Chakmas, being followers of Hinayani Buddhism (Theravada) practice religious rites as per the oldest form of Buddhism. Buddhism speaks of Karma and its result i.e. a human being or any living being reaps what she/he sows. This theory nullifies the utility of inviting monks for cremation processes, as their prayer or blessings cannot change the fate of a person after death. Now, with the current resurrection of Hinayani Buddhism many people have stopped involving Buddhist monks for this purpose.

As per Buddhist texts Buddhism did not prescribe cremation from the very beginning. Whenever a person died they used to throw the dead body in the Aaamak Shmashan⁵, an open ground to dispose of naturally which used to take a very long time. We may find similarity between this practice and the Chel Ghar of Tower of Silence of the Persians who leave their dead bodies to get disposed of by making it vultures' feed and natural decomposition with the passing time. However, due to extinguishing population of vultures they are now being compelled to resort to other methods of disposal. But in the case of Chakmas or Buddhists it was not the case.

There was an ascetic namely Daruchiriya living in a place called Supparas at the time of Buddha. Guided by a well-wisher he was out on a journey to meet Buddha and he walked through the night without taking rest. When he met Buddha who was out for begging in the morning in the village Daruchiriya prayed and pleaded for ordination from Buddha himself. But Buddha refused twice and ultimately delivered a discourse for him guiding him how to meditate at the very spot. On hearing this discourse Daruchiriya became Arhat⁶ and now he pleaded for ordination again. Buddha asked him to look for Chibar⁷, Sabek⁸ etc. and other equipments required for the purpose. But when Daruchiriya was on the lookout for the same he was killed by a buffalo on the road. On reaching the spot of this incident Buddha asked his disciples to arrange cremation of the corpse, as it would not look good if animals tampered with the body of such an enlightened person.

This was an incident that took place more than two thousand and five hundred years ago. And grasping the advantage of this method of disposal from the point of avoiding an ugly sight as well as environmental reasons common people also embraced the system. However, the open cremation formula is shrinking in cities due to lack of space and the advent of modern crematoriums.

Chariots speeding up in the battleground of mythological shows on television are not new to us but the real chariots may be a rare spectacular sight for many. The tradition among the Chakmas that was started years back to show honour to the deceased by transporting him on a chariot might be the only real life chariot today, although it is less elegant and attractive than the imaginary ones on television. Before cremation honouring a corpse like this is generally done in case of Buddhist monks, some differences⁹ have been noticed between general cremation and their cremation also. However, there are instances that few well-off persons were also given similar respect in the past. This time consuming practice compels the organizers to preserve the body in a wooden box filled with traditional preservatives capable of keeping the body intact for months. With the changing life–style and changed economic structure nowadays this tradition has become a very rare practice, for it requires elaborate and enormous preparations and of course fund also.

At the same time inviting monks at the cremation ground or to the deceased person's house also started as a sequel to an incident that took place during Lord Buddha's time. At a time when Buddha was residing at Benuban Vihar in Rajgir (in present Bihar) a prostitute by the name Sirima came in touch with Buddha and after hearing the discourse of Buddha attained the Srotapatti Marg¹⁰. Thus she gave up her usual occupation and started leading a normal life, giving out Dana¹¹ and offering Pinda (food) to the monks everyday. But the aura of her beauty did not fade a bit even then, the news of which reached upto a young monk residing in a different place. On hearing description of her beauty he felt attracted and desired an audience with Sirima. Accordingly in the name of taking Pinda he visited Sirima's residence and at the instance of a sight of Sirima the young monk got completely besotted by her beauty. He could not eat and sleep since then. On the other hand Sirima fell seriously ill since that day ultimately breathing her last within a short span of time.

King Bimbisar was at the helm of Rajgir at that time. He conveyed the message of Sirima's death to Lord Buddha by sending a commissar. Buddha decided to visit the cremation ground but before that he requested the king to keep the corpse for three-four days in a guarded condition to avoid tampering. The king obliged accordingly and when the day for cremation came Buddha, alongwith his disciples including that young monk turned up at the spot. Meanwhile the lifeless body of Sirima started decomposing without the use of a preservative. Buddha started addressing the public. He asked the king to make an announcement for giving out the corpse on auction for a huge amount, the amount she was worth in her hey days. No bidder came forward. The amount was reduced gradually, ultimately making it a free offer. But still there was no taker. Buddha, now targeting the young monk, delivered invaluable discourse about impermanence and falsity of life, desecration of body etc. With this the mentally perverted monk got back to his senses. Since that day monks used to visit occasions of death and cremation and contemplate these eternal truths by practicing Kayanupassana¹²; not to benefit anybody else but themselves. With passing time visits of the monks on such occasions were taken for granted as a part of the process of disposal of dead.

Funeral Ceremony

In Chakma society the funeral ceremony is called ‘Saat Dinye’ meaning seven days as it falls on the seventh day after the cremation. It is more of a religious ritual than a normal feast or occasion to celebrate. However, a feast is arranged for the relatives coming from far off places and the neighbours who have lent their help during the crisis hours beginning from the death. In order to keep the spirit of those engaged in preparation for the Saat Dinye, nightlong Gengkhuli (a kind of Chakma folk ballad) or Buddha Kirtan (Buddhist devotional chanting) is arranged. Young volunteers keep supplying them with betel nut and betel leaves as well as Daba-dhundo¹³ so that they are also not let down on spirit.

Progressive outlook of resurrected Buddhism gradually settling in the Chakma society after the rise of Bana Bhante (an enlightened monk in Bangladesh who expired last year) is putting question marks to many customs and traditions. Offering ‘Aag baara poi’¹⁴ to the soul of the deceased is another custom so far embraced sincerely, is coming under the whip of progressive Buddhists. Naturally, as Buddhism believes in departure of the soul (though soul is not recognized as it is done in other religions) immediately after death and re-birth, the custom of offering food to the deceased seems futile.

Before this resurrection there came a phase in the society when the Chakmas deviated from the original Hinayani principles and started worshipping Rouli or Luris, a priestly class) who are said to have brought in the Mahayani tradition among the Chakmas. The religious treatise they used to follow is known as ‘Aagartara’ or ‘Aakhartara’ which is claimed to be the ancient religious text of the Chakmas written in Chakma script. What this ‘Aagartara’ consisting of several sections prescribes is – some mantras and rites involving disposal of corpse, funeral rites etc.

But the most striking feature of this tradition is ‘the worship that proves re-birth’ called ‘Bhatdya Puja’ which has been compared to Yagnas of the Hindus by some experts. This Bhatdya requires enormous preparation, as from daily used commodities to costly assets need to be arranged. Relatives and villagers are invited to remain present. During the Puja search is done for a particular departed soul. In this course if that person takes re-birth and in his / her re-birth he/she is still a child or an animal even that re-born character is invoked through the Puja. Then he/she is questioned and if he/she has left something dear in his/her past life and demands it now, he/she has to be provided that immediately. When the demand is fulfilled the impersonated character disappears and the original character (in present birth) returns; otherwise the person dies on the spot. If it happens that the deceased has taken birth as an animal and the animal concerned is nearby the animal will collapse on the ground and nothing will be done for the animal to cure it so that the re-born relative is relieved from the life of an animal. All these things may sound little absurd but aged persons of the society who had been witness to such occasions will still testify to this fact. At present there is no scientific justification available for this but this has been a peculiar tradition, which is almost extinct now, partly because of the reformed Buddhist practices and partly because of the huge cost and efforts involved in it. Because present day monks are of the view that these kinds of worships are of no use, as this worship does not help anyway in liberating a soul but to prove re-birth only and which is not the goal of Buddhism.

Livelihood Realities

Often the Chakmas are referred to as ‘Jummas’. This term popularly used in Bangladesh. The term ‘Jumma’ denotes – one living in the hill area and practicing jhum system of cultivation or shifting cultivation. Although Chakmas are not like other nomadic tribes but by virtue of circumstances they had to be always on the move; the history of the Chakmas support stands testimony to this fact. Whether chased by some rival groups or being embattled or driven away by developmental issues, they have hardly had a settled life style. The very nature of their existence is reflected in their way of cultivation also. For ages they had solely been dependent on jhum cultivation for sustenance, for history does not show them as being involved in hunting and gathering type of life or having a settled agricultural livelihood. So, land rights have never been established the way it has happened with other groups of people.

They had, of course, a king who ruled as per his own rights and capacity; had royal administration but the subjects had still predominantly been dependent on jhum cultivation, as they areas Chakmas lived were predominantly hills. The jhum culture had one more advantage for them – at a time when the portals of schools were beyond their reach, when education meant learning the knowledge of few letter from some home tutor at home jhum played a major role as a calendar for calculating age, dates etc. Moreover, they have been a step forward in comparison to many other tribes in some aspects – one notably being their scripts. They are said to have possessed a complete set of scripts and some documents written in it also, which distinguishes them evidently from many other tribes. The origin of their script and language has drawn a number of assumptions, deduction and justifications but this is a different subject altogether.

Having not been able to keep aloof from the impact of modern civilization, the process of change has been experienced in the field of their livelihood and life style. The economic status of Chakmas, in no way, can be termed as flourishing; neither in the past nor in the present scenario, if considered in view of the general economic standards taken for the affluent class. However, it was not as remote as that of the hunting and gathering people. It would be better to clarify with an example – those who had owned some acres of agricultural land or lived in houses with tin roof were treated as affluent among the villagers. However, it was a sort of definition of affluence in the rural context. And since urban culture and life in urban setting is a very recent phenomenon for most of the Chakmas this assessment was almost a generalization.

It has been noticed that tribal economy and ownership rights, have often been governed by their traditional customary laws. Their lives primarily being confined to their local geographical limits in the past, did not had much of interaction with the outer world. Land rights were mutually recognized and in the absence of any strict legal systems of the modern day governments disputes over property rights were also solved locally within the community. Thus developed a cohesive symbiotic relationship among the groups as well as between men and the environment.

Forest resources were the main source of sustenance for the tribes including Chakmas. Agriculture did supplement what the nature produced for them. Accordingly their life style, standard of living, pattern of living – all had a repercussion of it. Festivals emanating from the very beginning also bear shadows of agrarian culture. As Chakmas are said to have migrated from Chittagong Hill Tracts of Bangladesh the livelihood or life style aspect of the Chakmas of

Tripura cannot be discussed in isolation. The economic system remained common to all, living in Bangladesh or different states of India. There was a time when Chakmas used to live in small concentrations of Gojhas. So, the natural resources surrounding those groups were used mainly by them only. Specific plots of land were identified for individuals for jhum cultivation. Several years after, when the same plot was left unused by that particular family, some other family could claim it for cultivation. Prime crops included rice, cotton, sesame and few vegetables.

Life was almost self-sufficient based on jhum produces; whatever was grown in the jhum sufficed for their food requirements, except commodities like oil, sugar, salt, spices, dry fish had to be purchased from the market. Forest provided materials for house building – common being the slightly raised bamboo structures supported with trees as pillars, although it is a past phase, now hardly could be seen, barring those in remote and hill areas. Apart from rice, cotton was a prime crop, not because it was a cash crop but because it supported a whole system of textile and clothing. With the cotton grown in the jhum they used to spin threads; after dyeing the threads they used to weave their own clothes on loin looms. The art of weaving was so much of significance that all women required to learn it; even the knowledge of this art was a deciding factor in match making.

The art of weaving in traditional style is on the path of decay, an unfortunate evolution indeed. This sector of livelihood has had perhaps the greatest impact of modern civilization. With men and women taking to modern culture, getting used to sarees, salwar kameez or even western outfits nowadays hardly the closet of Chakmas include traditional attires. In these circumstances one day it may happen that none of the coming generation will be acquainted with the art of weaving. Now the recent trend has taken a different turn. Some enterprising persons (Chakmas) in Bangladesh ventured into the commercial domain by commercializing the Chakma traditional costumes, pinon¹⁵ and khadi¹⁶ specially. The venture proved successful making these items lucrative and popular products in the market. Seeing the high demand for pinon-khadi as well as other indigenous items the avenue was soon grabbed by even non-tribal entrepreneurs.

The realm of this market has been so extensive that it penetrated the states of India also (including Tripura). What for ages had been woven for domestic use or for neighbourhood requirements now began to be manufactured in huge volumes targeting the ever-increasing number of customers. The universally accepted and used designs of pinon (woven of black and red threads mainly) and khadi began to undergo transformation with the intrusion of commercial aptitude. Modern dyeing system, developed machineries (looms) began to take over the scene. The new transformed pinon-khadi started alluring even non-Chakmas as the new avatar of pinon is more colourful with more variations and texture of cloth also has wider qualities; today many non-Chakma tribal women are seen roaming around in Chakma costumes.

But the alarming factor is – on the one hand the original variety is losing its ground and identity with the intrusion of the improved and varied versions, on the other traditional small weavers are getting marginalized. Even rural women have started wearing the new version of pinon available in the market, thus many of them are even forgetting the art of weaving. That means as the new flourishing trade has generated employment for new generation weavers, at the same time it has put the traditional weavers idle. More detrimental fact is that such a

commercial attitude has not developed in Tripura, instead the products coming from Bangladesh through legal or illegal means are taking over the local market. Had it played a catalyst to the growth of a self-supportive trade based on Chakma handloom in the state many people could have found employment in it. Here we see the growth of outlets only for the products made in an alien country.

An out an out feudal system did not exist in the Chakma society, although some traits of feudalism could be noticed, veterans claim. But there was a time when the noblemen in the form of Dewan, Talukdars had ruled over the local affairs. From social disputes to ownership disputes used to be taken to the court of Dewan, Talukdars before it required to be shifted to the court of the Chakma king or the British court in some cases. Early economic system had the existence of one more class – the money-lenders. Many comparatively affluent Chakmas had acted as money-lenders (silver coin at one time) to the poor jhumias who had to borrow to complete the process of cropping with the hope that the loan would be repaid in cash or kind once the crop was taken home. That class of the society is almost non-existent now, although still in rural areas the practice is prevailing in a subdued manner.

Apart from crops grown in the jhum field the Chakmas, like other tribes, have depended on forest resources for sustaining life. Even today the view of tribal men and women selling bamboo shoot, wild potatoes, wild leaves etc. along the National Highway – 44 as well as in the local market is very common throughout the state. Although the forest department has imposed some restrictions in view of the declining forest cover, the practice they have been used to for ages could not be eliminated totally. And bamboo shoot is a very popular dish in the state not only among the tribes, but non-tribes have also started taking it as a special dish. Selling of these forest resources may not be enough to support a family, but it is a good earning supplement for many.

Today a good number of Chakmas have opted for alternative vocations as with the spread of education many of them are in the services of different sectors. However, those still depending on agriculture specially jhum cultivation are in a fix with the coming of various laws restricting their rights over forest as well as developmental projects and tribes being illiterate in most cases did never register their rights over the lands they had occupied and utilized so far. A glaring case is that of the Chakmas living around Dumboor lake. When the Dumboor power project came up in 1970 about 5000 to 8000 tribal families a great number of whom were Chakmas, were displaced and only a small percentage of them could prove ownership and managed to secure rehabilitation, as the official records counted 2,553 patta owning families as displaced. For the rest a nomadic impoverished life awaited. Moreover displaced persons hardly get their due prices as the registered price for the piece of land concerned is always below the actual rate of land. Once prosperous economy of tribal peasantry was hit disastrously compelling many of them act as wage labourers or fish-catchers that changed their age-old life style completely.

The government has, indeed taken several measures for the development of tribes. In addition to general development schemes, Tripura Tribal Areas Autonomous District Council, 37-point Tribal Development Package, Indo-German Development Cooperation Project, Tripura JICA Project etc. fell in place one after another. But the expected result has not come in many cases, partly because of loopholes in the implementing machineries, partly because of

the inherent characteristics of Chakmas, in their case. The reason behind this observation is – Chakmas, unlike non-tribes, cannot adapt to all types of trades. So, very few Chakma youths may be found taking up mainstream trading ventures. Only worth mentioning are a few rubber plantations that have come up of late with the support of the government or on own initiative.

In this context a least pervasive at the moment but very significant dimension has been noticed in the Chakma society in the recent past, which should be mentioned here, because human beings are slaves of their beliefs. The history of mutiny and the so-called reasons behind it are known to all. One of the factors that led to the outburst of discontent among the Indian troops of the British government is said to have been the order to operate Enfield rifles that were believed to have contained cartridges made of pig fat or cow fat triggering off the religious sentiment of the Indians. In our case, the revival of Theravada Buddhism among the Chakmas has brought in the principles that were prescribed by Buddha. Panch Sheel stipulates five principles to be practiced and one of the Noble Eight-fold Path¹⁷ that is Right Livelihood have outlined the manner in which a person should earn his living. Panch Sheel prohibits killings of any living creature and drinking or dealing in liquor while Right Livelihood bans the practice of five vocations namely – (i) Dealing in weapons, (ii) Dealing in living beings (including raising animals for slaughter as well as slave trade and prostitution), (iii) Working in meat production and butchery, and (iv) Selling intoxicants and (v) Poisons, such as alcohol and drugs.

Now a paradoxical truth is – the domestic liquor industry had flourished in the Chakma society like any other cottage industries of the state and what repercussion it had on the socio-economic condition of those coming under its grip is an open secret. As per reports, Sidongchera area coming on the National Highway between Kumarghat and Pecharthal is famous for this trade, not to mention other areas. Poor women folk resort to this trade as making country liquor does not require big investment and the skill it requires had come down as a tradition, because home made liquor was an essential component in many socio-religious customs in the past. Naturally it has been a popular means for easy money making. The laws and their enforcements have always been there but the trade could never be abolished, because of loose ends in the enforcement agencies.

But what laws failed to achieve, the religious remedy has proved successful to some extent. At least the beginning has been experienced with many women stopping making liquor and many men giving up drinking. At the same time the principle of Right Livelihood has deterred many from resorting to such vocations that violate their religious norms. Several instances are there who were earning a handsome amount from selling fish or animal rearing had given up their occupation in favour of something else that did not come in the way of their religious sentiment. The number of such incidents may be minimal against the number of total Chakma population but it is a fact that there are many takers of the concept in areas like Manikpur, Gandachera etc areas, although the majority belongs to the group having the light of education.

Conclusion

This is not an exhaustive study but an attempt at shedding some lights on the past and the present situation and the forces behind the change. Livelihood is a very vital issue in the development of an ideal society. This issue has been discussed time and again at different

forums, still many issues remain unsolved since many internal and external factors keep changing. And disposal of corpse and funeral rites too are integral part of the social and cultural structure of a community in the civilized world. So, the symbiotic relationship of the society cannot be discussed by keeping any of its parts isolated. It is such an interlinked structure that while formulating policies for any of the limbs, thus, requires consideration of other limbs too.

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End Notes

1. Aaljye – a kind of earthen hearth, husk is used as its fuel. It is also used on other occasions like for getting heat during winter season.
2. Rubha-kur – it is the pyre on which the dead body placed and set fire on. As per common practice wooden poles or tree-splits are used. But as now electric furnace or gas furnace is being used in urban areas the traditional Rubha-kur is disappearing.
3. Gojha – a clan. It is said that Chakma society consists primarily of such 12 Gojhas.
4. Panch Sheel- vows on the five principles i.e. refraining from killing, stealing, adultery, telling lies and drinking liquor, preached by Lord Buddha.
5. Aamak Smashan - type of an open community grave yard where villagers throw the dead bodies for natural disposal.

6. Arhat – in Buddhism Arhat is the person who has defeated all enemies. Here enemies means desires, happiness, sufferings, birth and death, i.e. all kinds of worldly characteristics.
7. Chibar – the saffron colour robe of Buddhist monks.
8. Sabek – it is a bowl type vessel used by monks. Monks used to go out for begging with this Sabek and they eat also in it.
9. Whenever situation permitted Buddhist monks are always cremated on a bamboo structure slightly raised from the ground. A thick layer of soil is spread over the structure to save it from burning.
10. Srotapatti Marg – it is a stage in the process of attaining enlightenment in Buddhism. This is the first stage after which a person takes only seven births before he/she attains Nirbana, the stage of total salvation.
11. Dana – offering something to a person. Laymen used to offer to the Buddhist monks specially. Dana may be anything in the world, from daily usable commodities to valuable permanent assets in the form of temples, land etc.
12. Kayanupassana – it is one of the methods of meditation according to Buddhist tradition. By practicing this the meditator is able to get rid of his attachment to his own body.
13. Daba-dhundo – Daba is the traditional smoking pipe or hookah made of bamboo. It contains water for filtering the smoke. As such it is said that it is safer than modern bidi or cigarette in terms of health risks. Dhundo is the tobacco used in it for producing the smoke. Offering Daba was a very common practice in all Chakma household once, a symbol of hospitality.
14. Aag bara poi – a plate is prepared in which different food items are offered to the departed soul. Even a chick is sacrificed and domestic liquor is offered.
15. Pinon – a piece of cloth wrapped around the waist.
16. Khadi – a piece of cloth smaller in width than Pinon. It is used for covering the upper part of the body. Both Pinon and Khadi are worn by women only.
17. Noble Eight-fold Path – These were prescribed by Buddha for attaining salvation. These are Right Action, Right Speech, Right Intention, Right View, Right Livelihood, Right Effort, Right Mindfulness and Right Concentration.

Sericulture and Traditional Craft of Assam : With Special Reference to Tribal Livelihood

Debabrata Barai

Introduction

The seven-sister state, North-east India is well known for their art and craft and tribal livelihood. There sericulture is one of the oldest professions of human development and practice. A place renowned for its magical beauty and bewildering diversity, North-east India is a home for more than 166 separate tribes speaking a wide range of languages. The artisans Tribes living in this region were influenced by their textile production. The Tribal weavers in this region may be housewives or professionals, they not only to cater to the needs of their own but also for the full fill their inner self expression and creative activities. The Assam state of this region is immense rich assembly of Tribal culture enjoy proud full for their rich heritage of handloom production. In this part most of the hill regions are Tribal populated and their beautiful handmade woven products reflects the artisan skill and creative ability. The traditional handloom fabrics products of Assam state unfold the creative genius of the Tribal local weavers. There three types of cotton textiles i.e. muga, pat (mulberry) and endi (eri) are produced and depending on Tribal livelihood. The traditional textiles of Tribal silk woven are so much better in quality, colour brightness and also durability.

Sericultural Tradition of Assam

Sericulture is the traditional heritage in the social and cultural cottage industry of Assam. There sericulture basically comprise with mulberry (pat) and non-mulberry silk worm, however endi, muga and oak-tassar also included. It is believed that the endi and muga types of silks are indigenous origins which are found in hill areas of Assam and Meghalaya side.

ENDI SILK

Endi silkworm derives from the castor oil plant, which known as era in Assamese languages. Endi worm culture take place a subsidiary occupations of Indo-Mongoloid and Tibeto-Burman ethnic groups of Assam plain areas (Brahmaputra valley) and hill side areas. It is generally traditional rural Tribes womenfolk, where they leisure their time. The coarse and

durable endi cloths are regarded as the silk for the poor Tribal peoples. In this way the folk culture status of Assamese endi clothes can apparatus for measure by the old Assamese proverbs 'Dair Pani', 'Erir Kani' etc. those proverbs generally implies white curd cools, endi cloth worms up any person.

MUGA SILK

Muga silk is generally in rich golden yellow and light brown colour wild variety. There colour variety depended on the host plant on which the worms are fed and the season. It is basically fed on som (*persea bombycina*) tree in upper Assam and sualu (*lisea monopetela*) tree in lower Assam. Most of the Muga cocoons are purchased by the traders of Kamrup districts (sualkuchi). There commercial reeling and weaving of the cocoons does exclusive possession. However, the cocoons are bring up in the upper side of Assam, but the women folk is reel a very low quantity to utilize in their household uses. However, we found that this Muga cocoon bring up at most of the villages of Dibrugarh, Jorhat and Sibsagar districts. There made out different types of Assamese women apparel i.e. saree, riha, mekhala, chadar and wrapper etc.

MULBERRY AND OAK-SILK

Mulberry silk culture found in Assam state in very ancient time, because there climate condition is always favorable for this industry. Mulberry silk worm, locally pat is produced by the Bamboo mori silkworm, which feeds gets only on Mulberry leaves (*morus indica* leaves). This Mulbarry silk is strong, light and cool, which is mostly uses in manufacturing of mekhala, chadar, saree, riha and few gents dhoti and upper part of garments. The Oak-tassar culture is bringing up few years ago in the Manipur state and some of the temperate zones of North-east India. The commercial expectations of Oak-tassar silk are find out in present day.

Silk Weaving Process

In the sericulture industries of Assam, there are three types of silks i.e. endi, muga and pat are used as raw materials. In the some cases of Rayon (artificial silk) industries of Assam (sualkuchi, palashbari etc.) also used those as raw materials for commercial weavings. At first the cocoons are boiling to make the cocoons fiber reliable by softening and swelling. Then the cocoons are boiled the fibers ends are collected from there and fibers are reeled together. After that the fibers are reeled then a new end is to be supplemented to keep for continuity of raw silk worm. Beside this, the traditional process of boiling is also used. In this process the cocoons are stirred for five minutes and those are moving by the help of wooden spoon. And when optimized that the cocoon is boiled the natural sources enzymes and slippery etc. are using, which are the enhanced the quality of spun thread.

In this way for preparation of straw ash by burning of rich straw in the open air. Then the ash is put and tried in a loosely woven white cotton cloth and kept the bundle in definite quantity of water. After 20-24 hours, extract filtered and the filtrate is taken for cooking in fire about 20 to 25 minutes. There sometimes crude matured papaya is also used for muga cooking.

Reeling and Handlooming of Weave

For the reeling cocoons the Tribes of Assam is used the Bhir or Bhowri process. In this process two reenters reel in Bhowri with water about 45° - 50°C by keeping the material. The filaments are collected at the time to get the filament yarn. When the cocoons are reeling, the raw silk is generally washed by water to remove the excess alkali from those.

The handloom weaving takes an important role and great cultural relevance in the Assam states. This process is an age-old practice, which also importance for present economy. There we found three types of establishment – i) who produce cloth to meet the requirements of only their family members. This types of production also saw most of muga growing areas i.e. Dibrugarh, Sivasagar, Jorhat and Lakhimpur North etc. ii) The part-time weavers, who produce weaving for more or less on a commercial basis. When fulfills their family requirements, the weavers sells their produce garments. Those types of weavers are found in Kamrup and Goalpara districts of lower Assam and few upper side of Assam. And iii) The full time weavers, who are purely commercial. They either individual or collectively under any co-operative societies or production factories. Most of these types' weavers are found in Sualkuchi and Palashbari in Kamrup district and few side of upper Assam.

Process of Silk Dyeing

The traditional silk dyeing process in a handloom weaving is an ancient art of Assamese Tribes. There dyeing of silk by natural dyes is a practice and vegetable dyeing of silk warm is a usual practice of some parts of Assam states. This vegetable dyes materials are obtained from various types of plants and herbs i.e. bark, leaf, flower, fruits, root and seeds etc. In this processes, the vegetables are boiled extracts in certain light to deep concentrations. Then fixing the colour by treatment with some fixing agents. Silk also be dyed with kamela, henna and turmeric. The eri silk fabrics dyed with turmeric dyes by treating with different mordant to improve the colour fastness properties. Few important dyes also derived from various insect and animal sources.

Cooking, Degumming and Spinning of ERI

Eri cocoons are cooking, degumming and spinning in traditional way in North-eastern states of India. In this processes eri cocoons are loosely tied in cloths are boiled with sodium solution for unto one hours. Then every cocoons are stretched by plain carbonate water into a thin sheets, which are joined by four or five separate sheets. There the cocoons are dried and used for spinning. For degumming chemicals mostly uses ash of banana leaves, wheat stalk and papaya pieces. Beside those some of the cases soap and soda also used for degumming in eri cocoons.

In Assam Tribes are mostly used the hand spinning method. Out of this the traditional spinning process 'Takli' is also consists of a spindle with disc like base. However this 'Takli' process is very simple and economy but its output is quite low. Now spinning process is improved from time to time and latest process which is done by spinning wheels. The spinning is done on continuous spinning principles with the drafting, twisting and winding. It is consisting of horizontal spindle with ring, traverse machine in an iron frame structure. This is driven by motors or paddle machine.

Accessories Materials of Weaving

In the silk weaving of Assam, Tribes weavers are used very simple looms and accessories. The traditional loom, the throw-shuttle loom and the loin-loom is very famous in Assamese Tribes. Drawboy, Dobby and Jacquard machines are to be used for fancy and stylistic weavers and produce various designs, which are also saw only commercial and Govt. production places. Beside the loom and its accessories other appliances letai, chereki and ugha are also used for the manufacturing of fabrics. However, at present handloom manufacturing process is improved but some Tribal places also use those old processes now. There Assamese Tribes demands for improving fly-shuttle looms exists throughout the state.

Design of Silk Handloom

The silk textile of Assam is a famous textile of India. The motifs and design of Assamese silk culture are taken from nature. Assamese textile is the abstract figures of various animals, birds, flower and other celestial phenomena. Those types of design which is used Tribes and non-tribes because those symbol carry special meaning and cultural significance. These types of art and craft representing the fine Tribal workmanship and traditional feature of the Assam states. Another hill side folk and Tribal silk weaving designs is geometric types, they are consists symbol of birds, butterflies and various types animals. However the Tribes of Arunachal Pradesh (i.e. Adi, Idu, Mishmi, Nishi, Monpa etc.) have uses their own specific dress designs. The plain Tribes of Assam i.e. Bodo and Rava's have their rich indigenous tradition of textile culture. There Bodo's uses bright yellow colour and Rava's also prefer the dark green colour dresses with various design.

Handloom Production and Marketing

The important handloom textile items i.e. Mekhla, Gamocha, Riha chadar and Dhoti etc. are produce in the various parts of Assam. The produce handloom items majorly confined to the local markets because most of the handlooms are cultural specific items which are suitable for local uses. However, some products are brought by traders who taken resell those products. There Tribal weavers have no any marketing organization, so that they are bound to sell their products in buyers markets. There Tribal weavers obtain very few profit margin. There marketing facilities of handloom textiles considered is very much essential for the Tribal weavers. Because there Tribes depend their livelihood on weaving.

Concluding Observations

Beside the above discussion, it is remarkable that the sericulture and silk weaving are the most culturally and traditionally practices in Assam and North-Eastern states of India. The sericulture and handloom weaving is an integral part of the Tribal rural culture of the Assam state. There the growing awareness among the Tribal communities about the role of indigenous textile items in vivifying cultural identity has helped in their continuance. However the position of Tribal household craft handloom weaving is in consists hazard because they face competition with mill made and commercial productions. The Tribal small cottage silk industries are need of organized help and proper assistance so that it may be develop and flourished in all over

country. The Tribal traditional practices provide valuable suggestion to make efficient use of natural resources and advance technology for sustainable development. Though the Tribal traditional practices are eco-friendly, organic, sustainable and cost-effective but it need to explore something modify for their use and application in present times.

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Livelihood Security through Conservation Agriculture in Tripura

Gulab Singh Yadav, M Datta, C. Debnath and Suhash Babu

Introduction

Increasing crop productivity, enhancing livelihood security and maintaining a clean environment are major challenges to agricultural scientists in the 21st century. To meet these challenges, crop production practices need to be modified in favour of higher yields and minimized environmental pollution. The management of crop residues and improvement of soil fertility is a key component of sustainable cropping systems (Fageria et al. 2005). Conservation agriculture (CA) is a new paradigm in crop production for maintaining the sustainability, improving soil health and clean environment with proper residue management. Conservation agriculture practices are designed to achieve sustainability by implementation of sustainable management practices that minimize environment degradation and conserve resources while maintaining high yielding, profitable systems, and also improve the biological functions of the agro-ecosystem with limited mechanical practices and judicious use of external inputs (Sharma et al. 2012). Conservation agriculture characterized by three linked principles: minimum soil disturbance by adopting minimum/no-tillage and minimum traffic for agricultural operations, management of crop residues on the soil surface, and adoption of spatial and temporal crop sequence/crop rotations to derive maximum benefits from inputs and minimize adverse environmental impacts (Aune, 2009). Intensive tillage in conventional systems leads to gradual decline in soil organic matter through accelerated oxidation, with a consequent reduction in the capacity of the soil to regulate water and nutrient supplies to plants. Retention of crop residues on the soil surface in combination with no-tillage initiates processes that lead to improved soil quality and overall enhancement of resource-use efficiency (Sangar and Abrol, 2005; Abrol and Sangar, 2006). The increase in water conservation and water-use efficiency obtained by no-tillage system has tremendous effect on yield improvement and production stability in agriculture. Even though, crop residues have high value and a small amount is left after harvesting, a build-up over the years and a change in the farmer's behaviour towards residue management as a long-term investment on soil quality has been noticed in the farmer's field. Moreover, improvement of grain and straw production encourages farmers to leave more residues on

their fields and ensure the long-term benefit of no-till system (Grarras et al 2009). Major advantages of conservation agriculture are purported to be reduced wind and water erosion of topsoil, increased water use efficiency through improved water infiltration and retention, increased nutrient use efficiency through enhanced nutrient cycling and fertilizer placement adjacent to seed, reduced oscillation of surface soil temperatures, increased soil organic matter and diverse soil biology, reduced fuel, labour and overall crop establishment costs, and more timely operations (Hobbs et al. 2008).

Tripura is characterized by diverse agro-climatic and geographical conditions. The state has remained economically backward, though there is ample potential for development due to the presence of abundant natural resources. Valleys (lunga land or lowland) are medium to rich in organic matter. On the steep slope, because of continuous removal of topsoil, organic matter status is poor to medium. Traditionally, farmers both at the upland and valley land follow monocropping practice in rainfed agriculture, where rice is the major crop occupying more than 90% of the cultivated area, followed by potato, groundnut, maize. Presently, the cropping intensity of Tripura is 176%. It is the apparent that about 30–50% of the areas remain vacant during the *rabi* season due to severe water scarcity, as most of the rainwater flows as run-off through sloppy land. Farming in rainfed Tripura is a high-risk activity. Intensive natural resources mining and continuous degradation of natural resources (soil, water, vegetation) under conventional agriculture practices will not ensure farm productivity and livelihood security for the coming years. In order to keep the production system in different land situations sustainable, conservation agriculture (CA) based on minimum/no-till/resource conserving technology (RCTs) system is an alternative to reconcile agriculture with its environment and overcome the imposed constraints of climate change and continuous higher inputs cost. Resource conserving techniques (RCTs) using locally available resources encompass practices that enhance resources or input-use efficiency and provide immediate, identifiable and demonstrable economic benefits such as reduction in production costs, saving in water, fuel, labour requirements and timely establishment of crops resulting in improved yields. Some of the RCTs are act as component of conservation agriculture given below.

- Conservation tillage (Zero tillage, reduced tillage)
- Broad bed and furrow planting
- Ridge and furrow planting
- Lesser land levelling
- Resource conserving methods of weed control
- Direct seeded rice
- Drum seeded rice
- System of rice intensification
- Integrated crop management
- Aerobic rice cultivation
- Improved and high yielding varieties of crops
- Crop diversification
- Integrated nutrient management

- Real time Nitrogen management
- Site specific nutrient management
- Furrow irrigated raised bed system
- Efficient cropping system
- Surface seeding
- Zero tillage basin planting vegetable
- Use of Leaf colour chart for nitrogen management

Some RCTs followed in the upland, medium upland and lowland situation of Tripura are highlighted here.

RCT for upland and medium upland

The most efficient and cheapest way of conserving rainfall is to conserve it where it falls. As such, agronomic measures to conserve soil moisture are suitable in the region because of their low cost and capability to reduce soil erosion.

Conservation Tillage

In general, conservation tillage significantly improves water availability to crops. However, its effect may be dependent on environment and soil conditions. Conservation tillage holds promise because it does not require elaborate tillage and may ultimately reduce animal draught in the hilly regions.

Direct seeded rice – Toria cropping system was evaluated under conservation and conventional tillage. The resource conserving methods of weed control was also evaluated in direct seeded rice. There was no significant effect of tillage on grain yield of rice. Conventional tillage recorded almost similar yield as in zero tillage treatment (Table 1). Resource conserving methods of weed control (W_1 – Control (weedy check), W_2 – straw mulch, W_3 – wheel hoeing + straw mulch, W_4 – Glyricidia leaf mulch, W_5 – brown manuring and W_6 – weed free) had significant effect on yield. Weed free recorded significantly higher yield over all other treatment. However, among the mulch treatments, the brown manuring recorded higher yield which was at par with straw mulch and wheel hoeing + straw mulch treatments over rest of the treatments. The interaction effect between tillage and weed management was also found significant (Table 1). After harvest of rice, toria was grown in zero and double tillage condition to see the residual effect of tillage and resource conserving methods of weed control. There was no significant difference in growth parameter of Toria under zero and double zero tillage. However seed yield of toria was significantly affected by the tillage. Zero tillage in toria and conventional tillage in rice system was recorded significantly higher seed yield as compared to zero tillage both in toria and rice (double zero tillage). Stover yield, biomass yield and harvest index were not affected by the tillage practices. Seed, stover, biomass yield and harvest index were significantly affected by residual effect of resource conserving methods of weed control. Among the methods of weed control Glyricidia mulch recorded highest seed yield, biomass yield and harvest index. However, stover yield was higher in straw mulch plots compared to other treatments (Table 2). At the end of season, soil was analyzed for soil organic carbon

content. Soil organic carbon plays the most important role in soil health management and climate change mitigation. Soil organic carbon concentration and soil carbon stocks are directly related to soil fertility and productivity. Besides that sequestration of carbon in to the soil through residue/biomass management with some tillage intervention mitigate the impact of climate change. Tillage is one of the most important agriculture operations which effect the soil organic concentration and stock in soil. Our study revealed that soil organic carbon concentration, carbon stock and soil carbon sequestration were higher under zero tillage in 0-15 cm soil depth as compared to conventional tillage. However, In 15-30 cm soil depth conventional tillage have higher soil organic carbon concentration, carbon stock and soil carbon sequestration compared to zero tillage. Overall total soil organic carbon concentration, carbon stock and soil carbon sequestration from 0-30 cm soil depth was more in Zero tillage over conventional tillage. Although, Resource conserving methods of weed control had non-significant effect on soil organic carbon concentration, carbon stock and soil carbon sequestration from 0-30 cm soil depth (Table 3).

Conservation Tillage and Land Configuration

In another experiment the maize-maize-field pea cropping system was grown under different treatment combinations of tillage and land configuration. All the yield attributes of summer maize were higher in broad bed and furrow system under conventional tillage. Green cob yield of summer maize was not significantly affected by tillage; however land configuration had a significant effect on green cob yield over tillage system. The highest green cob yield was recorded with broad bed and furrow system with conventional tillage (BBFCT), which was at par with Ridge and furrow system with convention system (RFCT) over rest of the treatments (Fig. 1A). The green fodder yield after harvest of green cobs was not affected by tillage as well as land configuration. However, kharif maize showed the different trend as compared to summer maize. In kharif season tillage had significant effect yield attributes and grain yield of maize. Among the tillage treatment conventional tillage (CT) recorded significantly higher yield attributes and grain yield as compared to zero tillage (ZT). The effect of zero tillage was also not overcome by land configuration. However, highest yield attributes and yield was recorded with BBFCT, which at par with RFCT and CT and significantly superior over rest of the treatments (Fig. 1B). Reduction in yield under zero tillage condition was mainly due infestation of plant with disease at silking to maturity stage. Zero tillage plot recorded higher number of infected plant and percentage plant mortality at maturity stage. After harvest of kharif maize, Field pea was sown to evaluate the effect of tillage and land configuration on yield field pea (TRCP-8). There was no significant differences among the growth parameter of field pea due tillage. However, Broad bed and furrow system with convention tillage recorded higher value of all the growth parameters. Broad bed and furrow system with Zero tillage recorded higher seed yield and harvest index compared to all other treatments. However, stover and biomass yield were higher in broad bed and furrow system under conventional tillage plots (Table 4).

RCTs for Lowland

Improved Varieties and Integrated Nutrient Management

A varietal performance evaluation and nutrient management trial was started with sowing of nursery in June and transplanting in July at Gomcha Kobra, West Tripura. High yielding rice varieties Ranjit, TRC-2005-1 (Gomati), MTU-1010 and Swarna was tested against local varieties Kali Khasha and Binny with two nutrient management practices (Integrated nutrient management and Recommended fertilizer practice) on 8 ha land of 15 farmers. On the basis of growth performance Gomati variety produced more number of tillers hill⁻¹ followed by Ranjit with integrated nutrient management over recommended fertilizer practice. The result showed that, all the improved varieties viz. Gomati, Ranjit, Swarna and MTU- 1010 produced significantly higher yield attributes and yield over local varieties viz. *Kali khasha*, *Binni* and control (mixture of many varieties, farmer locally called as Guwahati). Nutrient management was also had a significant effect on yield attributes and yield of rice over farmers practice (control). Integrated nutrient management was recorded significantly higher yield attributes expect 1000 grain weight and yield of rice over recommended dose of fertilizer (Table 5).

Nitrogen Substitution through Low Cost Biomass

In lowland rice cultivation, the recovery of Nitrogen (N) fertilizer is low, besides the higher the cost of fertilizer. The use of organic sources of N like FYM may enhance the N use efficiency. But availability and cost of FYM is again a problem. Hence there is need of some resource conserving method of N substitution, which enhance the N use efficiency and reduce the fertilizer cost without affecting the rice grain yield. The experiment was laid out in simple Randomized Block Design (RBD) with five treatments viz. T₁ - control (no manure and fertilizers); T₂ - 100% recommended N fertilizer dose (80 kg N ha⁻¹); T₃ - 50% N through fertilizer + 50% N through FYM; T₄ - 50% N through fertilizer + 50% N through *Glyricidia* leaves and T₅ - 50% N through fertilizer + 50% N through weed biomass. All the treatments replicated four times during both the seasons. Results revealed that, yield attributing characters like productive tillers hill⁻¹, filled grains panicle⁻¹, panicle length (cm), 1,000 grain weight (g), and grain yield (t ha⁻¹) of rice were significantly influenced by different N sources over control (Table 6). Among the N sources, application of FYM @ 11.2 t ha⁻¹ along with 50% recommended doses of N fertilizers recorded maximum number of productive tillers hill⁻¹, filled grain panicle⁻¹ and grain yield followed by the combination of 50% recommended N fertilizer dose and *Glyricidia* leaves @ 11.6 t ha⁻¹ (T₄). However, both the treatments remained statistically at par to each other but significantly superior over the other N sources. With regards to panicle length and test weight, different N sources dose not had significant effect on panicle length. Although, maximum values of panicle length and test weight were recorded with the application of FYM @ 11.2 t ha⁻¹ along with 50% recommended doses of N fertilizers followed by 50% recommended N fertilizer dose and *Glyricidia* leaves @ 11.6 t ha⁻¹ (T₄).

An overall analysis of data showed that application of FYM @ 11.2 t ha⁻¹ along with 50% of recommended N fertilizer dose and combined application of 50% recommended N fertilizer dose along with *Glyricidia* leaves @ 11.6 t ha⁻¹ gave the statistically similar values of grain yield. Similar results were also reported by Acharya and Mondal (2010) and Chaudhary

et al. (2011). The increase in grain yield might be due to build-up in available nutrient and organic carbon through integrated use of organics and inorganics (Sepehya *et al.* 2012). Tomar and Das (2011) also reported that the application of tree leaf along with inorganic fertilizer increased the yield of low land rice.

Phosphorus Nutrition in Groundnut-Potato Cropping System

Phosphorus play a key role in groundnut –potato cropping system. In an experiment, laid out in simple Randomized Block Design (RBD) with five treatments viz. T₁ - control (No phosphorus); T₂-9 kg P ha⁻¹; T₃- 18 kg P ha⁻¹; T₄– 27 kg P ha⁻¹ and T₅– 36 kg P ha⁻¹. Results revealed that application of 36 kg P ha⁻¹ recorded maximum pod yield grass return and net returns in groundnut which was statistically at par with 27 kg P ha⁻¹. However, Benefit: Cost ratios was higher with the application of 27 kg P ha⁻¹ (Table 7). There was a significant residual effect of P applied in groundnut on succeeding potato crop. The residual effect of 36 kg P ha⁻¹ was provided higher tuber yield, grass return, net returns and B: C Ratios in succeeding potato (Table 8). Overall system productivity, grass returns, net returns and B: C ratio of groundnut-potato cropping system was higher with the application of 36 kg P ha⁻¹ which was statistically at par with 27 kg P ha⁻¹ (Table 9).

Zero Tillage Basin Planting Broccoli

Broccoli (*Brassica oleracea* L. var. *italica*) is emerging as a new cash crop in India where it is grown as *rabi* season vegetable crop and fetches very high price. Broccoli is high in antioxidant and anticancer compounds (Agarwal *et al.* 2007). Growing broccoli in rice fallow is one of the good option for the small holder farmers of north east hilly region of India. Most of the fields remain vacant after harvest of rice from December to March due non availability of sufficient irrigation water. Only tap water or small jalkund water is available for irrigation. Hence, an alternate method of planting is required to save water and give sufficient yield with small amount available irrigation water. Planting of broccoli in December and afterward is considered as late planted crop. The late planted broccoli is affected by high temperature at the head formation stage. The experiments consisted of four methods of planting (main plots) and four levels of nitrogen (sub-plots). The methods of planting treatments consisted of flat bed planting, ridge planting, furrow planting under convention tillage system and basin planting under zero tillage system. Planting geometry is also different in basin planting system compared to other methods of planting. Four levels of nitrogen (N) were studied as 0, 60, 120 and 180 kg N ha⁻¹. There was a significant effect of methods of planting and nitrogen application on marketable yield, nitrogen use efficiency (NUE), water saving (WS) and water productivity (WP) of late planted broccoli (Table 10). Zero tillage basin planting methods produced significantly higher marketable yield (3.73 t ha⁻¹), which was statistically on par with flat bed with CT. However, total biomass yield was not affected by the methods of transplanting. Increased levels of N application increased the all yield component and yield of broccoli. The increase in marketable yield of broccoli with increasing level of nitrogen fertigation could be attributed to improved vegetative growth, better availability of nutrients at vital growth period and greater synthesis of carbohydrates and their translocation to the storage organs (Brahma

et al. 2010). Application of N increased marketable yield (81.1 – 201.2%) over control (no nitrogen application) in late planted broccoli.

Zero tillage basin planting method improved the NUE, WS and WP significantly as compared to other methods of planting (Table 10). NUE under different methods of planting varied widely and highest reported by basin planting with zero tillage (21.4 kg marketable yield kg^{-1} N applied). NUE varied from 8.7 – 21.4 kg marketable yield kg^{-1} N applied. The increased NUE was mainly due to higher marketable yield under zero tillage basin planting system. The NUE decreased with increasing in N applications and the highest NUE value was obtained from application of 60 kg N ha^{-1} treatment. Nitrogen use efficiency decreased (22.2 – 18.3 kg marketable yield kg^{-1} N applied) with increased levels of N from 60 – 180 kg ha^{-1} . Lowest was recorded with application 180 kg N ha^{-1} . Flat bed planting system consumed highest amount of water (6966 m^3 ha^{-1}) as compared to other planting methods. Zero tillage basin planting used less amount of water and saved 71.2% water over flat bed system. WP varied widely among the methods of planting and highest was reported by zero tillage basin planting system (1.93 kg marketable yield m^{-3}). Water use and water productivity increased with increased levels of nitrogen application over control. The highest water use 4024 m^3 ha^{-1} recorded with application of N 180 kg ha^{-1} . Water saving was not affected by N application. Application of N increased the WP (1.06 – 1.63 kg marketable yield m^{-3}) as compared to control (0.60 kg marketable yield m^{-3}). Our study showed, the zero tillage basin planting with 180 kg N ha^{-1} was enhanced the marketable yield, water productivity and save 71.2% water over flat bed planting with conventional tillage.

Conservation Tillage Cultivation Lentil in Rice Fallow

On farm demonstration on reduced and zero tillage cultivation of lentil in rice fallow after harvest of rice under NAIP was conducted at Maracherra and Balaram, Dhalai Tripura. Fifty famer beneficiaries were selected for lentil cultivation after harvest of rice. All the farmers are grouped in two categories: Farmer for reduced tillage cultivation of lentil with a total area 4 ha and Farmer for zero tillage cultivation of lentil with a total area 4 ha. We tested the WBL-77 variety of lentil both reduced as well as zero tillage. Results revealed that the growth performance of lentil was good under both reduced and zero tillage system. Reduced tillage recorded higher seed yield (513 kg ha^{-1}), stover yield (1624 kg ha^{-1}), net return (16308 ₹ ha^{-1}) and B:C ratio (2.30) as compared to zero tillage (Table 11). This may be due to moisture stress in zero tillage fields at flowering and grain filling stages However, total cost of cultivation was lowest with zero tillage cultivation of lentil. The cultivation of reduce and zero tillage lentil gave extra income 11588 – 16308 ha^{-1} to the farmer and increase their cropping intensity 200% from existing 100%.

Conclusion

Above discussion, revealed that with appropriate resource conserving technique's, particularly zero/minimum tillage with residue retention, it is possible to use the rice fallow to raise a second crop of lentil and mustard in lowland, field pea and toria in upland and medium land situations. This will improve the farmer's income, put in use on-farm resources and ultimately

ensure food security and enhance the livelihood security in marginal areas in Tripura. Zero-tillage with residue retention not only favourably moderated the soil rhizosphere and produced almost similar grain yield as in conventional tillage, but also sequester the atmospheric carbon in to soil through carbon sequestration. Resource conserving techniques (RCTs) using locally available resources encompass practices that enhance resources or input-use efficiency and provide immediate, identifiable and demonstrable economic benefits such as reduction in production costs, saving in water, fuel, labour requirements and timely establishment of crops resulting in improved yields.

Table 1. Effect of Tillage and Resource Conserving Methods of Weed Control on Grain Yield (t ha⁻¹) of Rice Grown under Upland Condition

Treatments	Conventional tillage	Zero tillage	Mean
Control (weedy check)	2.32	2.11	2.22
Straw mulch	2.71	2.89	2.80
Wheel Hoeing + Straw mulch	3.42	2.50	2.96
Glyricidia leaf mulch	2.61	2.52	2.57
Brown manuring	3.26	2.71	2.98
Weed free	3.61	3.34	3.47
Mean	2.99	2.68	
	SEm±	LSD (<i>p</i> =0.05)	
Tillage	0.08	NS	
Weed control methods	0.12	0.34	
Tillage x Weed control methods	0.16	0.48	

Table 2. Effect of Tillage and residual Effect of Resource Conserving Methods of Weed Control on Yield and Harvest Index of Toria

Treatment	Seed yield (t ha ⁻¹)	Stover yield (t ha ⁻¹)	Biomass yield (t ha ⁻¹)	Harvest Index
Tillage				
CT	1.41	1.97	3.38	0.42
ZT	1.23	1.90	3.13	0.40
SEm±	0.04	0.08	0.11	0.02
LSD (<i>p</i> =0.05)	0.21	NS	NS	NS
Weed Management				
W ₁	1.20	1.55	2.75	0.44
W ₂	1.29	2.24	3.53	0.37
W ₃	1.33	2.02	3.34	0.40
W ₄	1.55	2.08	3.63	0.43
W ₅	1.26	1.90	3.16	0.40
W ₆	1.29	1.83	3.12	0.42
SEm±	0.06	0.08	0.07	0.03
LSD (<i>p</i> =0.05)	0.18	0.23	0.22	NS

Table 3. Changes in SOC Concentration, Stock and Sequestration through Different Treatments Rice – Toria Cropping System.

Treatment	SOC (g kg^{-1})		SOC Stock (Mg ha^{-1})			Carbon Sequestered (Mg ha^{-1})		
	0-15 cm	15-30 cm	0-15 cm	15-30 cm	Total	0-15 cm	15-30 cm	Total
Initial	3.7	2.6	7.44	5.30	12.74	-	-	-
Tillage								
CT	3.94	2.65	7.92	5.41	13.32	0.43	0.10	0.53
ZT	4.36	2.61	8.75	5.32	14.07	1.43	0.01	1.44
SEm \pm	0.05	0.08	0.10	0.17	0.28	0.04	0.01	
LSD ($p=0.05$)	0.32	NS	0.64	NS		0.24	0.03	
Weed Management								
W ₁	3.77	2.38	7.57	4.86	12.43	0.30	-0.44	-0.14
W ₂	4.22	2.63	8.48	5.37	13.85	1.04	0.07	1.11
W ₃	4.27	2.82	8.58	5.75	14.32	1.14	0.44	1.59
W ₄	4.05	2.47	8.14	5.03	13.17	0.70	-0.27	0.43
W ₅	4.27	2.67	8.58	5.44	14.02	1.31	0.14	1.44
W ₆	4.32	2.80	8.68	5.71	14.39	1.08	0.41	1.48
SEm \pm	0.25	0.11	0.51	0.23		0.06	0.01	
LSD ($p=0.05$)	NS	NS	NS	NS		0.18	0.03	

Table 4. Effect of Tillage and Land Configuration on Yield and Harvest Index of Field Pea

Treatment	Seed yield (kg ha^{-1})	Stover yield (kg ha^{-1})	Biomass yield (kg ha^{-1})	Harvest Index
CT	1055	3546	4600	0.23
ZT	1018	3849	4867	0.21
CT	907	3594	4500	0.20
ZT	851	3049	3900	0.22
RFZT	981	2886	3867	0.25
BBZT	1110	3590	4700	0.24
RFCT	833	3334	4167	0.20
BBCT	1036	4164	5200	0.20
SEm \pm	40	236	247	0.01
LSD ($p=0.05$)	122	716	751	0.03

Table 5. Effect of Varieties and Nutrient Management on Yield attributes and Grain Yield of Rice

Treatment	Productive tillers hill ⁻¹	Grain/panicle	Grain Weight (g) panicle ⁻¹	1,000 grain weight (g)	Grain yield (t ha ⁻¹)
Variety					
Ranjit	10.5	115.0	2.61	22.74	5.23
Gomati	10.5	115.3	2.52	22.16	5.24
MTU 1010	9.6	105.1	2.48	23.94	4.78
Swarna	10.1	111.1	2.63	23.07	5.05
Kali khasha	4.3	47.0	0.94	20.00	2.14
Binni	4.3	47.7	1.00	20.93	2.17
SEm±	0.06	0.70	0.016	0.252	0.032
LSD (p=0.05)	0.20	2.15	0.049	0.778	0.098
Nutrient management					
RD	7.6	83.8	1.89	21.93	3.81
INM	8.8	96.6	2.17	22.35	4.39
SEm±	0.04	0.43	0.010	0.157	0.020
LSD (p=0.05)	0.12	1.33	0.030	NS	0.061

RD – Recommended dose of fertilizer (80 kg N, 18 kg P and 33.4 kg K), INM – Integrated nutrient management (Fifty percent N through fertilizer and 50% through FYM, remaining P and K given through fertilizer)

Table 6. Effect of different N sources on Yield attributes and Grain Yields of Rice

Treatment	Productive tillers hill ⁻¹	Filled grain panicle ⁻¹	Panicle length (cm)	1, 000 grain weight (g)	Grain yield (t ha ⁻¹)
T ₁	6.0	109.8	25.2	23.37	2.99
T ₂	10.0	121.0	29.0	24.12	4.31
T ₃	12.6	144.5	30.0	26.88	4.84
T ₄	12.0	142.0	29.2	25.12	4.50
T ₅	9.9	122.3	29.1	24.49	4.28
SEm±	0.65	4.04	1.00	0.93	0.17
LSD (P=0.05)	1.99	12.42	3.09	2.85	0.51

T₁ - control (no manure and fertilizers); T₂ - 100% recommended N fertilizer dose (80 kg N ha⁻¹); T₃ - 50% N through fertilizer + 50% N through FYM; T₄ - 50% N through fertilizer + 50% N through *Glyricidia* leaves and T₅ - 50% N through fertilizer + 50% N through weed biomass.

Table 7 : Effect of Phosphorus Nutrition on Groundnut Yield and Economics

Treatment	Yield (t ha ⁻¹)	Gross return (₹ ha ⁻¹)	Cost of cultivation (₹ ha ⁻¹)	Net Return (₹ ha ⁻¹)	B:C Ratio
0 kg P ha ⁻¹	1.92	76667	21230	55437	3.61
9 kg P ha ⁻¹	2.13	85000	22590	62410	3.76
18 kg P ha ⁻¹	2.44	97550	23950	73600	4.07
27 kg P ha ⁻¹	2.63	105000	25310	79690	4.15
36 Kg P ha ⁻¹	2.70	108167	26670	81497	4.06
SEm±	0.13	5050		5050	0.22
LSD (<i>p</i> =0.05)	0.41	16468		16468	0.72

Table 8 Residual Effect of Phosphorus Nutrition on Potato Yield and Economics

Treatment	Yield (t ha ⁻¹)	Gross return (₹ ha ⁻¹)	Cost of cultivation (₹ ha ⁻¹)	Net Return (₹ ha ⁻¹)	B:C Ratio
0 kg P ha ⁻¹	8.88	88750	48776	39974	1.82
9 kg P ha ⁻¹	9.06	90625	48776	41849	1.86
18 kg P ha ⁻¹	9.69	96875	48776	48099	1.99
27 kg P ha ⁻¹	10.44	104375	48776	55599	2.14
36 Kg P ha ⁻¹	11.44	114375	48776	65599	2.34
SEm±	0.07	748	48776	748	0.02
LSD (<i>p</i> =0.05)	0.24	2440	48776	2440	0.05

Table 9 Effect of Phosphorus Nutrition on Productivity and Economics of Groundnut-Potato Cropping System

Treatment	System Productivity (GNEY t ha ⁻¹)	Gross return (₹ ha ⁻¹)	Cost of cultivation (₹ ha ⁻¹)	Net Return (₹ ha ⁻¹)	B:C Ratio
0 kg P ha ⁻¹	3.69	165417	70006	95411	2.36
9 kg P ha ⁻¹	3.94	175625	71366	104259	2.46
18 kg P ha ⁻¹	4.38	194425	72726	121699	2.67
27 kg P ha ⁻¹	4.71	209375	74086	135289	2.83
36 Kg P ha ⁻¹	4.99	222542	75446	147096	2.95
SEm±	0.14	5798		5798	0.08
LSD (<i>p</i> =0.05)	0.46	18908		18908	0.26

Table 10 Effect of Zero tillage basin planting and N nutrition on marketable yield, nitrogen use efficiency (NUE), water saving and water productivity of late planted broccoli

Treatment	Marketable yield (t ha ⁻¹)	NUE (kg marketable yield kg ⁻¹ N applied)	Water saving (%)	Water productivity (kg marketable yield m ⁻³)
Methods of planting				
Flat bed planting with CT	3.71	13.5	0.0	0.55
Ridge planting with CT	3.02	16.0	45.4	0.82
Furrow planting with CT	3.02	8.7	66.0	1.33
Basin planting with ZT	3.73	21.4	71.2	1.93
SEm±	0.12	1.0	0.4	0.07
LSD (<i>p</i> =0.05)	0.42	3.6	1.5	0.23
Nitrogen nutrition				
0 kg ha ⁻¹	1.64	0.0	46.3	0.60
60 kg ha ⁻¹	2.97	22.2	45.7	1.06
120 kg ha ⁻¹	3.92	19.0	45.3	1.34
180 kg ha ⁻¹	4.94	18.3	45.3	1.63
SEm±	0.16	1.6	0.3	0.06
LSD (<i>p</i> =0.05)	0.45	4.7	NS	0.17

Table 11 : Effect of reduced and zero tillage on productivity and economics of lentil

Particulars	Reduced tillage	Zero tillage
Seed yield (kg ha ⁻¹)	513	397
Stover yield (kg ha ⁻¹)	1624	1257
Cost of cultivation (₹ ha ⁻¹)	12575	10775
Return from seed (₹ ha ⁻¹)	25635	19848
Return from stover (₹ ha ⁻¹)	3247	2514
Total return (₹ ha ⁻¹)	28882	22363
Net return (₹ ha ⁻¹)	16308	11588
B: C ratio	2.30	2.08

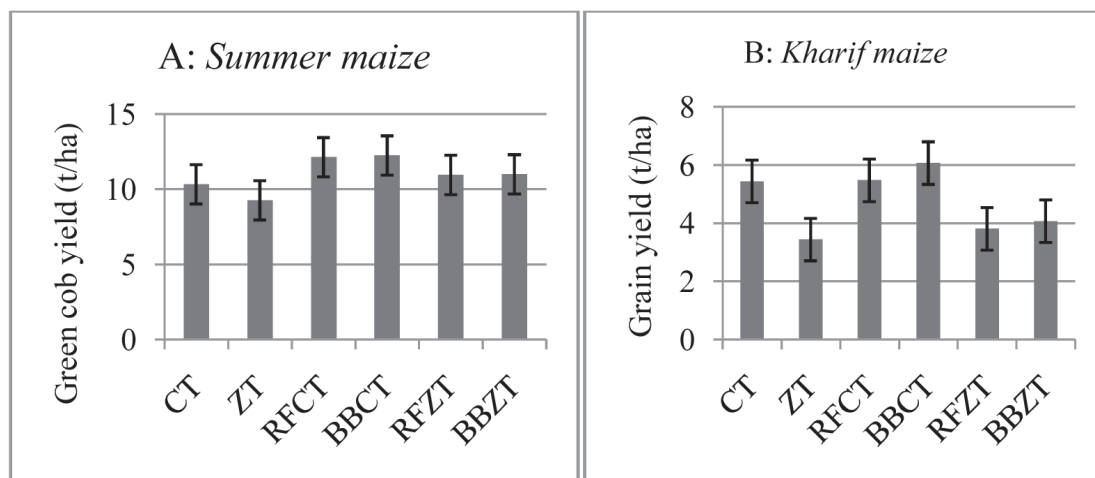


Figure 1. Effect of tillage and land configuration on green cob yield of summer maize (A) and grain yield of Kharif maize (B)

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Contribution of Linguistic & Livelihood pattern of Tribals in Nagaland toward Employmentability

K.C. Tiwari

*“Something hidden. Go and find it. Go and look behind the Ranges –
Something lost behind the Ranges. Lost and waiting for. Go!”
-Rudyard Kipling*

Introduction

The Naga Tribes are a handsome and friendly people. High cheek bones, sparkling teeth, almond eyes and bronzed skin set the Naga Tribes apart. In color full tribal outfits, with bamboo shields sheathed in bear skin and decorated spears, the Naga Tribes are simple people, almost entirely tribal. There is no caste system amongst them. The social position of a Naga is borne out by the number of bone necklaces he wears. The early history of the Naga Tribes is the story of the rituals and economic activities of the Naga Tribes. The people were originally referred to as ‘Naka’ in Burmese languages, which means ‘people with pierced ears’. It is also said that the word “Naga” was given by the British which actually means “Naked”(in Hindi “Nanga” means naked). In Manipur, the British broadly classified them into “Naga Tribes” and “Kukis”. The Naga Tribes had socio-economic and political links with Tribes in Assam, Manipur, Arunachal Pradesh and Myanmar as even today a large population of Naga inhabits in those places. Myanmar invaded North East India in 1816, the area, along with Assam, came under direct rule of them. This period was noted for harsh rule and disorder in Assam and Naga Hills. When the East India Company took back control of Assam in 1826, Britain steadily expanded its domain over modern Naga Hills. By 1892, all of the Naga Hills except the Tuensang area in the northeast was governed by the British. It was politically merged with Assam. Missionaries played an important part in converting Naga Hills’s Tribes to Christianity.¹ The total population of Naga Hills as per the 2001 Census was 1, 99, 90, 036 and of these most of them are Scheduled Tribes (ST) (See Table No 1). The other communities notified as Scheduled Tribes in Naga Hills excluding Naga Tribes are Garo, Kachari, Kuki and Mikir.

Table -1: Population of Major Naga Tribes, 2001 Census

Name of Tribe	Population	Percentage of Population
Ao	231823	13.2%
Sema	241806	13.9%
Konyak	243758	14.0%
Angami	124696	7.2%
Lotha	148210	8.5%
Phom	115389	6.6%
Chakesang	134646	7.7%
Sangtam	83714	4.8%
Yimchunger	75983	4.4%
Zeliang	71871	4.1%
Rengma	50966	2.9%
Chang	60885	3.5%
Pochury	15908	0.9%

Source: Office of the Registrar General, India, 2001

The sixteen Naga Tribes as mentioned in the 1971 Census for the first time include Angami, Ao, Chakesang, Chang, Chirr, Khamniungam, Konyak, Lotha, Makware, Phom, Rengma, Sangtam, Sema, Tikhir, Yimchunger and Zeliang. Each Naga tribe is distinct in character from the others in terms of language, customs and traditional dresses. Indeed, one Naga tribe does not understand the language of another Naga tribe. Instead, an artificial language known as Nagamese, based on the Assamese language, has evolved as a common link language. Nagamese is not the mother tongue of any of the Tribe nor is it a written language. English, the official state language, is widely spoken in official circles and is the medium of education in Naga Hills. Hindi is also popular especially in urban area. The Scheduled Tribe population and linguistic profile of Naga Hills is given below in Table 2.

Table -2: Scheduled Tribe Population of Nagaland, 2001 Census

Name of the Tribe	Total Population	Proportion to the total ST population
All Scheduled Tribe	1,774,026	100%
Naga	1,741,692	98%
Kuki	20,195	1.1%
Kachari	7,807	—
Garo	1,582	0.1%

Source: Office of the Registrar General, India, 2001

Table - 3 :Employment Pattern amongst Naga Tribe in Rural Area :

Except in district of Dimapur & Kohima, in average whole Nagaland, majority of the populace resides in rural area (around 70%), see Table No 3.

NAME OF DISTRICT	% OF URBAN POPULATION TO TOTAL POPULATION 2001	% OF URBAN POPULATION TO TOTAL POPULATION 2011	%TOTAL
DIMAPUR	51.95	48.05	100
KOHIMA	45.60	54.4	100
PEREN	15.59	84.41	100
PHEK	15.07	84.93	100
KHIPRE	22.28	77.72	100
TUENSENG	18.72	81.28	100
WOKHO	21.05	78.95	100
MOKOKCHUNG	21.18	78.82	100
LONGLENG	15.04	84.96	100
MON	13.85	86.15	100

Naga tribes in rural area, majority of them app. 75 % (See Table No 4) are now basically farmers who cultivate terraced fields and take care of cattle in more scientific manner, believes in strong work culture having comparative good command over English, also speak other Naga languages including Nagamese. In traditional terraced farming graduated terrace steps are commonly used to farm on hilly or mountainous terrain to protect soil erosion and save water which make land more fertile. Jhum cultivation is also used in some places. All the land in Naga tribes is basically owned by villages with common ownership in society. Therefore, one rarely hears of land disputes amongst same Naga tribes. Naga Tribes grows a fair amount of pineapples and oranges, a highly insisted fruit in the market. Christianity has had a profound influence on the region and one sees well-maintained churches all over the Naga tribes, keeping more focus on discipline and cleanliness.

Table - 4 : Distribution of Workers by Principal Status and Industry (Rural)

Sl. No	Industry	Percentage (%)
1	Agriculture	75
2	Mining & Quarry	5
3	Manufacturing	1
4	Electrical/ water	1
5	Construction	1
6	Hotel & other Hospitality industry	3
7	Transport	2
8	Business & Finance	0
9	Public Administration	12

Source– 2001 Census (NSO, GOI)

Employment Pattern amongst Naga Tribe in Urban Area :

Since centuries, Naga Tribes were always heterogeneous ethnic group with exceptional command over English Language. Before Christianity entered in their life, they were strong believers of 'Animism'. Animism is a doctrine, in which they believe that all natural objects and the universe itself have souls. All Naga Tribes have their distinct cultural dialect, custom, tradition and tribal system of self administration.

British entered the Naga region with an expeditionary force in early but gradually, the British became ally of the Naga tribes through mediation of the Christian Missionaries and thus established their administrative control over them. Gradually, the Christian missionaries transformed their indigenous ethnic identity into a Christianized identity. After conversion into Christianity they gave up the practice of animist customs and traditions. "Culturally Naga Hills became a colony of American evangelism"² Christianization brought a social change in Naga Tribes and made them dependent on outside world with its gradual interaction in the modern civilization stream. This change made them adaptable in this era of globalization. Naga tribes with the help of British organized themselves and in an organized community and formed a 'Naga Club' in 1918 with a view to understand the socio-administrative problems of different rival Naga clans and the headman of different Tribes as its members. First time the Naga Tribes came in contact with outside world only through the British and subsequently during Second World War, through Indian and Japanese soldiers. During Second World War, a section of Naga Tribes led by Angami Zapu Phizo had joined the unified command of Indian National Army (INA) led by Netaji Subash Chandra Bose and struggled against the British. Sarcasically, after the Second World War the same Phizo (like Zinnah of Pakistan), became a hostage to the same colonial power during late forties.

Table - 5 : Distribution of Workers by Principal Status and Industry (Urban)

Sl. No	Industry	Percentage (%)
1	Agriculture	4
2	Mining & Quarry	3
3	Manufacturing	5
4	Electrical/ water	1
5	Construction	4
6	Hotel & other Hospitality industry	11
7	Transport	2
8	Business & Finance	2
9	Public Administration	68

Source – 2001 Census (NSO, GOI)

Most of the Naga tribal people in urban area arena employed in Public administration i.e. app. 68% followed by Hotel industry (11%) as indicated in Table No 5. At present Naga people and central government resolved for a satisfactory political settlement of Naga Hills

CULTURAL VALUES, ETHICS, NORMS, ADAPTION AND STRATEGIES

within Indian Union. Responding to the demand of the Naga Peoples Convention, Naga Hills, which was a district of Assam was brought under central administration under Ministry of Home Affairs and named as “ Naga Hills Tuuensang Area” (NHTA).

The effect of Globalization could be seen in 1990s itself. See Table 6, it is pertinent to note that Female worker participation rate of Naga Hills in year 2002-03 was higher than that of rest of India. And Female literacy rate was higher in Female than Male amongst Naga Tribe, which is a very healthy indicator. Also Birth rate and Death rate amongst Naga tribe is quiet less than that of rest of India, project healthy sign of economic and health grading after the influence of Globalization, which commenced binding knot amongst different ethnic group in North East India and Indian states.

Table - 6: Human Development Indicators in the IHR.

State s	Female Worker Particip ation Rate	Basic Indicator of Human Development								
		Literacy Percentage			Life Expectancy at Birth (Years)		Birt h Rate	Deat h Rate	Infant Mortali ty Rate	Per Capita income at current price (Rs.)
		Males	Femal es	Total	Males	Female s				
	2000				2001-2006		2000			2000-2001
Nag alan d	38.25	71.77	61.92	67.11	NA	NA	11.8	2.3	NA	NA
India	25.68	75.85	54.16	65.38	64.11	65.43	25.8	8.5	68	16072

Source: Economic Survey of Maharashtra 2002-03, Directorate of Economics & Statistics, Planning Department, Government of Maharashtra

Table -7: Selected Socio-Economic Indicators of the IHR

States/ UTs	Populat ion in Lakhs	Density of Populat ion	% of Urban populat ion to total populat ion	% of State populat ion to All India populat ion	Decenn ial growth rate of populat ion (%) 1991- 2001	Sex Rat io	% of Main worker to total populat ion	% of Agricul ture worker to total worker s
Nagala nd	19.89	120	17.74	0.19	64.41	909	35.63	68.03
India	102070 .15	@ 324	@ 27.78	@ 100	21.34	@ 933	@30.5 5	@58.4 0

[Source: Economic Survey of Maharashtra 2002-03, Directorate of Economics & Statistics, Planning Department, Government of Maharashtra]

Table 7 gives following indication

1. Density of Population of Naga Hills is almost one-third lesser than that of India.
 2. Percentage of Urban population to total population of Naga Hills is almost one-third lesser than that of India.
 3. Decennial growth rate of population of Naga Hills is almost three times more than that of India.
- i) Following are impact of Globalization & English Language on employment pattern:

A. The Urbanization of Naga Tribes: The urbanization of Naga Tribes has been increased faster in last decades. It is to be noted that Dimapur and Kohima alone constitute 54.30 per cent (i.e. 1, 91,630 persons) of the total urban population with good command over English language. According to a weekly poll conducted by a popular daily newspaper in Nagaland, the Moring Express on June 2008, 79% of the readers of the local newspaper believed that Naga youth are modernized, while only about 5% said an absolute “no” against it. It went on to report how this is, according to the readers, because of the western (or external) influence.

B. Fashion in Naga Youth: The biggest issue perhaps concerning Naga youths is their bent toward westernization in this Globalization era, also some times, even they may be wrongly called as “the blind aping of imitation” of what is projected in the Bollyhood and Hollyhood cinema, music or internet. It is true that now a day they are very much influenced by Chinese and Japanese media. The Naga youths are “becoming more receptive and adaptive” to western influence hence it encourages fashion designing and textile industry. Naga youths are known for their lavish lifestyle with a habit for overspending money that is being provided by theirs parent through virtue of their hard work. Fashion is the identity.

C. Less crime against Naga Girls: Naga girls are better employed in BPOs, marketing and Knowledge based industries. Within Nagaland, girls are not discriminated as they are so much adaptive toward westernization in attire. Rape cases are lowest amongst Naga Tribes including from Nagaland, Assam, Manipur, and Arunachal Pradesh. Take for example, as per the data provided by the National Crime Records Bureau, Naga Hills (where 100 % Scheduled Tribes Resides) reported as many as 19 cases against Madhya Pradesh 2,937 cases, followed by West Bengal and Uttar Pradesh at 2,263 and 1,871 cases respectively. These states were followed by Maharashtra (1,558), Assam (1,438), Rajasthan (1,355) and Bihar (1,302). It proves that the lowest number of cases were reported from Naga Hills, proves that Naga Tribes from Naga Hills are still better and much ahead than other part of India. Despite following westernization, there is no indecency by Naga girls. They are not projecting externally influenced immoral behaviors like alcohol consumption out of way.

While professing to the principle that Naga Tribes are unique and supporting the preservation of theirs cultural identity, the Naga Tribes people feel proud to travel with Indian passport, use Indian money and sing the National Anthem like any other Indians. Those who study in the Naga Hills have absorbed the “Naga-ness” and are often criticized by Indian from Plain land that those Naga Tribes as “losing their identity”. Though it is fact that in any pluralistic society (as of Naga Tribes), with the current of western and Indian influence often leave the youth confused. Naga youth are not different than any other Indian youth, so blaming them for westernization is wrong.

Unemployment Trends in Naga Tribes

There is sharp increase in unemployment, as stated in Table No 8, where unemployment rate increased from 0.3 % to 3.5% in year 1999-2000.

Unemployment in Nagaland (% of Labor Force)

1993	1993-94	1999-2000
0.3	2.4	3.5

Source – 38.5 & 55th Report on Employment or Unemployment in India as per census 1999 & 2001 (NSO, GOI)

Usual principal status of unemployment rate of Urban Youth in Year 2004-05 in Nagaland between Age 15 to 29 Years as shown in Table 9, proves that unemployment in female is less than male, especially in 20-24 years age group.

Age Group		15 TO 19 Years	20 TO 24 Years	25 TO 29 Years	15 TO 29 Years
Unemployment Rate	MALE	0	33.2	19.7	21
	FEMALE	0	55.2	23.7	35.5
	TOTAL	0	43.4	21.4	27.7

Source – 38.5 & 55th Report on Employment or Unemployment in India as per census 1999 & 2001 (NSO, GOI)

Restoration of Linguistic, Traditional Social and Cultural Values :

The Naga tradition which had evolved over the centuries has been greeting new idea and thought. Today Naga youth are absorbed in IT sector in metros like Mumbai, Bangalore, Hyderabad, New Delhi etc. The result is that new youth values having cosmopolitan outlook arose and erased old needs and cultural values. While at the same time it is opening new ways of opportunity and livelihood in Naga Hills as well as in other part of India. These new developments stormed the Naga society and there is an urgent need from Government of India and traditional Naga intelligentsia to protect traditional values and the age old cultures otherwise it would throw the traditional Naga culture almost out of irrelevance.

Now time has come for Naga Tribes to have a serious reflection and realistic assessment of their societies. For whatever reasons, they are now an integral part of Indian Republic; with almost full participation in the Indian electoral system the demand for secession at this point of history is perhaps impossible, impractical and unwise. India as a nation-state has emerged as a very powerful player in the world today. The various insurgent groups of the Naga Hills have no shown any spirit of self-sacrifice and service to their societies or to humanity in general. On the contrary, what we witness is the endemic instability for the worse. Even the insurgent groups have degenerated into anti-social criminal gangs, devoid of any moral content or ideology. This is clearly illustrated through political fragmentation and endemic factional killings motivated by raw greed and taking violence as an end in it and not merely as a means.

a) Revival of ‘Morung Dormitory System: It gives strong base to Naga youth in basic education. Naga Tribes now, has been making efforts in the Naga Hills to revive the almost forgotten glorious traditions for instance, events like the “Morung” dormitory system has been followed again or restored as youth are being organized amongst the Naga Tribes. Morung are dormitories where bachelor young men and women (in separate locations) live and learn together on their culture, custom through medium of oral teaching delivered by elders, which make youth mentally and physically strong. Morung is a dormitory for youth and children from 5 to 16 years. It develops community feeling in children. Children and youth are taught in systematic by all the elders (not by particular person) about the tradition and customs. Likewise glorious heritage and tradition is passed onto the next generation without any distinction.

b) Return of Traditional Hill Festivals: It provide employment to many as there are again growing interest in traditional Naga Hills festivals like the Ao Moatsii Mong, the Zeliangrong NgaiDai, the Angami Sekrenyie, the Lui Ngai Ni, etc. However, even these events are highly westernized with beauty pageant shows and festivities with international and national participation. Revival of “Rock Festival” has also disturbed again local culture. In Hills festivals, the custom, culture, the handicraft and woodcarvings of Naga Tribes are displayed, to give them wide publicity for marketing also. One of the most popular events in the Hornbill Festival is the opportunity to drink “local” rice beer. Alcohol consumption during the festive season amongst Naga Tribes is certainly on rise. Another hugely popular event is the Rock concert which draws attention of even artists from the mainland India and other part of the world. The Organizer of the aforesaid Naga festival heartily make an effort of identifying themselves as a custodian of special and glorious culture, in the midst of intercultural plurality and globalization. It created the sense of self pride and public awareness among the Naga Tribes. Events like Hornbill Festival has created a forum for the culture and rich heritage of the Naga Tribes to be expressed and exhibited to different parts the world, ironically made possible because of globalization. As the society modernizes, young music artists from the Northeast, given the right exposure and opportunity are reaching the level of national and international music scenario.

c) Participation of Naga Musician in National & International Musical Program under NMTF: The Naga artists music band like Magdalene from Mizoram, Abiogenesis from Naga Hills, Soulmate from Meghalaya, etc. are “rocking” national music scene. It is pertinent to note that Soulmate even being highly acclaimed in European Union and United States. This has an effect of boosting the self-dignity of Northeast youths and promote new pattern of employment. As a result of the realization of the artistic talent in the Naga youths, the Government organized and supported for group artist artists under the Nagaland Music Task Force (NMTF). Under the leadership of Chief Minister of Nagaland, Mr. Neipheu Rio the Nagaland Music Task Force was put forward to organize opportunity for local talents for instance in events like the Hornbill Festival.

d) Stimulation of Local Entertainment Industry: This development of local artistic talents is leading to a scenario where the earlier forms of “western” entertainment are slowly being replaced by that of the local entertainment industry, which promote more employment. There is growing respect for local “music & dance” and performers in spite of the continuing

international presence. In spite of preserving old traditions, Naga Tribes are open to the external influence. It is to be noted that while the performers are local, the art and music are largely “western”, for example, rock, and blues music and with western music styles; for instance as done by the band ‘Abiogenesis’. Abiogenesis is a rock/fusion band from Naga Hills, India. This band went further explored and developed its Music which resulted in a new form of world music which they have named ‘Howey’.

e) Encourage Traditional Education System: The Morung system was the form of educational institution in the traditional Naga society. This system fulfilled both the necessity for Naga youths to socialize and be educated. However, these two necessities are being replaced by western-influenced education systems like schools and college. Moreover, in the modern school, the youths are not taught about the Naga traditions and cultural values with the effect that they are becoming increasingly modern and losing their traditional identity.

f) Electronic Media: This is undoubtedly the most important and significant media through which globalization is being marketed openly in the Naga society. Traditionalist started using Electronic Media to engage the youth in Naga’s Cultural programme. Electronic Media assist in political socialization of Naga Tribes. It would be illogical to attempt to isolate the Naga Tribes from the influence of the media and entertainment industry. The Naga society would then be left in denial and left behind in the global rat race for development and modernization.

Conclusion :

The vibrant Naga tribal community of Northeast India has been struggling for its identity. Part of the territory traditionally belonging to it is Naga Hills and part in Assam, Mizoram, and Arunachal Pradesh as well as also in Myanmar. All the government has to be sympathetic to Naga’s identity. Also it has been demanding unification of the all territories as a Naga identity. While Naga traditionalists may romanticize of old glorious days of the Naga culture, it should be understood that cultures and environment (on which the culture thrives) are dynamic and meant to change. We must realize that Society and people need to change if it were to keep in track with the world. This has been facilitated by globalization where bridges are being made across the world through the technological achievements.

The future of humankind rests with achieving enlightenment and cultivating compassionate love as the ultimate value to which all of us including Naga Tribes and People from Main land should try to adhere in all aspects of our life. All instrumentalities of social action should be based on the principle of compassionate love progressively limiting violence and replacing it by altruism, self-sacrifice and love for common good and welfare. The way of greed, insecurity, uncertainty, hatred and mutual distrust and self-centeredness must give way to ‘care’ reconciliation, love, freedom and understanding.

An average Naga get the benefit of Globalization and get better employment opportunities. It is true that because of having better job prospects, a large majority of Naga tribes negated the political theory of Secessionist. The way of employment pattern of both rural Naga Tribes and urban or modern Naga youth, is definitely unique, given its political, historical cultural and sociological dimensions. This is also true that the impact of the blind race behind different

National & International brand by Naga youth in result in killing their culture. The fact is that getting highly paid job in MNCs and blindly, following market in market driven society is some time seen as a western venture to colonize the less developed people and dump the goods through mass production, without respecting local culture as well as local tariff. While Naga traditionalists may romanticize of old glorious days of the Naga culture, it should be understood that cultures and environment (on which the culture thrives) are dynamic and meant to change as per the employment pattern to be evolved in market economy. We must realize that Society and people need to change if it were to keep in track with the world. This has been facilitated by globalization where bridges are being made across the world through the technological achievements and ability of providing gainful employment to maximum people in the society.

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End Notes

EMPLOYMENT OF NAGA TRIBES IN INDIAN ARMY

Battalion (1 Naga) of the Regiment was raised on 01 November 1970 and being the only battalion, it was then designated as the NAGA Regiment. Subsequently 69 Naga was created and enrolled directly from rehabilitation camps of underground Naga Tribes. However, the Regiment was to comprise 50% Naga Tribes and 50% of an equal number of Kumaoni, Garhwali and Gorkhas from hilly tract area. The traditional Naga weapons viz the Dao, the Spear and the prestigious Mithun have been integrated into the Regimental Crest. The Regiment's colors are Gold, Green and Red, the gold of the rising sun, the green of Infantry and red the color of authority among Naga Tribes 1.

With intent to bring Naga Tribes in main stream, Indian Army created the Naga Regiment. The Naga Regiment was the first infantry regiment to be raised in the post-Independence India. In 1957, when the Naga Hills area was boiling with rebellion, a convention of the Naga people took place and it came out with a charter of demands including statehood for Nagaland and a separate entity for the Naga people in the Indian defence forces. Nagaland attained its statehood in 1963 and the Naga Regiment was formed seven years later. Nevertheless, a remarkable fact about its raising was that several ex-militants from Naga Tribes, were given a fair chance to prove their newfound nationalism and made to join the Indian Armed Forces, many of them were directly appointed junior commissioned officers (JCOs). The War cry of Naga Regiment is "Hail Durga Naga". Naga Regiment took part in Bangladesh operations and earned the valor and name for the Regiment as it was awarded one Vir Chakra and three Sena Medals. The battalion was the first one to be inducted into Operation Vijay in the Drass Sector on 11 May 1999. During this operation, the battalion captured Black Rock, Thums Up, Pyramid (all part of Point 5140), Pimple Hill (later renamed as Naga Hill) and Point 5060. The Naga battalion was also awarded with two Vir Chakra and two Sena Medal for their outstanding performance during this operation. 2 Naga has been awarded 'COAS Unit Citation' twice and both times for valour and chivalry in the face of the enemy.

This is being recognized internationally as rock stars like White Lion, Petra, Scorpions, Michael Learns to Rock and internationally acclaimed artists heading to Northeast India for concerts.

**Management of Resources,
Conflict Resolutions,
Negotiations and Governance**

Capacity Building of the Tribal Farmers through Piglet Production Farming System under Tribal Sub-Plan

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Introduction

Tripura is a land locked small (10,492 sq. km. area) state in the north eastern part of India. The tribal population represents 30.2% of the total population (32 lakhs) in the state. Despite the wider market of agricultural commodity and wide biodiversity, tribal people in Tripura is recognized as socially and economically vulnerable due to their overdependence on subsistence production system with lack of scientific orientation. Under such challenging situation, livestock farming may one of the promising options for year round employment and source of income for livelihoods. Pig farming has always been a traditional livelihood option for the tribal family in Tripura. Keeping pigs and eating pork is part of their culture. Indeed, pig farming has a special significance with the tribal community not only in Tripura, but also in other states of north east India (Kumaresan et al., 2007). Tribal population which contributes 1/3rd of the total population in the state gives highest preference to pork meat in their daily meals. These days pork is also popular among the non- tribal population. Pig farming may be the most profitable because of superior feed conversion ratio, faster growth rate, short generation interval and high proliferation. The system of pig rearing in Tripura is unique and traditional. Like cattle and goats, pigs are very much allowed to stay in the backyard and in close proximity of the dweller's house. Pigs are kept in a small bamboo, woods or tin enclosure or in a small shelter or tying with a rope under a tree. The number of pigs varies from 1 to 4 or 5. Most of the farmers bring one/ two local, non-descript or crossbred piglets at the age of 2- 3 months from the market, while fattening of the animals is taken up to 10- 14 months before they are sold. A limited number of farmers prefer to breed their pigs and allow for piglet production. As a result, there is always a huge demand of piglets in pig enterprise. Rice bran mixed with locally made Choak (rice beer) waste is mainly fed to the pigs. Choak is liquor brewed from the rice after fermentation using Muli made up of locally available certain plant leaves and roots. This Choak is consumed in most tribal families and the left over waste is available to be fed to the

pigs. The pigs are also fed with all kinds of kitchen waste, grass, colocasia and, if within their means, sometimes a little bit of concentrate feeds. The existing improper and unhygienic housing system is always posing to the threat of the occurrence of various pig diseases resulting less economic return. There is very less awareness for vaccination or routine deworming of their animals and thus swine fever disease is rampant. Consequently, pig farming is always facing challenges to improving the livelihoods of farm families. Livestock production team members of Indian Council of Agricultural Research (ICAR), Tripura Centre situated at Lembucherra, West Tripura, thus have planned to build up the capacity of tribal community through the promotion of pig farming under Tribal Sub Plan (TSP), Govt. of India project. We have focused majorly on four areas, (i) knowledge improvement by formal as well as informal way to educate the farmers for better care and management of their animals, (ii) shelter management, (iii) animal breed improvement by the adaptation of pig breeding programme and production more and more piglets of improved variety for ready availability of piglets in the locality to meet the huge demand of piglets, (iv) animal health management by extending veterinary treatment services time to time for better health and production of the animals.



Plate 1. Pigs are kept under the tree (no housing system)



2. Pigs are kept within a small bamboo made enclosure as generally practiced



Plate 3. Rice bran mixed with locally made Choak (rice bear) waste is mainly fed to the pigs



Plate 4. Colocasia stem and leaves are collected to feed the pigs

Materials and Method

The project activities have been first undertaken in three disadvantaged tribal dominated villages of Mohanpur block in West Tripura district where the tribal population is highest in the state. A preliminary survey was done to select the tribal farmers who are already engaged with traditional pig farming. Thereafter, a limited number of tribal farmers from North Tripura, South Tripura and Dhalai districts was selected by different Krishi Vigyan Kendras (KVKs) working in different districts. A three days hands on training was organized at ICAR, Tripura Centre, Lembucherra, West Tripura to educate the selected farmers regarding technical know-how of making pig shelter, pig farm management, disease prevention strategies and piglet production concept to encourage the farmers towards 'piglet production farming system'. Thereafter, we offered financial supports for making semi-permanent pig shelter with brick-cement (minimum 10 ft long and 5 ft wide) at the farmer's field costing Rs. 15,000/- each under TSP project. Since there is always a great demand of piglets in the entire state, we planned to encourage our selected farmers for allowing breeding between female and male pigs for the production of piglets in the locality utilizing both farmer's knowledge and our experiences. A pair of female and male improved descriptive, indigenous Ghungroo, Hampshire cross and Duroc cross piglets (3- 4 months of age) was provided to the selected tribal farmers in four districts for experiencing the idea that 'piglet production farming system' is more profitable than the traditional rearing practice of fattening of a single pig for 1 year or more time. We also extended veterinary treatment services time to time for better health and production of the animals. A family based survey on pilot basis was done to assess the impact of different interventions on pig farming, farmer's knowledge level and food security.

Results and Discussion

Impact of Training on Gaining new Knowledge

A three days hands on training educated the farmers on technical knowhow of making pig house which helped to establish pig house, different managerial practices like cleaning with disinfectant solution, use of lime powder to kill the organisms, care of piglets for growth, care of growing animals, pregnant animals and feeding of concentrate feeds along with local feed stuffs. Adapting improved managerial practices, 83% farmers could realize many benefits like better growth of the pigs, breeding at proper age and good litter size at birth and weaning.



Plate 5. Fifty three (53) tribal farm men and women participated in hands on training on pig farming Shelter management



Plate 6. The trainees are engaged in hands on training programme

Making a semi-permanent pig shelter with brick-cement has brought a great impact in the locality. All the selected farmers showed immense interest to establish pig house. To date, a total of 53 model pig houses were built by the tribal farmers in participatory mode in four districts of Tripura covering West Tripura, North Tripura, South Tripura and Dhalai. Compared to the traditional system, the traditional farmers could recognize many advantages of keeping pigs in separate pig house. For example, animals can be kept more clean, feeding is easy and becomes less waste of feed, diseases can be controlled efficiently, manure can be collected and used more usefully, as well as there being fewer cases of the animals being lost or stolen. The farmers feel that pig house is an asset to them.



Plate 7. Pig house under TSP in West Tripura Plate 8. Pig house under TSP in North Tripura

Production and Reproduction Characteristics

A total of 106 piglets (2- 3 months old one female and one male for each farming family) were provided to 53 tribal farm men and women in four districts. Indigenous black coloured Ghungroo pigs (Origin: North Bengal) and Duroc cross (either Duroc x Ghungroo or Duroc x Mali cross) have been introduced at the farmer’s field in Tripura state for the first time by ICAR, Lembucherra, West Tripura. Though the farmers have previous experience on rearing of Hampshire cross, both Hampshire cross as well as Duroc cross have been very much accepted by the farmers for better growth and reproductive performances. Duroc x Ghungroo crossbred pigs grow better than Duroc x Mali crossbred pigs at farm as well as farmer’s field. There is about 15 kg body weight (BW) difference between two crosses at 9 months of age. The beneficiaries are also satisfied with the growth performances of Ghungroo pigs. The average BWs of female and male Ghungroo pigs at the age of 9 months were 42.2 and 46.0 kg, respectively. Most of the animals (84% animals) have given birth of 7- 12 piglets per delivery as reported by the farmers.

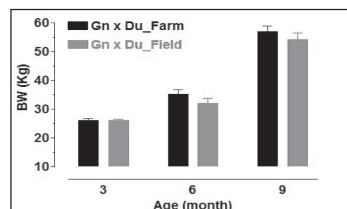


Fig. 1 Growth performance of Duroc x Ghungroo cross at ICAR farm and farmer’s field on 3rd, 6th and 9th months of age

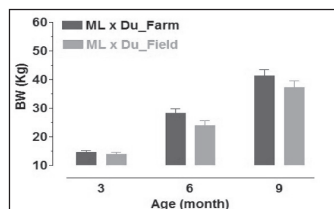


Fig. 2 Growth performance of Duroc x Mali cross at ICAR farm and farmer’s field on 3rd, 6th and 9th months of age



Plate 9. Duroc x Ghungroo crossbred pigs maintained by a tribal farm woman



Plate 10. Duroc x Mali crossbred pigs maintained by a tribal farm woman



Plate 11. Ghungroo pig along with piglets maintained by a famer family



Plate 12. Hampshire crossbred pigs maintained by a tribal farmer

Animal Health Management

The farmers reported that the disease affected pigs were died previously, because of less accessibility to animal treatment facilities. Diseases, such as swine fever had a devastating effect sometimes. Regular vaccination of neither animals, nor parasite control could be guaranteed. Under TSP project, vaccination against swine fever disease and regular feeding of deworming medicine dramatically reduced the incidence of swine fever and parasitic diseases in the locality. Feeding of concentrate feeds enhanced the growth of the pigs.



Plate 13. Vaccination of pig against swine fever



Plate 14. Concentrate feed to feed the pigs as offered under TSP Profitability

Based on some limited family based survey on pilot basis till date, sixteen beneficiaries reported to earn more than Rs. 40,000/- in a year from selling of piglets. Considering the expenses for feed @ Rs. 50/- per day for one sow and one boar, the cost of feed was calculated as Rs. 18,250/- during a year period. Thus, there was a net income of Rs. 21,750/- out of gross income Rs. 40,000/- per sow per year. The farmers have made an example of reaching a standard of profitable pig farming venture under the present TSP project.

Food Security

The family based survey indicated that the cost of daily food items could be near about Rs. 100/- to maintain 4- 5 members' family. Thus, the annual net income (Rs. 21,750/-) from a small pig enterprise could provide 217 days food security to a family of 4- 5 members. This information is quite comparable with the earlier report (Haldar et al., 2005). Though we have achieved our primary purpose of getting people to become interested in piglet production farming system using improved managemental practices for securing profitable income, we have to make the farmers understandable towards the contribution of pig farming on our food security.

Let us take an example of a successful farmer under TSP project. Shri. Karna Debbarma was one of the selected farmers of Balaramchoudhury para village of West Tripura since early 2011. Shri. Karna Debbarma received financial and technical assistance from ICAR, Tripura Centre to make an brick- cement made pig shelter (10 ft long and 5 ft wide) adjacent to his pond. Meanwhile, Shri. Karna Debbarma underwent three days hands on training for care and management of pigs. A good quality Duroc male piglet was given to him in 2011 for breeding with his non-descriptive female pig in due course of time. The Duroc piglet has grown to a size of 90 kg within a period of 8- 9 months. The non-descriptive female pig was mated with this Duroc boar. Shri. Karna Debbarma recorded the birth of seven piglets which was sold after weaning at the age of 2 months @ Rs. 3000/- per piglet. Thus, Shri. Debbarma earned Rs. 21,000/- within one year period. The sow was again pregnant within one month after weaning. This time, the sow delivered 11 piglets of which 2 piglets died (about 18% mortality after birth). Finally, Shri. Debbarma weaned 9 piglets and sold them @ Rs. 3000/- per piglet and thus earned Rs. 27,000/-. Also, Shri. Karna Debbarma allowed his Duroc boar for breeding of 7 sows owned by the nearby villagers. Subsequently, 5 sows were pregnant and piglets born. According to the customs, Shri. Debbarma received the gift of 5 weaned piglets from another five successful farmers. These 5 piglets were sold and Rs. 15,000/- was added to the earning of Shri. Debbarma. He thus earned a gross of Rs. 63,000/- during one and half year of 'piglet production farming system'. Considering the expenses for feed @ Rs. 50/- per day for one sow and one boar, the cost of feed was calculated as Rs. 27,000/- during a period of one and half year. Thus, Shri. Debbarma achieved a net profit of Rs. 36,000/- out a pair of pigs during 18 months period. The annual net income (Rs. 24,000/-) was 2.5 to 3 times more than the previous year gross income (Rs. 8000- 9000/-) from pig enterprise. Earlier, the earning from pig enterprise (Rs. 8000- 9000/-) was contributing 90 days food security based on the cost of daily food items @ Rs. 100/- for three adult and one school growing child (as reported by the wife of Shri. Debbarma). Now, Debbarma family has secured all most 240 days food security after

adopting 'piglet production farming system'. **The successful implementation of 'piglet production farming system' could provide 150 days or 5 months more food security over the traditional production of fattener pigs.** Shri. Debbarma got the additional income out of practically no additional investment. No additional risk was involved in terms of care and management of pigs and piglets up to weaning. The new pig shelter benefited the farmer to keep the pigs clean and probably free from diseases.

Shri. Karna Debbarma and his wife are very happy and satisfied after adopting the idea of 'piglet production farming system'. There is no headache to find the market for selling the piglets. Many of his neighbors have already booked his piglets in advance before giving the next birth. While Karna used to work for a daily wage to run his family, he now does so rarely. He is now living a much more comfortable situation than ever before. He has bought a new motor cycle, new cell phone and pays the school fees of his school-going children regularly. He recently purchased iron sheets and other construction materials to build a new house for his family. Other pig farmers in the village, like Karna, are also rearing pigs for breeding under the projects of ICAR, and all are determined in transforming the village into a major piglet-producing village. The villagers informed that the village had no pig breeder prior to the interventions made by ICAR, Tripura Centre. Shri. Karna Debbarma has emerged as one of the most progressive pig breeders in Balaramchoudhury para village. Karna narrated that breeding using good quality boar (got from ICAR), proper feeding (sometimes feeds from ICAR), housing (technical and financial supports from ICAR), care and management, coupled with the preventive measures of vaccination, minerals and vitamins supplementation (received from ICAR) helped him to transform his subsistence pig farming into a profitable one.



Plate 15. The Director of ICAR Research Complex for NEH region, Dr. S.V.Ngachan is visiting pig farm of Shri. Karna Debbarma at Balaramchoudhury para village of West Tripura



Plate 16. Shri. Karna Debbarma and his wife in front of their pig house made after the technical and financial supports of ICAR, Tripura Centre, West Tripura

CONCLUSION

The on going TSP project has brought a considerable impact on building the capacity of the tribal people through the promotion of pig farming in the creation of asset like pig house, adopting improved pig rearing management and implementing piglet production and piglet selling concept under 'piglet production farming system' for fetching more profit at least 2- 3 more than the traditional production system and selling of fattener pigs. Indeed, it is probably a small and humble intervention on pig farming system approach intended to make difference in the lives of pig farmers. We are striving to make this a model to showcase the profitability of small pig farming especially to the tribal communities in search of alternative sources of income for livelihood. Thus, we have a great task to show the road of success among a vast tribal population living in Tripura and in the entire north east India.

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Contribution of Forests as a Sustainable Livelihood Approach in the Context of Tribal Economy: A Study from South Odisha

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Introduction

Estimating the economic contribution of forest resources is a key step towards understanding the role of forest resources in promoting sustainable livelihoods. Forest, as an important renewable natural capital contributes significantly to the environmental resource base of an economy. As an eco-system it serves human society directly and indirectly by providing a large variety of goods and services. (Gutierrez, '1992s'; Pearce, '1992s'; Pearce and Warford, '1992s'). The important goods human society collects from forests are fuel, timber, minor forest products and various services like Carbon Sink, Bio Diversity, Flood Control etc. (Reid and Miller, '1993s', Shiva '1992s'). However, many of these important services are outside the market system (Hanley et al, '1997s').

Forest environmental income is very important for the poor since overuse and degradation of forest resources damage the economy of the poor and hurt the poor more than the non-poor (Vedeld et al. '2004s'). Forests play three distinct functions like safety nets, support of current consumption or coping strategy and a pathway out of poverty through household income sustainability which are vital for the poor's subsistence and sustainability (Cavendish, '2003s'; Vedeld et al. '2004s'; Angelsen and Wunder '2003s'; Fisher, '2004s'). As safety net it protects the forest dependent communities during periods of hardship as a cushion against unexpected income shortfalls during family illness, natural disasters etc. Forest ecosystem acts not only as a gap-filler by complementing other incomes especially during seasonal food shortfalls but also as a source of regular subsistence. The poverty reduction role through diversification and specialized forest strategies adopted by households along with the provisions of important environmental services which benefit local, regional, national and even global stakeholders are of immense value and crucial importance (Vedeld et al. '2004s'; Angelsen and Wunder '2003s'). Available literature suggest that the potential benefits that the poor can derive from forests are not always forthcoming because the poor are sometimes agents of forest

degradation; sometimes in a struggle to subsist, sometimes in an effort to prosper, and sometimes in response to temporary misfortune (Shively, '2004s'). The literature debates on the possibility of a two way causal relationship between forest and poverty. The causality however runs mainly from the poor to forest dependence whereby low return activities become an employment of last resort because the poor lack alternative lucrative income opportunities. For this reason, the prime role of forests has been viewed as providing a safety nets and means to maintain current levels of consumption rather than poverty reduction (Vedeld et al. '2004s').

Orissa's relative poverty reflects a number of structural and economic features. Regional inequalities and the relative positions of scheduled tribes and scheduled castes are important contributors to poverty; rural areas are poorer than urban areas. Tribal and caste differentials are also important. In '1993-94s', the headcount ratio in rural areas was 64 percent among scheduled tribes and 40 percent among scheduled castes compared to 33 percent among the rest of the population; in urban areas, the ratio was 59 percent among STs, 42 percent among SCs and 32 percent for the rest of the population. This topic has been chosen in order to focus on environmental income especially from forests as a means of eradication of poverty in the forest dominated areas for the following reasons:

Poverty is determined not only by the level of incomes but also by their distribution. As discussed above, there is some reason to think that the property rights of tribal groups, particularly common property rights, have been eroded, although the aggregate data are difficult to interpret. Some groups have been severely impoverished by displacement, but the importance of this in aggregate remains unclear. A similar issue arises in the possible environmental threat caused by commercial exploitation of the natural resource and the environmental damage caused by industrial projects in poorer areas (Pradhan et al. '1997s'). Poverty reduction in Orissa will require increases in the growth of incomes generated in agriculture and forestry. This will in turn require strengthening both productivity and market integration.

Problem of Study

The continued dependence of the poor on ecosystems for their livelihoods stems from several factors, but these generally reduce to the fact that nature is their best and often only option. The poor often lack the education and social access to find consistent wage labor. Without wage income, households lack the cash to purchase fuel, food, and services like health care. To substitute, they use small-scale agriculture and other forms of nature-based income, often collected from common areas. When given options for other forms of employment, the poor often reduce their dependence on environmental income.

Tribals are forest dwellers, 90 percent of them still live in or in close proximity to the forests. Forests are not merely natural ecological systems but are concrete extensions of natural systems into human eco-systems that created the bases of a large number of self-sustaining economies. There is numerous direct and indirect evidence both from the distant and the immediate past that judicious mixtures of farming, animal husbandry, hunting and gathering and crafts led to the development of sustainable forest-edge ecotones.

Traditionally the forest has been the very life support system of the tribals. Since they relied on it for their very existence, one would expect them to establish a balance between

their own needs and the needs of the ecology in such a way that both are protected. The tribal communities are not only forest dwellers but also for centuries have evolved a way of living, thinking and relating which on the one hand is woven round the forest ecology and the forest resources and on the other hand ensures that the forest is protected against depredation by men and nature.

Forests and tribals are culturally and traditionally linked to each other. Tribals have been living in the forest ecology and that has shaped their life and determined the kind of society they presently have. The socio-economic life of the tribals is so intimately inter-related, intermingled with the forest that by now tribals and forests have become inseparable words. Forests being a permanent abode for the tribals, they think of it as their ancestral home and there exists an emotional attachment between the tribal and the forest landscape.

For millions of people living in forest environments, the forest forms such a dominant part of their physical, material, economic and spiritual lives that its importance is not most appropriately described and assessed in terms of the individual products or services that the forest provides. Forest resources add to peoples' livelihood security, especially for rural and forest dwellers. Over the past decade, environmental and developmental concerns have converged, with the increasing interest in both tropical forests as an important ecosystem, and in the well-being of people who live in or near them. The importance of forests and forest products for the survival of very large numbers of tribals and rural poor in tropical developing countries now seems undisputable (Ruiz Pérez and Arnold '1996s'). The forest forms an integral part of their physical, material, economic and spiritual lives.

Income-earning activities based on marketable forest products may be seasonal or year-round, or may be occasional when supplementary cash income is needed. There are several dimensions to the seasonality of forest-based income-generating activities. Some are governed by seasonally induced cash needs, such as the need for income to buy food during the hunger period between harvests, or to purchase farm inputs. Other activities are seasonal largely because the crop or material can only be gathered at certain times of year.

Forest based activities also provides an important supplemental source of income that people can fall back on in times of crop failure or shortfall, or in order to cope with some other form of emergency. Forests are therefore often very important as an economic buffer and safety net for poor households as the poor usually derive a greater share of their overall needs from forest products and activities (Belsky '1985s'; Fernandes et al. '1988s'; Hecht et al. '1988s'; Siebert and Jodha '1990s'; Gunatilake et al. '1993s'). The open access to the resource and low entry thresholds enable many women to generate income from forest products which are often the important sources for them to meet the costs of feeding and clothing the family and they are more dependent on such income than men (Hopkins et al., '1994s').

Forest resources in particular often contribute to a substantial share of livelihoods of rural and tribal communities. More than one billion people in the world depend on forest for their livelihood (World Bank, '2001s'). Income from forest resources is common strategy of the poor to complement agricultural income from small and marginal land holdings (Dasgupta and Maler, '1993s'). It is coping strategy by the poor to mitigate the risk inherent in the subsistence agriculture (Pattanaik and Sills, '2001s'; Takasaki et al., '2004s'; Baland and Francois, '2005s').

Orissa is the poorest state of India for decades, in the forefront of all states, signifying all indices and with most of the poor people as chronically poor. About 85 percent of Orissa population is rural and the rural-urban poverty ratio is 48 percent versus 43 percent (NSS Report, '1999s' - '2000s')

The annual per capita income is very low and is estimated to be approximately US\$250 (World Bank, '2007s'). One of the key features of chronic poverty in Orissa is regional disparities. There is considerable variation in incidence of poverty within Orissa, with the coastal areas generally being more developed and having a lower poverty rate; the interior is less developed and has very high rates of poverty. Disaggregating the income poverty data of NSS ('1999s' - '2000s') into three regions of Orissa, it was found that rural poverty in coastal Orissa was 32 percent, in North Orissa 50 percent and 87 percent in South Orissa, which covers most of the KBK districts of Orissa (Haan and Dubey, '2005s'). The KBK region is especially found to be chronically backward, underdeveloped, and form the most poverty-stricken belt in India with about 71.97 percent families living below poverty line (Meher, '2001s').

This paper focuses on one of the key reasons behind persistence chronic poverty in the tribal dominated regions of Orissa. It examines the chronic poverty of this region with the lens of spatial disadvantages, social identity and policy approach. Firstly, the spatial disadvantage section will cover the remoteness, infrastructure, availability of public facilities and economy of the region. With regards to social identity, it addresses the reasons for high-rate incidence of poverty among socially deprived people such as STs in the tribal regions and processes of exclusion in different spheres of activities in the society along with caste based discrimination. Lastly, special government interventions in this region have remained largely ineffective with the poor people drawing the least benefits out of them as it does not suit to their social, cultural and economic life.

Scope of the Study

The present study is confined to the Ghumusar South Forest Division in the district of Ganjam; Orissa, India, one of the most diversified geographical tracts, but represents the situation of chronic poverty and forest dominance in the state of Orissa. The district has the highest number of people among the 30 districts of Orissa, a total population of 31.37 lakhs ('2001s' census), 8.55 percent of the state population. About Ninety thousand tribal people live in this District. The economy of this District is predominantly agricultural and forest based. However the coastal and the plain areas have gained momentum for commercial and industrial activities.

The Ghumusar South Forest Division has total of 1441.96 SqKms, 51.15 percent of the total area of the Division, 536.75 Sq. kms of reserve forest over 33 blocks and 905.20 Sq.Kms of non reserve forest over 66 blocks. The forest coverage in the division is higher than both the state and national average. Sorada block range is the largest range having 428.82 Sq.Kms of forest area, 29.73 percent of total forest over of the division (GOO, '2001s'). The Ghumusar South Forest Division has a sound forest base and hence influences the livelihood and life style of the surrounding people in a grater way. Our study is confined to forest dependence that is the economic contributions of the forestry sector to the life and living of the local tribal communities. The study looks into both the income and earnings from forestry in term of wood and non-wood forest products. (See The Map : Figure 1).

Objectives

The present study examines the nature and extent of forest dependency of the ruralpoor and tribal people in the South Ghumusar Forest Division area in Ganjam District of Orissa, India with special reference to poverty eradication and sustainable livelihood promotion where the 'sustainability' aspect adds a temporal dimension by examining the exposure of livelihoods to particular shocks and stresses as well as their ability to cope and adapt. In a summary statement it can be said that the study investigates an economic assessment of the role and importance of forest environmental income as a vehicle for sustainable livelihood of the forest dependent tribal communities in the forest rich areas of South Orissa which also famous for its chronic poverty.

Materials and Methods

The study is built upon both primary and secondary information. The secondary information gathered from the reports and publications of various agencies and institutions. Primary survey was conducted during April- '2008s' with the help of a structured questionnaire as a pilot study in the study area covering 09 villages.

The work is based on statistical and economic reasoning to judge and assess the dependence of tribals on forest and forest resources. During the household survey local measures were used to estimate forest products, later converted into standardized units to have meaningful quantitative analysis. The standardized prices of forest products were first ascertained form different villages and letter ex-village prices were set thorough discussion with villagers. A participation observation method was also used to gather details of types of NWFPs collectors, season of availability, method of extraction, labour time involved and distance traveled for collection of various forests products. The concept of stated income is used, in which the head of the household expressed their annual income from different sources by memory recall method. The total income of the household is composed of the sum of the value of the total production under different activities. Participation rate in forest extraction, components of forest and non-forest income, the share of subsistence income and cash income in forest income used as indicators of forest dependency.

Concepts and Definitions

The variables used here are mainly the various components of income and also the various types of forest activities. Since income is earned from various subheads we have limited the concept into only two groups like Forest income and non-forest income. The portion of income that comes from forestry sector excluding forest services are termed as forest income. The rest of the portion of the aggregate income is termed as non-forest income. Since the objective is to examine the importance of forest sector for livelihood the study mainly concentrated on forest income. Again forest income is classified as subsistence income that are consumed by the households and the cash components /income derived from the sales of the forest goods. The concept of absolute and relative income has been used to realize the share in the total.

Indicators of Forest Income:

The following indicators are used to explain the forest income of the tribals.

- a) The participation rate of forest extraction.
- b) Decomposition of the total income by sources like forest and non-forest income.
- c) Relative importance of forest income as subsistence income and cash income.

The Dependency Rate

Forest products are usually important to provide food and other basic needs. However they partially support the cash requirement of the tribals. The degree of dependency rate varies widely among different communities, among households within the same community and between different locations. The existing socio, cultural and economic factors and institutional and management mechanisms largely influence the extent of extraction and dependency on forests. The dependency rate needs to be assessed at the household level.

Table : 1 Participation rates of the Households in various Forest Extraction Activities:

Villages→	1	2	3	4	5	6	7	8	9	All
Name of activity Extraction ↓	(5)	(6)	(6)	(2)	(5)	(3)	(5)	(3)	(15)	(50)
Timber	1	2	4	2	2	2	0	3	13	29
Fuel ood	4	4	6	2	5	3	3	3	14	44
Bamboo	3	3	6	2	4	3	3	3	13	40
Grass	0	0	3	0	1	0	0	3	1	08
Fruits/ Nuts	3	1	6	2	4	1	3	3	1	24
Honey/Drinks	3	3	6	2	4	4	5	2	7	36
Leaves/ Herbs	3	3	6	2	4	4	5	2	7	36

Source: Household Survey

Key Characteristics of Forest Economy in the Villages

Tribals of the study area collect a large variety of forest products like fuel wood, small log, timber, fruits , nuts, bamboo, grass, fodder, mango, mahua, sal leaf, resin, honey, lac,kenduleaf, Amla, Bahada, karanja, date and date juice etc. All the villages are in the fringe of forest, except Sinkulyapoli .village which is three kilometers away from the forest. Theforests of the area belongs to the category of reserve forest and there is no private ownership of the forest land. So far accessibility information is concerned people have to walk for more than 10 kilometers for commuting the markets, medical, for selling of their forest products and other facilities.

In the context of agriculture the important crops grown are Suan, Kangu, Maize, Mustard, Lin seed, Tila, Sesame, Castor Seed, Ground nut, black gram and paddy. These crops are grown in almost all the villages. The crops grown also owe to shifting cultivation. Exceptthe village Sinkulyapoli, there is no irrigation facilities in other villlages.

Income from Various Sources of Forest Product.

A household survey was carried out to examine the extent of dependency on forests. A smaller in-depth survey of 50 households in 9 tribal villages around the forest division (Barapada, Khagiripalli, Bahadrapadar, Biripur, Guchhaguda, Jamachua, Agalipadara, Bhaliapada, and Sinkulyapoli respectively) was conducted to estimate various sources of income. A summary of the relative contributions of forest income to the tribal households is given in Table.2.

Table : 2 Income from various sources of forest product(In Indian rupee)

Source Village	Timber	Fuel wood	Craft And Bamboo Product	Leaves For Plates	Lac and Honey	Fruits	Grass	Total
1	2	3	4	5	6	7	8	9
1	300 (1.41)	5375 (25.32)	500 (2.35)	10500 (49.49)	1150 (5.41)	3400 (16.01)	0 (0)	21225 (100)
2	100 (0.43)	4375 (19.10)	5400 (23.58)	10100 (44.11)	1820 (7.94)	1100 (4.80)	0 (0)	22895 (100)
3	7000 (18.70)	14475 (38.67)	8700 (23.24)	3460 (9.24)	2560 (6.84)	988 (2.64)	240 (0.64)	37423 (100)
4	3350 (45.29)	1370 (18.52)	800 (10.81)	1400 (18.92)	300 (4.05)	176 (2.37)	0 (0)	7396 (100)
5	7050 (26.53)	4200 (15.80)	12500 (47.05)	1178 (4.43)	800 (3.01)	718 (2.70)	120 (0.45)	26566 (100)
6	10000 (72.04)	1300 (9.36)	946 (6.81)	735 (5.29)	800 (5.76)	100 (0.72)	0 (0)	13881 (100)
7	0 (0)	2380 (32.12)	680 (9.17)	2808 (37.90)	800 (10.79)	740 (9.98)	0 (0)	7408 (100)
8	12000 (45.74)	1240 (4.72)	3984 (15.18)	2350 (8.95)	5400 (20.58)	1110 (4.23)	150 (0.57)	26234 (100)
9	47800 (5.80)	18780 (2.27)	750330 (91.09)	4500 (0.54)	1700 (0.20)	450 (0.05)	160 (0.01)	823720 (100)
Total	87600 (8.87)	53495 (5.42)	783840 (79.43)	37031 (3.75)	15330 (1.55)	8782 (0.88)	670 (0.06)	986748 (100)

Source: Household Survey

For each household, the data on the total income was obtained. The total income comprises of all the forest related activities (income from timber, fuel wood, craft and bamboo product, leaves for plates, lac and honey, fruits, and grass).

So far village one (Barapada) is concerned leaves for plates contribute 49.49 percent of total forest village income and fuel wood is the second highest contributor that is Rs. 5375 which is again 25.32 percent of the total village forest income. Lac & Honey, Fruits contributes 5.41 percent and 16.01 percent respectively.

The total income of the village two (Khagiripalli) from different forestry activity is Rs.22895, out of which leaves for plates is 44.11 percent and craft and bamboo products contributes the second highest village income of 23.58 percent.

Village 3. gets total income Rs.37423 from different forestry activities. From the total income fuel wood contributes 38 percent, craft and bamboo product contributes 23.24 percent, timber 18.70 percent, and others below 10 percent of total village income.

Village 4. from all sources procure Rs.7396 total income, it gets highest income from timber that is the 45.29 percent of total village income. From other sources it gets 20 percent of total village income. It is fuel wood and leaves for plates contributes more or less same amount that is about 19 percent.

Village 5. gets highest income, 47 percent from craft and bamboo products, timber brings 26.53 percent, fuel wood 15.80 percent to total village income. All the activities contribute less than 10 percent of total village income.

It is village 6 which earns total of 72.04 percent from timber, and from all other activities this village gets less than 10 percent of total village income. Fruits and grass contributes very insignificant portion of total village income.

The highest percentage contribution to total village income comes from leaves for plates for village no.7. It contributes 37.90 percent to the total village income fuel wood provides 32.12 percent of total income.

In village 8 timber brings 45.74 percent of total income, lac and honey contributes 20.58 percent of total village income.

In village 9. out of a total income Rs. 823720, Rs.750330, 91.09 percent comes from craft and bamboo products and all other activities contribute less than 8 percent of total village income.

It is evident from the table 2 that among various forest income activities craft and bamboo products from the point of view of earned income is the strongest contributor which also calls for policy suggestion that government policy should encourage forest craftsman ship through training and workshops which will add more sustainability to the livelihood status of the forest dwellers. Similarly plate making from leaves another important area which should be promoted for its income and employment potency. An important observation is relating to unsustainable use of forest because in villages 6, 8 and 4 there is higher extraction of timber.

Earning and Income Shares by Source and by Village

Table no:3 indicates that the earning shares by source and by village. The upper segment of the table shows the earnings and the lower segment of the table shows the sources of total income from different sources. Sales earning can be calculates by deducting consumption from total income. In the upper part of the table indicates the total earnings, and the total earnings can be calculated by adding all the earnings. Total earnings are calculated by adding the earnings from forest, farm, livestock and wage works. Similarly for each household, data total income was obtained by adding income from farm, forest, livestock and wage work. Forest income includes income from timber and non-timber, farm income includes settled as well shifting cultivation.

MANAGEMENT OF RESOURCES, CONFLICT RESOLUTIONS, NEGOTIATIONS AND GOVERNANCE

Table-3 Earning and income shares by source and by village (In Indian Rupee)

Sales earnings	Forest	Farm	Livestock	Wage work	Total
(1)	(2)	(3)	(4)	(5)	(6)
1	6890 (0.13)	44000 (0.85)	640 (0.01)	0 (0)	51530
2	3900 (0.24)	2400 (0.15)	2600 (0.16)	7040 (0.44)	15940 (1.00)
3	21346 (0.42)	125 (0.02)	29000 (0.57)	0 (0)	50471 (1.00)
4	4051 (0.81)	900 (0.18)	0 (0)	0 (0)	4951 (1.00)
5	9242 (0.61)	4550 (0.30)	1250 (0.08)	0 (0)	15042 (1.00)
6	12100 (0.89)	1250 (0.09)	200 (0.01)	0 (0)	13550 (1.00)
7	900 (0.09)	6370 (0.67)	2150 (0.15)	0 (0)	9420 (1.00)
8	19490 (0.93)	750 (0.03)	650 (0.03)	0 (0)	20890 (1.00)
9	57810 (0.71)	22090 (0.27)	590 (0.03)	0 (0)	80490 (1.00)
Total	135729 (0.51)	82435 (0.31)	37080 (0.14)	7040 (0.02)	262284 (1.00)
Total Income					
1	21225 (0.25)	59800 (0.73)	750 (0.09)	0 (0)	81775 (1.00)
2	23895 (0.30)	18900 (0.24)	28200 (0.36)	7040 (0.09)	78035 (1.00)
3	37423 (0.76)	8245 (0.16)	3210 (0.06)	0 (0)	48878 (1.00)
4	7396 (0.56)	5700 (0.43)	0 (0)	0 (0)	13096 (1.00)
5	26626 (0.63)	13560 (0.32)	1460 (0.03)	0 (0)	41646 (1.00)
6	13881 (0.62)	8000 (0.36)	200 (0.09)	0 (0)	22081 (1.00)
7	7408 (0.23)	21070 (0.73)	2350 (0.09)	0 (0)	31628 (1.00)
8	26234 (0.82)	4750 (0.15)	650 (0.02)	0 (0)	31634 (1.00)
9	82120 (0.54)	63050 (0.41)	5620 (0.37)	0 (0)	150790 (1.00)
Total	246208 (0.49)	203875 (0.40)	42440 (0.08)	7040 (0.01)	499563 (1.00)

Source: Household Survey

From the **table: 3** it clearly identified that total income from the forest is the height Rs. 246208, which 49.28 percent of the total income Rs. 499563, as compared with the total income from farm Rs. 203875, 40.81 percent of total income of all nine villages. Livestock and wage work both constitute only 9.9 percent of total income of nine villages.

So far earnings has been concerned it is forest which constitute 51.74 percent of total earnings of all nine villages. Nine villages got total earning Rs. 262284 from all sources including earnings from forest, earnings from farm, earnings from livestock and wage work. In village number: 2, there is only wage earning consisting 44.16 percent of total village income of that village.

From the table it is cleared that tribal's of the study area is getting more income and earnings from. Though income from farm the second highest, which is again forest based. There are no wage laborers in the study regions. They got income directly and indirectly by interacting with forest.

Local Community and Forest Dependence: An Empirical Analysis

It is evident from the above **table 1** that people in the sample villages have a diversified source of forest income. The participation rate is very high in the villages no.9, followed by village no.3, no.5, no.8. The activities like fuel wood and bamboo extraction have attracted highest number of households. The minor forest products like honey/drinks and leaves and herbs have also high participation rates. The high return forest activities like timber sales also have a reasonable participation rate. Grass collection is the least participated forest activity in the study region. The classification of forest activities like high return and low return forest activities is important because of their environmental impacts. Higher extraction of timber and fuel/fire wood results in over exploitation and degradation of the forest. Both the activities have a higher rate of participation warns against the unsustainable use of the forest resource.

Forest contribution to aggregate income in the study area

Table 3 presents earnings and income shares by source for the sample households. **Table 3** indicates income diversification at the study site in line with the observations in India and elsewhere. In the absence of credit and insurance facilities income diversification is most important as a coping strategy to mitigate risk, adverse shocks and to earn income to meet the cash needs in the periods of fall back or in the times of emergency.

From the **table 3** we find that high forest earnings come from almost all sample villages except villages 1, 2 and 7. Out of nine villages 5 villages have more than 50 percent of the household income. Village 8 has the highest (82 percent) of household income from forestry followed by village 3,6 and 9 with 76,62 and 54 percent of total household income from forest resources. Villages 7 and 1 have around 25 percent of forest income. Forest contributes 49 percent of total household income in the whole sample. In both villages 8 and 6 high forest income shares reflect opportunities and high returns for forest occupations due to resource endowments as the villages are in the forest itself.

Forest income is of two types. Absolute income and cash income. Cash income is otherwise known as the income earned from the sales of the surplus forest product over and

above self consumption/subsistence. The part of cash income is important since it is surplus and is used for the betterment or welfare of the household. Looking from this angle it is inferred that forest income plays an important role by contributing a proportionately higher share. As is seen from the table a total of 51 percent of earnings or cash income comes from the forest sector for the whole sample. The contribution ranges between 9 percent (village 7) to 93 percent (village 8). Five out of nine villages enjoy more than 60 percent of cash income from forestry. This is not an uncommon finding as in the absence of alternatives forest dwellers largely depend on the local natural resources, the forests.

Since forest activities are diversified they do not contribute uniformly to the forest income. In our study roughly we have classified forest income in two components like timber income and non timber income.

Table:4 Income from various sources of forest product (In Indian rupee)

Village→ Source↓	1	2	3	4	5	6	7	8	9	
Timber products	5675	5475	20875	26350	11250	63950	2975	10545	51200	198295
NTFP	15550	18420	18108	36528	16503	89559	5362	16518	39830	256378
Total	21225	23895	38983	62878	27748	153504	8337	27063	91030	454663

Source: Household Survey

As is evident from Table: 4 NTFP , non-timber or non-wood income contributes proportionately more to the forest income in the study area. As is evident from the total sample non-timber income contributes 56.39 percent of the total forest income. Among all the villages villages 3 and village 9 have higher timber income over the non-timber forest products. The finding is not uncommon as NTFP is a global concern for its share in forest income.

Relationship between Total Income and total Forest Income

Forest income is closely and positively related to total income. We found the forest income increases with an increase in total income. This can be explained with a simple regression analysis (using a log log model that provides the best fit) .This study unlike other studies also supports and produced the following result. $\text{Log AFI} = 0.100 + 0.924 \text{ log AI}$. (AFI = Absolute forest income, AI = absolute total income). The equation shows the elasticity of forest income with respect to total income is close to unity.

Distribution of Forest Income

How does forest dependence change with total income? The total forest income increases as we move from the bottom to the top, there emerges an important pattern that the relationship

between the two exhibits a bell shaped relationship. In this study it also is found that forest income is more concentrated among the middle income group and is observed that at extreme low level forest dependency is low and at relatively higher levels of income people come out of forest and enter to other livelihood areas. It is observed in the study area that with an increasing total income forest dependence increases up to a certain level, beyond which it is found the forest dependence declines with an increase in income. This means there is environmental Kuznets curve, where an inverted U shape emerges between the increase in total income and increase in forest income. This says in share of forest income the poorest and the richest groups have a significantly lower dependence than the intermediate group or the people in the middle income range.

Policy Implications and Suggestions

The study provides the following suggestions and recommendations in order to improve the economic strength of the forest dependent communities in a poorest and tribal dominant state like Orissa through this case study from the district of Ganjam in the state of Orissa.

Since forest income play a crucial role and contributes significantly for both income and consumption purposes of the tribal households there is a need to recognize this sector. Considering this a tribal friendly forest policy and forest based approaches should be the strategy for poverty alleviation among the concerned communities.

Increasing access to forest resources many enhance the income derived from forest. So there is a need for careful designing of access to forest resources. For sustainable management of forest resources, policy makers need to understand the regional differences in the volume of capacity of forest resources and also how individual households responses to alternative attributes. Study findings indicate potential for poverty reduction through cooperation in this sector. Therefore there is a need to strengthen the joint and community forest management practices through comprehensive participatory approaches at village levels emphasizing on sustainability of the forest resources.

There is wide scope for good forest management to harness NTFPs for improving the economic conditions of the forest dwelling tribals. This needs to bring about changes in the provisions of Forest Acts that limit the scope of procurement, marketings, processing and value addition. Accordingly, the State Policy on NTFPs could be based on the key objectives of sustainable management of precious resources and improvement of livelihood dependency of the forest dwelling communities.

Conclusion

Importance of forest income is evident from the information gathered through household survey. In this study it is found that forest resources contribute largely to the economy of the forest dwellers. 49 percent of the total income comes from the forest resources and 51 percent of the total earnings comes from the forest sector. Agriculture is just behind the forest resources contributing 40 percent of total income and 31 percent to total earnings.

Among the nine villages majority of them enjoy a higher share of their livelihood from forest related livelihood activities. Considering various concepts of income like the absolute

income, subsistence income, cash income and relative income for both forest and non-forest sectors we found that forest is the major contributor to the economic life of the tribal people. It is not only a subsistence sector, rather it supports a larger portion of the cash income which are spent in other income earning activities like purchase of farm implements that add to the welfare of the tribal community. Also the study confirmed that an increase in total income positively supports the quantity of forest income and forest income is high among the middle income group and less for the very poor and rich. This indicates a higher portion of forest income is enjoyed by the middle income group hinting on the presence of an environmental Kuznet' Curve in the forest sector.

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Agriculture and Tribal Livelihood: Experience from Chittagong Hill Tract of Bangladesh

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Introduction

Bangladesh has a primarily agrarian economy. Agriculture is the single largest producing sector of the economy since it comprises about 17.3% of the country's GDP and employs around 45% of the total labor force. The performance of this sector has an overwhelming impact on major macroeconomic objectives like employment generation, poverty alleviation, human resources development and food security (World Bank, 2012). Bangladesh is mostly ethnically homogenous, with the vast majority of the population being Bengali speaking and Muslim. There are a few distinct ethnicities that differ in both language and religion. These groups are mainly concentrated in the Chittagong Hill Tracts (CHT) region.

Chittagong Hill Tracts (CHT) is the only extensive hill area in Bangladesh and it is located in the south-eastern part of Bangladesh between 21°25'N to 23°45'N latitude and 91°54'E to 92°50'E longitude. Total population of CHT is 13,31,996, of which about 51% is tribal people. Bangladesh is a land of more than 45 tribal groups. These indigenous people are living in both plain lands and the hilly areas. The majority of the ethnic minorities are Chakma (48%) and Marma (28%). Agriculture is the main source of livelihood of these populations. Nonfarm income opportunities are very limited and in some areas nonexistent. Shifting agriculture, locally known as jhum, is still the cultivation systems in this region with little impact of different government plans and programs to promote the agricultural land use patterns. As a result the tribal populations are suffering from food insecurity and the shifting agriculture has led to indiscriminate destruction of forest for food resulting ecological degradation.

Poverty caused by traditional agriculture and environmental degradation in the Chittagong Hill Tracts of Bangladesh need policies and programs for environmentally compatible and economically viable agricultural systems (Thapa and Rasul, 2005). However, policies and programs aimed at promoting alternative land use systems have failed to achieve expected goals because of inadequate understanding of the evolution of the existing land use systems can forces

driving the changes (Rasul et al., 2004). Land use practices in uplands not only degrade the resource base but also negatively impact on the livelihoods and resources base downstream. The present study is an attempt to collect factual information about the life style of the tribal people in our country. It is obvious that such information is essential before we can discover the needs of the tribal peoples and suggest means of providing practical solution to their problems.

Rationale of the Study

The ethnic households live in the Chittagong Hill Tract (CHT) region are generally very poor, illiterate and their livelihood mostly depends on shifting cultivation and wage earnings (Uddin et al., 2000). Selling of firewood, bamboo, timber, fruits, indigenous vegetables, livestock and poultry also provide additional income for their livelihood (Miah and Islam, 2007). Most households have few assets other than family labor (unskilled) and some land. Their food basket contains mainly indigenous vegetables, fruits and the meat of wild animals. Although a major share of their income come from agriculture, but this sector is highly constrained by limited cash and modern technology for higher production (Chowdhury et al., 2004). Steep slopes, low soil fertility, low moisture-holding capacity are also the major constraints of agriculture development in the CHT region (Brammer, 1997).

A large part of population in the CHT region still lacks access to sufficient, safe and nutritious food. The main reasons of this short-fall are low yield of Jhum crops and low purchasing power due to limited income. The low yield of Jhum crops is mainly attributed to low soil fertility, use of traditional crop variety, and crop damage by rats and wild pig. Gafur, 2001; Al-Kaisi, 2001; Gafur et al., 2003; and Miah and Islam, 2007 found that Jhum cultivation causes huge topsoil loss from the hills and reduces productivity of the soil which is responsible for decreasing the productivity of food production and other hillside farms. With this unsustainable land use system, the livelihoods of the hill people are decreasing day by day.

Proper utilization of hilly lands and human assets can contribute a lot to reduce household food insecurity in this region. Therefore, it is important to investigate the livelihood pattern, household level food security, vulnerability, and coping strategies with vulnerable situations of the poor indigenous households. This research work will be helpful for policy makers for strengthening national food policy programs. The study will also help the researchers and development workers to formulate appropriate policy measures for uplifting the livelihoods of the poor indigenous households for this region.

Objectives of the Study

The objectives of this study are to-

- Investigate the socioeconomic characteristics and land use pattern including crop production, consumption pattern, nutritional status, and food security of indigenous people in the hill areas
- Explore livelihood vulnerabilities and coping strategies of rural ethnic minorities in CHT region; and
- Suggest some policy guidelines for improving livelihood security of ethnic minorities in CHT region.

Methodology

The research has studied secondary data and information which include:

Literature review: This research carefully examines some existing reports and study on agricultural system and livelihood patterns of the tribal population in Bangladesh. The literature review also includes policy papers, declaration, and conventions on tribal livelihood.

Newspaper: Information, data, and case studies are studied and compiled. Both Bengali and English daily newspapers are studied for seeking information and data.

Internet sources: Information and data on agricultural system and livelihood patterns are collected, compiled, and analyzed for this research. Internet sources included research paper, reports, workshop outputs, and information published in the web sites.

Results and Discussion

Indigenous People and their Characteristics

According to Macmillan English Dictionary for Advanced Learners (2007, 770): “Indigenous people lived in a place for a very long time before other people came to live there”. The World Bank (1991) defines ‘indigenous people’ as: “The terms “indigenous peoples,” “indigenous ethnic minorities,” “tribal groups,” and “scheduled tribes” describe social groups with a social and cultural identity distinct from the dominant society that makes them vulnerable to being disadvantaged in the development process.” according to the International Fund for Agricultural Development (IFAD, 2011): Indigenous peoples have rich and ancient cultures and view their social, economic, environmental and spiritual systems as independent”. AIPP, IWGIA & Forum-Asia (2010) identified the following characteristics of indigenous people:

- have their own separate language, culture, customary laws, and social and political institutions that are highly distinct from those of the main ethno-linguistic groups in the country;
- have self-identification. They are the real ‘aboriginals’ or ‘natives’ in the country and the other people came and settled in the country after them.
They are not the dominant people so they do not have the economic and political powers of the country; and
- are generally small in number.

Indigenous People in Bangladesh

In Bangladesh, the main terms that are used to indicate indigenous people are: ‘Upojati’ (means ‘sub-nation’ and indicates the tribal people) and ‘Adibashi’ (equivalent to the words ‘indigenous’ or ‘aboriginals’) (Roy, 2010). “According to the Census Report (2001), the total number of indigenous (officially ‘tribal’) people in Bangladesh is about 1,772,788, which is 1.28 % of the total population of the country. However, indigenous peoples claim that the population of indigenous peoples all over the country is about 3 million”. The indigenous groups that live in the plain land are the Santal (30% of the indigenous people living in the plains), the Garo, the Hajong, the Koch, the Manipuri, the Khasia, the Rakhain and some others (Asian Indigenous Peoples Pact, 2007).

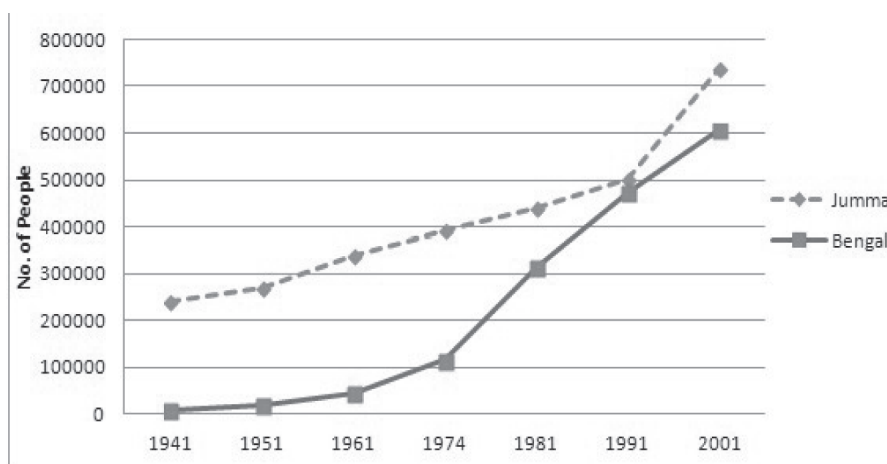
Table -1: Distribution of Ethnic Population in CHT Region

Sl. No.	Ethnic Group	Total Population	% of Total
1	Chakma	239417	43.4
2	Marma	142334	25.8
3.	Tripura	75000	13.6
4.	Tanchanga	50000	9.1
5.	Bawm	8000	1.5
6.	Murong (Mro)	25000	4.5
7	Khumi	1241*	0.2
8.	Chhak	2500	0.5
9.	Pankhoa	4000	0.7
10	Kuki	1734	0.3
11	Khyang	2000	0.4
12	Lushai	1098	0.2
Total		552324	100.0

Source: Das (2009); *ADB (2000)

Chittagong Hill Tracts is the home of 13 different ethnic minorities possessing distinct cultures and life styles. Table 1 shows that among the ethnic communities, the highest population along to the Chakma community (43.35%), followed by the Marma (25.77%) and the Tripura (13.58%) (Shelley, 1992). They are ethnically different from the settled populace in Bangladesh. These people are collectively known as the ‘Jumma’ people. These people have been living in these highlands for centuries. These ‘Jumma’ people settled in this land before the 16th century. Later in the 19th century, the Bengali people (the dominant ethnic group of Bangladesh) started settling in these highlands. Over the years, the number of Bengali settlers increased in this area. The population census of 2001 shows that the number of Bengali settlers and the number of ‘Jumma’ population, have become almost equal (Figure 1).

Figure 1. Increasing Trend of Tribal Population in CHT Region



Source: Asian Indigenous People Pact, 2007

Key Features of Ethnic Minorities

Chittagong Hill Tracts is the home of 13 different ethnic minorities possessing distinct cultures and life styles. The distinct features of major ethnic groups are discussed below

Chakma: Most of the Chakmas live in the Rangamati district. The Chakmas generally live in an agrarian self-reliant society. They do all their day to day work by themselves from agriculture to weaving clothes.

Marma: The Marmas sometimes referred to as Moghs live mostly in and around Bandarban. They also belong to the Mongoloid group. They engaged in shifting cultivation which locally called jhum farming. Jhum is a cultivation system usually practiced by the tribal people in the hill areas of Bangladesh. In this system a number of crop seeds (8-12) are sown together as mixed cropping with the help of a hoe after slash and burn of hill vegetation and initiation of first rain. The crops are harvested in different times based on crop maturity.

Tripura: The Tripuras or Tipra live in the most part of the CHT in a scattered manner. The name 'Tipra' originated from the word 'Top' which means 'river' and 'Pra' which means the confluence. Together 'Topra' means the people who used to live in confluence of rivers. Their way of life is different in many ways from others. These differences are apparent in socio-religious festivals.

Tanchangya: The Tanchangyas are the original sect of the Chakma. They migrated from Arakan in 1881 during the period of Chief Dharam Baksh Khan and took up their abode on hill tops.

Bawm: The Bawm tribesmen live in Bandarban. The word Bawm is believed to have originated from 'Kem Jau' – which means 'united nation'. The Bawms mainly depend on fruit gardening.

Mro: The Murong's who came over from Arakan in Burma a few hundred years ago; they concentrate in and around the Bandarban district of CHT. The Murongs depend on Jhum cultivation. They eat wild animals such as dogs, tigers, pigs, goats, deer, cow, poultry birds etc. They live on the tops of hills, in houses erected on 'machangs' platforms.

Education

Education is the key determinant of the lifestyle and status an individual enjoys in a society. Educational attainment has strong effects on reproductive behavior, family planning and AIDS knowledge, occupation, income, sanitation system and issues related to family health and hygiene. There is little or no information available on the status of education in CHT. National surveys like the '62-village study' conducted by the Bangladesh Institute of Development Studies (BIDS) and the 'Assessment of Basic Competencies' conducted by BRAC bypassed the CHT. However, it is a fact that the literacy rate in the CHT lags behind the national rate, and that the levels of education in the CHT are very low. The status of women's education is even lower. Seven out of every ten women in the CHT have received virtually no education. In some cases, education for girls is not encouraged. Fewer girls than boys are attending school, and girls drop out at an earlier age than boys (Sutter, 2000). The study shows that the literacy rate, of the children aged 11-12, varied significantly according to ethnicity. In a study conducted by Rafi and Chowdhury in some villages in the CHT, the literacy rate was found to be highest among the Chakmas (37.7%) and lowest in the Mros (only 2.9%).

Table -2: Literacy Rate of Tribal People in CHT

Community	Literacy Rate
Chakma	36.2%
Marma	26.6%
Mro	2.9%
Tripura	18.5%

Source: Rafi and Chowdhury (2008)

Housing

Housing pattern is one of the important indicators of living standard of human beings. Housing was classified into three types. These are i) Jhupri: refers to the house for which wall is made of fence/straw/bamboo, floor is made of bamboo and roof made of straw; ii) Katcha: refers to the house for which wall and floor are made of mud and roof is made of straw, tin or CI sheet; and iii) Katcha-Pucca: refers to the house for which wall made of brick, cement and floor and roof is made of tin or CI sheet.

Table-3: Housing Types among Groups and Locations

Respondent type	% of households			
	Jhupri	Kacha	Katcha-Pucca	Total
Bandarban				
Chakma (33)	81.8	18.2	-	100
Marma (36)	86.1	5.6	8.3	100
Tanchanga (35)	94.3	5.7	-	100
Tripura (36)	88.9	11.1	-	100
Mro (38)	28.9	71.1	-	100
Bawm (36)	33.3	66.7	-	100
All ethnic (214)	68.9	29.7	1.4	100
Non-ethnic (30)	73.3	20.0	6.7	100
Khagrachari				
Chakma (37)	51.3	27.0	22.0	100
Marma(36)	63.9	30.6	5.1	100
Tripura (33)	87.9	9.1	3.0	100
All ethnic(106)	67.7	22.2	9.4	100
Non-ethnic (30)	73.3	20.0	6.7	100
Rangamati				
Chakma (36)	30.6	58.3	11.1	100
Marma(36)	38.6	42.9	18.6	100
Tanchanga (35)	50.0	47.2	3.8	100
All ethnic (107)	40.0	49.3	11.0	100
All non-ethnic (30)	46.7	40.0	3.3	100
<i>All ethnic (427)</i>	58.9	33.7	7.3	100
<i>All non-ethnic (90)</i>	64.4	30.0	5.5	100

Source: Uddin et al., 2010

MANAGEMENT OF RESOURCES, CONFLICT RESOLUTIONS, NEGOTIATIONS AND GOVERNANCE

Most of the ethnic minorities were found to live in Jhupri type housing (58.9%) followed by Kacha housing (33.7%) (Table3). For non-ethnic settlers 64.4% households live in Jhupri type housing and 30.0% households in Kacha houses. Results revealed that most of the ethnic and non-ethnic settlers were living in the Jhupri house and their living standard are very poor but these differences are found statistically insignificant.

Households Category

Households were classified into five groups according to land ownership following FAO and ILO (2008) definition. It can be seen from the Table 4 that in the CHT region, more than 72% non-ethnic households was found landless while it was for only 24% for ethnic households. On the other hand, more than 28% ethnic household occupied 1-1.99 ha of land but it was only 8.9% for the non-ethnic in the CHT. In these districts, cent percent non-ethnic household in Bandarban was found landless followed by Rangamati. Among the ethnic groups, more than 94 % Marma's household in Rangamati was found landless but the Tripura's and Bawm in Bandarban was occupied highest amount of land (2.0-5.0ha). The land holdings among the groups and location varied significantly.

Table - 4: Distribution of Tribal Households According to Land Holdings

Location/ respondent type	Responses on cereal sufficiency (%)				
	Land lord	Owner-cultivator	Share cropper (renting in land)	Tenant	Land less
Bandarban					
Chakma (33)	3.0	81.8	-	30.3	18.2
Marma (36)	-	94.4	-	52.8	2.8
Tanchanga (35)	-	74.3	-	28.6	25.7
Tripura (36)	2.8	88.6	-	30.6	8.3
Mro (38)	-	100.0	-	23.7	5.3
Bawm (36)	2.8	83.3	-	36.1	2.8
All ethnic (214)	1.4	87.1	-	33.7	10.5
Non-ethnic (30)	-	-	-	-	100.0
Khagrachari					
Chakma (37)	2.7	78.4	2.7	56.8	13.5
Marma(36)	22.2	88.9	30.6	27.8	8.3
Tripura (33)	18.2	93.9	30.3	57.6	15.1
All ethnic(106)	14.4	87.1	21.2	47.4	12.3
Non-ethnic (30)	13.3	93.3	16.7	53.3	20.0
Rangamati					
Chakma (36)	22.2	88.9	58.3	16.7	13.9
Marma(36)	2.9	17.1	8.6	5.7	88.6
Tanchanga (35)	13.9	75.0	38.9	44.4	16.7
All ethnic (107)	13.0	60.3	35.3	22.3	39.7
All non-ethnic (30)	-	46.7	3.3	20.0	96.7
All ethnic (427)	9.6	78.2	18.8	34.4	20.8
All non-ethnic (90)	4.4	46.6	6.7	24.4	72.2

Source: Uddin et al., 2010

Monthly Per Capita Income

Table 5 provides monthly per capita income per household in the study areas. In all location, the average monthly per capita per household income was estimated at taka 814 for all ethnic which was higher than non-ethnic (tk.757). Both the figure was lower than national average. Also, the average per capita monthly incomes of households in all ethnic groups were found lower than national figure.

Table - 5 : Monthly per Capita Household Incomes

Location	Monthly per Capita Household Income (tk.)							
	Chakma	Marma	Tanchanga	Tripura	Mro	Bawm	All ethnic	Non-ethnic
Bandarban	763	924	1022	555	635	792	765	566
Khagrachari	940	935	-	633	-	-	827	866
Rangamati	746	1117	726	-	-	-	850	838
All	816	992	874	594	635	792	814	757

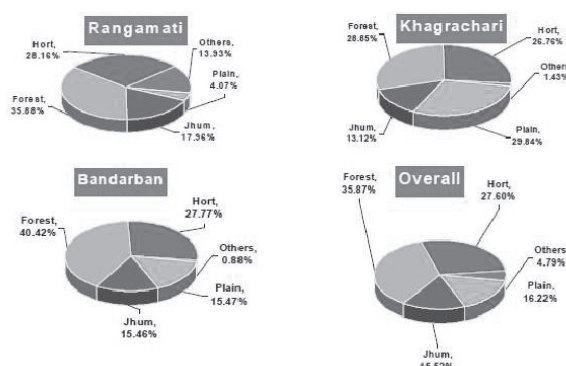
Note: National average in rural (2005) monthly per capita income (tk) = 1246 (HIES, 2007, Pp: 26)

Source: Uddin et al., 2010

Land Use Pattern of Tribal People

The tribal populations here are the most disadvantaged group of populations in Bangladesh. Shifting agriculture, locally known as jhum, is still the cultivation systems in this region with little impact of different government plans and programs to promote the agricultural land use patterns. As a result the tribal populations are suffering from food insecurity and the shifting agriculture has led to indiscriminate destruction of forest for food resulting ecological degradation. Fig. 2 shows the land use patterns in the Hill Tracts of Chittagong. The highest area under shifting cultivation (jhum) is observed in Rangamati (17.96%) followed by Bandarban (15.46%) and Khagrachhari (13.12%). Area under horticulture is about the same in Rangamati (28.16%) and Bandarban (27.77%). The highest area under forestry is used in Bandarban (40.42%) followed by Rangamati (35.88%) and Khagrachhari (28.85%). The overall forest cover is 35.87% which is above world average value of 30%. The highest plain area is found in Khagrachhari (29.84%) where rice cultivation is most widely

Figure 2. Distribution of Land use Pattern in CHT



Source: Bala et al., 2010

Production of Jhum Crops

Different Jhum crops were found to be grown by the ethnic minorities. These crops were rice, maize, gourds, cucumber, chili, sesame, bean, brinjal, cotton, kaon, cassava, ginger, turmeric and banana. The number of Jhum crops varied among the ethnic groups and locations and the combination of crops depended on their preference and availability of seeds. It was found that the intensity of Jhum cultivation was higher in Bandarban than in the other two study districts. The yield of Jhum crops has been decreasing day by day due to low soil fertility (Miah and Islam, 2007). Although Jhum itself provokes environmental degradation, it is still being practiced by people to ensure their livelihood.

Other than rice, among the 17 crops identified in Jhum farming, the highest yield was obtained from yard long bean (48.42 t/ha) followed by turmeric (0.858 t/ha) and Ginger (0.231 t/ha) (Table 6). The yield of these crops was found higher in Rangamati compared to other two locations. It might be due to lower combination of Jhum crops in that area. It was observed that in Rangamati only four Jhum crops such as rice, bean, ginger and turmeric were cultivated in the same plot whereas in Bandarban more than seven crops were found. The yield of Jhum crops varies on the amount of seed used per plot.

Table - 6: Yield of different Jhum Crops in CHT Region

Sl. No.	Jhum Crops	Yield (ton/hectare)			
		Bandarban	Rangamati	Khagrachari	All
1.	Maize	0.143	0.017	0.026	0.062
2.	Marfa (cucumber)	0.181	0.057	0.071	0.104
3.	Chinal (cucumber)	0.001	-	0.505	0.001
4.	White gourd	0.158	0.004	0.028	0.063
5.	Til (sesame)	0.012	0.007	0.025	0.015
6.	Chilli	0.163	0.095	0.022	0.094
7.	Yard long bean	34.71	73.75	37.08	48.52
8.	Brinjal	0.037	0.054	0.008	0.033
9.	Cotton	0.068	-	0.0015	0.023
10.	Sweet gourd	0.197	0.181	0.020	0.133
11.	Kaon	0.008	0.001	0.002	0.004
12.	Cassava	0.027	0.016	0.007	0.017
13.	Bottle gourd	0.001	0.151	0.002	0.051
14.	Country bean	0.002	-	0.008	0.003
15.	Ginger	0.167	0.510	0.014	0.231
16.	Turmeric	0.288	1.449	0.84	0.858
17.	Banana (no. bunch)	109.21	165.70	48.76	107.89

Source: Uddin et al., 2010

Rice is the most common crop in Jhum farming and cultivated in rainfed condition. Average rice yield was recorded 1.15 t/ha under Jhum cultivation which is much lower than national average of rice (2.73t/ha) (BBS, 2009) (Table 7). The highest yield of rice was estimated at 1.54 t/ha in Bandarban followed by Khagrachari (1.11 t/ha). Among the ethnic groups, the

highest yield of rice was obtained by the Mro (2.29 t/ha) followed by the Chakma (1.71 t/ha) in Bandarban. It may be due to the Mro's was more dependent on Jhum cultivation. In all districts, the differences of yield of Jhum paddy were found statistically highly significant. The same results were found in Bandarban and Rangamati. Almost all the farmers used local variety of Jhum paddy. The used varieties were three to six types of which some varieties were sticky and coarse. The seed rate of rice varied from 49 to 56 kg/ha in different locations.

Table -7: Yield of Rice under Jhum Cultivation in CHT Region

Ethnic Groups	Yield (ton/ha)			
	Bandarban	Khagrachari	Rangamati	All
Chakma	1.71	0.64	1.10	1.15
Marma	1.25	1.27	-	1.26
Tanchanga	0.90	-	0.49	0.70
Tripura	1.02	1.41	-	1.22
Mro	2.29	-	-	2.29
Bawm	1.25	-	-	1.25
All	1.54	1.11	0.80	1.15

Source: Nath et al., 2005

Cereal Sufficiency Level

On the basis of cereal sufficiency, the ethnic households were classified as upper, medium and lower cereal sufficient (Ullah, 1996). They can be defined as follows-

- i. The upper cereal sufficiency** - The households who can meet their cereal (rice) requirement from their own production for 12 months in a year;
- ii. The medium cereal sufficiency** – The households who can meet their cereal requirement from their own production for 6 to 12 months in a year, and
- iii. The lower cereal sufficiency** – The households who can meet their cereal requirement from their own production for less than 6 months in a year.

Findings presented in Table 8 show that more than 8% non-ethnic household was belonged to the lower level of cereal sufficiency while it was above 56% for ethnic in the CHT. The highest percent of households belonged to lower cereal sufficiency groups in Rangamati followed by Bandarban for all ethnic and non-ethnic groups.

Table-8: Cereal Sufficiency level by Different Ethnic and Non-Ethnic Groups in CHT

Location/Respondent Type	Responses on Cereal Sufficiency (%)			
	Upper	Medium	Lower	Total
Bandarban				
Chakma (33)	-	57.6	42.4	100
Marma (36)	5.6	38.9	55.6	100
Tanchanga (35)	-	14.3	85.7	100
Tripura (36)	-	36.1	63.9	100
Mro (38)	50.0	39.5	10.5	100
Bawm (36)	-	5.6	94.4	100
All ethnic (214)	9.3	32.0	58.8	100
Non-ethnic (30)	-	-	100.0	100
Khagrachari				
Chakma (37)	13.5	32.4	54.1	100
Marma(36)	27.8	27.8	44.4	100
Tripura (33)	15.1	39.4	45.4	100
All ethnic(106)	18.8	33.2	48.0	100
Non-ethnic (30)	16.7	40.0	48.3	100
Rangamati				
Chakma (36)	27.8	25.0	47.2	100
Marma(36)	5.7	8.6	85.7	100
Tanchanga (35)	8.3	36.1	55.6	100
All ethnic (107)	13.9	23.2	62.8	100
All non-ethnic (30)	-	-	100.0	100
All ethnic (427)	14.0	29.5	56.5	100
All non-ethnic (90)	5.6	13.3	81.1	100

Source: Uddin et al., 2010

In Khagrachari, most of the households, either ethnic or non-ethnic, belonged to the medium cereal sufficiency group. This might be due to the fact that in this district, plain land is available for rice cultivation. Among the ethnic groups, the highest percent of household (94.4%) of Bawm community in Bandarban belonged to lower cereal sufficiency groups. This may be due to their dependence on fruit gardening rather than Jhum cultivation. However, 50% households of the Mro belonging to upper cereal sufficiency group were mostly dependent on Jhum cultivation.

Problems of Jhum Cultivation

It is already mentioned that Jhum cultivation is the main means of livelihoods of the indigenous people. Therefore, unsustainable use of hilly lands makes hilly people more food insecure in the near future (Miah and Islam, 2007). The sample households encountered several problems relating to Jhum cultivation. These problems were loss of bio-diversity (63% of the households responded), low prices of output (47%), scarcity of cultivable hillocks (39%), hardness of soil due to burn (32%), distant location of hillocks (29%), scarcity of inputs (16%), quarrel among villagers for hillocks, distant locations of inputs, and accident due to burn of vegetation (21%). Though all the rural and peri-urban households had common problems, the intensity of their responses varied between them (Table 9).

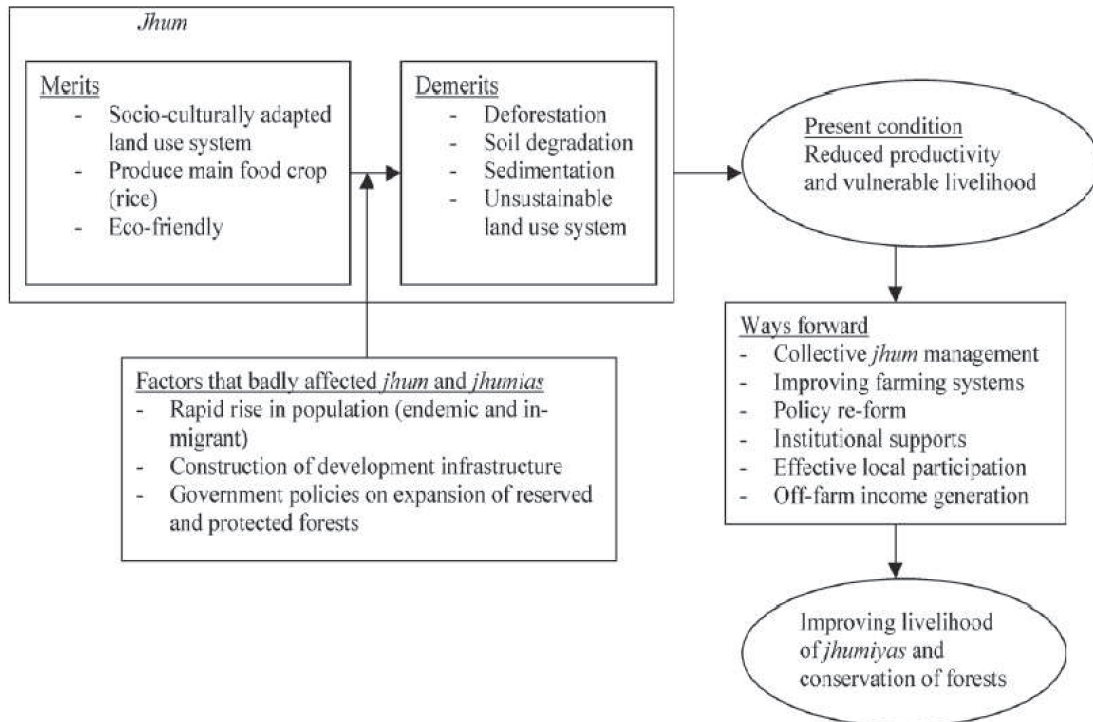
Table - 9: Problems associated with Shifting Cultivation in CHT

Type of Food	% Response		
	Rural Area	Peri-urban Area	Both Areas
Sample Size	65	25	90
1. Loss of biodiversity	67.7	52	63.3
2. Decreasing productivity of crops	61.5	56	60.0
3. Crop damage by rat/wild animals	46.2	36	43.3
4. Low prices of output	52.3	32	46.7
5. Scarcity of cultivable hillocks	29.2	64	38.9
6. Hardening of soil due to burn	32.3	32	32.2
7. Distant location of hillocks	27.7	32	28.9
8. Scarcity of inputs	16.9	12	15.6
9. others	18.5	28	21.1

Source: Alam et al., 2010

In relation to the debate on advantages and drawbacks (Figure 3), tribal people of the CHT still practice jhum as a principal source of livelihood. But a rapid rise in population (both endemic and migration influx of plains people), the construction of development infrastructure (e.g. hydroelectric projects), and government policies on expansion of reserve and protected forests has made the jhum vulnerable. Due to repeated shortening of the fallow period, jhum productivity has been reduced markedly, and soil can no longer regain its natural fertility in a short time. Taking into consideration of land scarcity, population growth and jhum productivity decline, the farmers were asked what they want in order to improve their livelihood. Farmers mentioned some alternatives such as collective jhum management, development of site-specific and market-oriented agroforestry systems and land tenure security and necessary institutional supports. However, they do not want to leave jhum, because it provides them with the main food grain of rice, which is the symbol of their identity and culture. Traditional culture, which is embedded in human knowledge and experience within religious faith, and which is deeply rooted in the minds and hearts of small-scale farmers, makes agriculture meaningful and sustainable (Alhamidi et al., 2003).

Figure 3. Debate on Jhum, and Possible ways to Improve the Livelihood of Jhumias



Source: Nath et al., 2005

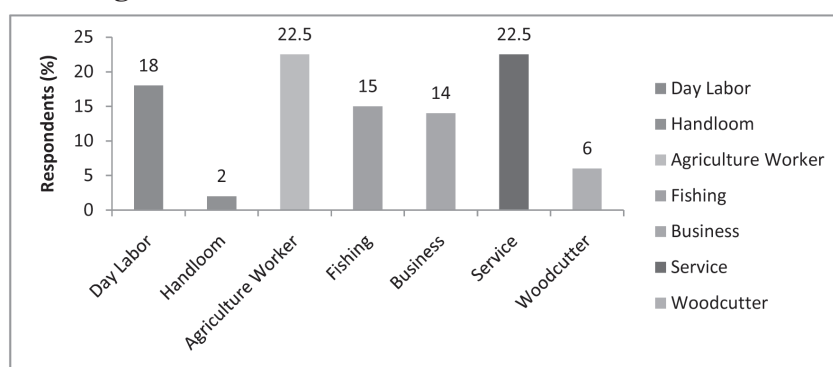
Livelihood Pattern of Ethnic Minorities

Barkat et al. (2009) characterized the Chittagong Hill Tracts of Bangladesh as ‘one of the most vulnerable’ because of its income and employment opportunities, poverty, housing, health, water, sanitation, education and inter-community confidence. Dhamai (2006) commented that the main problems of the indigenous people are land dispossession, limited access to education and other social services and discrimination from the part of the non-indigenous people. Agriculture is the main source of livelihood of these populations. Shifting agriculture, locally known as *jhum*, is still the cultivation systems in this region with little impact of different government plans and programs to promote the agricultural land use patterns. The following subsections discuss the various aspects of livelihood pattern of these indigenous people.

Main Source of Household Income

Income is an important indicator of socio-economic condition of a community. A community with higher income level can meet their basic needs and enjoy their livelihoods. As a poor country, Bangladesh has a low level of monthly income. Most of her people live under poverty line. The tribal undergoes a worse case. Information on the main source of household income is shown in Figure 4 which indicate that the main source of household’s income is agriculture and service accounting for 22.5% of both followed by day labor (18%), fishing (15%), business (14%) and wood cutter (6%). Only 2% household income is hand loom.

Figure 4. Main Sources of Household Income in CHT



Source: Mullah et al., 2007

Livelihood Activities

Livelihoods can be made up of a range of on-farm and off-farm activities that together provide a variety of procurement strategies for food and other requirements. Thus, each household can have several possible sources of entitlement which constitute its livelihood. Entitlements include the rights, privileges and assets that a household has, and its position in the legal, political, and social fabric of society (CARE, 2002). The major livelihood activities in the study areas, determined by perceptions of people interviewed are presented in Table 10. It is found that the highest percentage of households were dependent on Jhum cultivation for livelihood in Bandarban, on plain land agriculture in Khagrachari and on poultry rearing in Rangamati. Livestock and fruit gardening were also important on-farm activities for the farmers in all the three hill districts. In the case of off-farm activities, the highest percentages of households were dependent on wage earnings for their livelihood in all districts. Weaving and selling of fuel wood were found to be important source of livelihoods in the CHT.

Table -10: Major Livelihood activities of Ethnic Households in CHT

Livelihood activities	Bandarban	Khagrachari	Rangamati	All	
				Ethnic	Non-ethnic
On-farm activities					
Jhum cultivation	93.1	59.2	44.5	65.6	6.7
Fruit gardening	61.9	55.7	59.6	59.1	35.6
Livestock rearing	55.4	38.5	40.2	44.7	26.7
Poultry rearing	49.2	29.8	48.8	42.6	31.1
Farming in plain/valley/fringe land	5.1	82.2	44.6	44.0	26.7
Off-farm activities					
Weaving	60.2	15.9	46.7	40.9	14.4
Small business	5.0	13.4	4.04	19.6	28.3
Govt. service	1.5	0.9	12.2	4.9	1.1
Private service	5.6	8.8	13.1	9.2	10.0
Wage earning	68.2	51.4	47.7	55.8	67.8
Selling fuel wood	44.7	28.0	19.4	30.7	36.7

Source: Alam et al., 2010

Level of Food Consumption

Every food item has its own nutritional value (i.e. calorie, protein, iron etc.) and the nutritional values vary from food item to food item. People take different food items to balance their calorie, protein and other nutritional need. But in Bangladesh, a large segment of people fails to consume necessary food items at the required level. This inability may be partly attributed to poverty (BBS, 2007). The level of food consumption might be different within groups and locations. The food intake data were collected for the past three days on recall basis.

Aggregate Food Intake

Selected food items were taken into consideration in working out per capita per day intake for the sample households. The average quantity of food consumed was calculated at 876 gm by ethnic and 816 gm by non-ethnic (Table 11). The national average was 947.8 grams in the year of 2005 (BBS, 2007). Average food intake by locations for ethnic was recorded at 903, 913 and 812 gm/capita/day for Bandarban, Khagrachari and Rangamati, respectively. Highest food intake was recorded by the Chakma's and the Marma's in Khagrachari district may be due to higher amount of rice availability in that district. The differences in food intake between ethnic groups were found statistically significant in Bandarban and Rangamati district.

Table-11: Per Capita Per Day aggregate Food Intake by Groups and Locations in CHT

Locations	Food Intake (gm/capita/day)							
	Chakma	Marma	Tanchanga	Tripura	Mro	Bawm	All Ethnic	Non-Ethnic
Bandarban	803	913	941	902	925	934	903	798
	F-value between ethnic groups =17.590*** (p<0.000)						t=0.189 ^{NS}	
Khagrachari	982	919		838	-	-	913	872
	F-value between ethnic groups =2.14 ^{NS}						t=2.03**	
Rangamati	799	827	809	-	-	-	812	778
	F-value between ethnic groups =17.299*** (p<0.000)						t=0.902 ^{NS}	
All	861	886	875	870	925	934	876	816
	F-value between ethnic groups in all locations =13.098*** (p<0.000)						t=0.875 ^{NS}	

Source: Alam et al., 2010

Item wise Intake of Food

Per capita per day intake of major food items in different locations and groups have been presented in Table 12. The selected food items were cereal (rice), pulses, fish, meat, egg, milk, potato, nappi (shrimp paste) and vegetables (tomato, brinjal, lady's finger, cucumber, radish, leafy vegetables etc.).

Per capita per day rice intake was recorded at 436.5 gm for ethnic and 421.1 gm for non-ethnic group which were lower than national average of 439.6 gm (BBS, 2007). Irrespective of ethnic groups, higher rice intake was recorded in Khagrachari (469.5 gm/capita/day) followed by Rangamati (433.9 gm/capita/day) and Bandarban (406.0 gm/capita/day) which was lower

than national average (Table 12). In the ethnic groups, the highest amount of rice intake was 487.0 gm for the Marma followed by Chakma in Khagrachari and the Tanchangyas in Rangamati. The consumption of pulses was recorded to be 9.3 gm/capita/day for ethnic and 10.5 gm/capita/day for non-ethnic which seems to be lower than the national average of 14.2 gm/capita/day (BBS, 2007). The highest amount of pulses consumed was 15.7 gm by the Tripura in Bandarban followed by the Chakma in Khagrachari (Table 12).

Table-12: Per Capita Per Day Food Intake of Selected Food Items in CHT Region

Respondents	Food Intake (gm/capita/day)								
	Rice	Pulse	Fish	Meat	Egg	Milk(ml)	Potato	Vegetable	Nappi
Bandarban									
Chakma	416.9	4.31	24.9	11.7	5.2	-	51.5	192.8	6.3
Marma	405.3	5.2	32.4	15.5	4.3	8.8	63.5	187.7	32.1
Tanchanga	394.7	1.5	45.4	18.8	3.5	6.0	53.9	171.0	15.3
Tripura	400.7	15.7	44.9	21.0	4.8	12.9	67.5	123.3	18.4
Mro	412.8	7.3	34.3	16.9	4.2	-	55.4	126.9	21.1
Bawm	405.3	3.4	41.2	24.2	6.0	-	49.8	176.1	27.7
All ethnic	406.0	6.2	37.2	18.0	4.7	4.6	56.9	163.0	20.2
Non-ethnic	413.1	9.4	18.5	15.6	4.6	-	53.8	114.9	-
Khagrachari									
Chakma	483.6	14.5	51.3	17.1	4.9	17.8	47.9	163.4	25.2
Marma	487.0	9.7	19.8	12.2	4.2	35.2	52.4	117.9	12.9
Tripura	438.0	11.9	26.6	16.1	3.3	42.4	58.9	151.9	10.3
All ethnic	469.5	12.0	32.6	15.1	4.1	31.8	53.1	144.4	16.1
Non-ethnic	444.9	8.6	35.4	13.9	5.4	29.6	64.9	129.7	-
Rangamati									
Chakma	422.5	13.4	49.5	15.1	5.7	10.9	59.6	121.2	21.8
Marma	426.6	11.8	43.9	13.1	6.2	-	56.6	135.5	12.8
Tanchanga	452.7	3.6	32.2	22.9	3.5	13.4	41.9	67.6	6.9
All ethnic	433.9	9.6	41.9	17.0	5.1	12.2	52.7	108.1	13.8
Non-ethnic	405.2	13.5	44.9	14.7	6.4	10.9	48.5	109.4	-
All ethnic	436.5	9.3	37.2	16.7	4.6	16.2	54.2	138.5	16.7
Non-ethnic	421.1	10.5	32.9	14.7	5.5	13.5	55.7	118.0	-
National average	439.6	14.2	42.1	15.6	5.2	32.4	63.3	157.0	-

Source: Alam et al., 2010

The consumption of fish was recorded at 37.2 gm for ethnic and 32.9 gm for non-ethnic group which was lower than national average of 42.1 gm (BBS, 2007). Among the districts, the highest amount of fish consumed was 41.9 gm/capita/day by the ethnic group in Rangamati followed by 37.2 gm/capita/day by the ethnic group in Bandarban (Table 12). The consumption of meat was recorded to be 16.7 gm/capita/day for all ethnic in the CHT which is slightly higher than national average. This may be due to consumption of more wild animals like pig by the ethnic household. Meat consumption was 14.7 gm/capita/day for non-ethnic which is lower than the national average of 15.6 gm/capita/day (BBS, 2007). The highest amount of meat consumed was 18.0 gm/capita/day by ethnic in Bandarban followed by those in Rangamati (Table 12).

Per capita per day consumption of egg was estimated at 4.6 gm for ethnic that was lower than national average and 5.5 gm for non-ethnic which was slightly higher than national average of 5.2 gm (Table 12). Highest consumption of egg was recorded in Rangamati for non-ethnic (6.4 gm/capita/day) while it was lowest in Khagrachari for the ethnic groups (4.1 gm/capita/day). Among the ethnic groups, highest amount of egg was consumed by Marma in Rangamati (6.2 gm/capita/day) followed by the Bawm in Bandarban (6.0 gm/capita/day). Per capita per day consumption of milk was recorded at 16.2 ml for ethnic and 13.5 ml for non-ethnic groups which was lower than the national average of 32.4 ml (Table 12). In Bandarban the average amount consumed by the ethnic population is very limited and non-ethnic people were found not to consume any milk due to scarcity of milk in their locality. Comparatively higher amounts of milk were found to be consumed in Khagrachari than in other two locations. It may be due to more cattle rearing in Khagrachari.

Potato consumption was recorded at 54.2 and 55.7 gm/capita/day for ethnic and non-ethnic, respectively, which was lower than national average of 63.3 gm/capita/day (Table 12). Among the districts, the highest amount of potato consumption was estimated at 64.9 gm/capita/day for non-ethnic people in Khagrachari while it was found to be the lowest at 41.9 gm/capita/day for non-ethnic people in Rangamati. As for differences between ethnic groups, the highest amount of potato was consumed by the Tripura's (67.5 gm/capita/day) and the lowest amount was consumed by the Tanchangya's (41.9 gm/capita/day) in Rangamati.

Per capita vegetables consumption was recorded at 138.5 and 118.0 gm/capita/day for ethnic and non-ethnic, respectively in the CHT which was lower than national average of 157 gm/capita/day (Table 13). Comparing the districts, the highest amount of vegetables was consumed by the ethnic minorities in Bandarban (163.0 gm/capita/day) and the lowest amount of vegetables consumption was recorded (108.1 gm/capita/day) by the ethnic group in Rangamati. Comparing ethnic groups, the Chakma consumed highest amount (192.8 gm/capita/day) and less amount of vegetables were consumed by the Tanchanga (67.6 gm/capita/day) in Rangamati. The shrimp paste (locally called nappi) is a popular and regularly consumed food item among the ethnic households. It is usually consumed with rice and used as an alternative to edible oil. Average consumption of shrimp paste was recorded at 16.7 gm/capita/day with some variation with ethnic groups and locations. Non-ethnic populations were not found to consume this food. The ethnic people sometimes took some other indigenous food with fewer amounts which are not included in this study. The above discussions revealed that food consumption pattern among the ethnic and non-ethnic groups varied significantly.

Calorie Intake

The average calorie intake was estimated at 2051 k.cal for ethnic and 1978 k.cal for non-ethnic people (Table 13). Both the figures were lower than the national average of 2238.5 k.cal/capita/day (BBS, 2007). Irrespective of ethnic groups, average calorie intake was found higher in Khagrachari (2173 k.cal/capita/day) followed by Rangamati (1972 k.cal/capita/day). On the other hand, irrespective of locations Chakmas were found to take higher calorie (2102 k.cal/capita/day) followed by Marma (2081 k.cal/capita/day) and Tripura (2049 k.cal/capita/day). The lowest calorie intake was recorded for Tanchanga (1901 k.cal/capita/day) which was significantly lower than national average. The differences in calorie intake among ethnic groups were found statistically significant in Bandarban and Rangamati district.

Table-13: Per Capita Per Day Calorie Intake by Ethnic and Non-Ethnic Groups in CHT

Location	Food Intake (k.cal/capita/day)							
	Chakma	Marma	Tanchanga	Tripura	Mro	Bawm	All ethnic	Non-ethnic
Bandarban	2067	2149	1942	2011	1963	1919	2009	1921
	F-value between ethnic groups=2.239** (p<0.052)						t= 2.42**	
Khagrachari	2268	2174	-	2078	-	-	2173	2159
	F-value between ethnic groups=0.41 ^{NS}						t= 2.21**	
Rangamati	1973	2085	1859	-	-	-	1972	1853
	F-value between ethnic groups=17.299*** (p<0.000)						t= 1.06 ^{NS}	
All	2102	2081	1901	2049	1937	1836	2051	1978
	F-value between ethnic groups=32.31*** (p<0.000)						t= 2.51**	

Source: Field Survey, 2009 and Alam et al., 2010

Causes of Food Insecurity

There are various causes responsible for food insecurity at household level. The present study identified major six causes for household food insecurity as per perception of the people interviewed. These were i) low yield in Jhum crops, ii) limited land for cultivation, iii) crop damage, iv) rodent threats in Jhum crops, v) limited working facilities, and vi) lack of cash. Low yield in Jhum crops was the major cause of food insecurity reported by 51.6% of ethnic respondents (Table 14). In the study areas, Jhum crops were damaged mainly due to drought, attack of wild animals, water stagnation and flash flood (water flow from Kaptai Lake). Crop damage was another cause of food insecurity at household level, reported by 50.5% ethnic respondents. Limited land for cultivation and rodents threats were also reported as the causes of food insecurity by 41.9% and 41.2%, respectively of the ethnic respondents in all districts. Lack of cash and limited working facilities were the other two causes of food insecurity reported by 43.0% and 34.0% ethnic respondent respectively.

Table -14: Causes of Food Insecurity at Household level in CHT Region

Causes of Food Insecurity	Bandarban	Khagrachari	Rangamati	All	
				Ethnic	Non-Ethnic
Low yield in Jhum crops	74.2 (159)*	44.6 (47)	36.1 (39)	51.6 (247)	2.2 (2)
Limited land for cultivation	24.7 (54)	52.0 (55)	49.2 (52)	41.9 (161)	82.2 (74)
Crop damage	76.95 (164)	35.3 (37)	39.0 (42)	50.5 (243)	11.1 (10)
Rodent threats in Jhum crops	74.15 (161)	28.2 (30)	21.3 (23)	41.2 (214)	16.7 (15)
Limited working facilities	38.9 (82)	29.2 (31)	34.5 (37)	34.0 (150)	51.1 (46)
Lack of cash	40.3 (86)	38.3 (40)	50.5 (54)	43.0 (180)	63.3 (57)

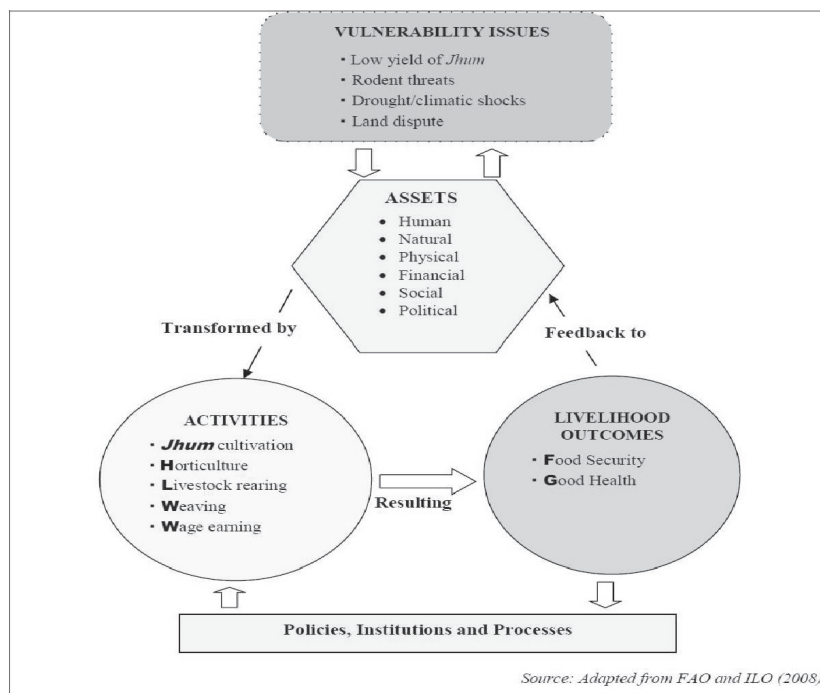
Source: Alam et al., 2010

The highest portion (82.2%) of non-ethnic respondent opined that limited land for cultivation was their major cause of food insecurity followed by lack of cash and limited working facilities, especially in the rainy season.

Logical Framework for Sustainable Livelihood Security

Sustainable livelihood could be determined by the interaction of several forces and elements. The forces could be human capital, natural capital, physical capital, financial capital and social capital which discussed earlier. These elements are interlinked with one another and it could play role to minimize the risk/vulnerabilities. These are transformed/accumulated into the different activities judiciously resulting food security might be ensured and good health could also be attained which again would come to the feedback from different livelihood capitals. The interactions of different livelihood assets are shown below:

Figure 5. Logical Framework for Sustainable Livelihoods



Livelihood coping Strategies

A livelihood comprises the capabilities, assets (stores, resources, claims and access), and activities required for a means of living (Chambers and Conway, 1992). More specifically, livelihoods can be seen to consist of a range of on-farm and off-farm activities that together provide a variety of procurement strategies for food and cash. A coping strategy is a short term response to threats to livelihoods. Coping strategies can be successful when they are able to preserve vital assets, or negative when they are unable to do so and may lead to downward spirals of impoverishment. Any response should aim to support existing positive coping strategies and release households and communities from dependence on negative ones (FAO and ILO, 2008). In the analysis of livelihood strategies, it was also important to capture the types of coping strategies people use when normal livelihood options are not adequate to meet household needs. It is important to distinguish between coping strategies that are non-sustainable and

coping strategies that are sustainable. Coping strategies are divided into two parts: a) Consumption coping strategies, and b) Non-consumption coping strategies. Consumption coping strategies are specially related to food consumption and non-consumption coping strategies are related to asset sales and not directly related to food for example sell fuel wood is non-consumption but eaten seed stock held for next season is a consumption coping strategy which was articulated by Maxwell et al. (2003). The coping strategies of the sample households are presented in the Tables 15 and 16.

Table -15: Consumption coping Strategies adopted by Ethnic Households in CHT Region

Coping Strategies	Farmer Responded (%)			
	Every day	Sometimes	Rarely	Never
1. Dietary changes				
a. Rely on less expensive foods	50.0	33.3	5.6	11.1
2. Increase short-term household food availability				
b. Borrow food	25.6	40.0	21.1	13.3
c. Gather wild food or hunt wild animal	-	-	33.3	62.2
d. Harvest immature crops	-	4.4	42.2	53.3
e. Consume seed stock reserved for next season	-	4.4	45.6	50.0
3. Decrease number of people				
f. Send household members to eat elsewhere	1.1	12.2	42.2	44.5
4. Rationing strategies				
g. Cut quantity of food per meal	43.3	22.2	16.7	17.8
h. Adults take less food to feed child more	28.9	33.3	20.0	17.8
i. Reduce number of meals eaten in a day	24.4	28.9	30.0	16.7
j. Keeping whole day without eating	10.0	7.8	28.9	53.3

Source: Uddin et al., 2010

It was found that 30.5% and 50.4% of the ethnic respondents relied on less expensive foods for ‘everyday’ and ‘sometimes’, respectively as consumption coping strategy during food shortage period. Other coping strategies were borrowing food (16.5% everyday and 49.3% sometimes); purchase food on credit (15.9% everyday and 42.8% sometimes); harvest immature crop (5.8% everyday and 29.1% sometimes); consume seed stock (16.5% everyday and 49.3% sometimes); cut quantity of food per meal (12.8% everyday and 37.2% sometimes); adult taking less food (17.6% everyday and 37.5% sometimes); reduce number of meals eaten in a day (8.6% everyday and 34.4% sometimes) etc. (Table 15).

Non-consumption coping strategy comprise selling household assets, selling fuel wood, selling bamboo, selling livestock/poultry, selling fruits, selling timber, taking loan and breakdown previous savings. Irrespective of locations and ethnic groups, the highest number of respondents mentioned taking loan (35.9%) as the non-consumption coping strategy followed by selling bamboo (29.2%) and fuel wood (28.4%) (Table 16).

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Table -16: Non-Consumption coping Strategies adopted by Sample Households in CHT

Location/ Respondent Types	Coping Strategies (% of farmers responded)							Breakdown savings
	Sale of household assets	Sale of fuel wood	Loan taken	Sale of bamboo	Sale of poultry	Sale fruits	Sale of timber	
Bandarban								
Chakma	9.1	78.8	39.4	54.5	9.1	-	39.4	-
Marma	-	50	61.1	11.1	63.9	13.9	19.4	-
Tanchanga	-	71.4	11.4	62.9	8.6	2.9	51.4	-
Tripura	22.2	55.6	30.6	88.9	16.7	22.2	13.3	-
Mro	-	7.9	47.4	39.5	5.3	13.2	7.9	-
Bawm	-	8.3	25	50	16.7	91.7	47.2	2.8
All ethnic	5.2	45.3	35.8	51.1	20.0	24	13.1	0.5
Non-ethnic	-	60	50	43.3	10.0	-	20.0	-
Khagrachari								
Chakma	8.1	18.9	37.8	5.4	32.4	5.4	5.4	-
Marma	-	11.1	16.7	-	16.7	11.1	11.1	5.6
Tripura	6.1	42.4	15.1	-	21.2	6.1	6.1	6.1
All ethnic	4.7	24.1	23.2	1.8	13.4	-	6.7	6.7
Non-ethnic	6.7	33.3	30.0	-	13.3	3.8	7.1	5.3
Rangamati								
Chakma	22.2	13.9	44.4	16.7	47.2	36.1	33.3	-
Marma	-	-	62.9	-	60.0	48.6	17.1	-
Tanchanga	-	33.3	38.9	13.9	25	44.4	33.3	36.1
All ethnic	7.4	15.7	48.7	10.2	14.1	13.3	3.3	10.0
Non-ethnic	10	-	56.7	-	60	25.2	15.6	11.0
All ethnic	5.8	28.4	35.9	29.2	5.8	12.4	14.4	5.7
Non-ethnic	5.6	31.1	45.6	27.8	5.6	10.6	14.2	5.4

Source: Uddin et al., 2010

Vulnerabilities to Livelihoods in CHT

Vulnerability refers to unpredictable events that can undermine livelihoods and cause people to fall into poverty or destitution. Some of these events have a sudden onset (e.g. cyclones) while others develop over a long period (e.g. soil fertility, conflict), but all can have negative effects on livelihoods (FAO and ILO, 2008).

Vulnerability depends on the asset base that people have prior to the crisis and their ability to engage in various coping strategies. The risk of livelihood failure determines the level of vulnerability of a household to income, food, health and nutritional insecurity. Therefore, livelihoods are secured when households have secured ownership of, or access to, resources and income earning activities, including reserves and assets, to off-set risks, ease shocks, and meet contingencies (CARE, 2002).

In order to determine vulnerability, risk factors are divided into two groups such as physical risks (i.e. crop damage, land dispute, theft, loan receive as a risk) and natural risk (i.e. low yield in crops, rodent threats, flash flood, drought, heavy rainfall, land slide, cyclone, attack of birds in crop field, diseases/pest in crops).

Natural Risks

The majority of the ethnic respondents reported rodent threat (47.2%) as the major natural risk followed by pest attack in crops (40.2%) and draught (26.4%) which affects their food security (Table 12). Other natural risks were diseases in crops (22.5%) and flash flood (13.1%). Rodent threats (locally called rat flood) seriously happened in the Jhum crops, reported by 74% ethnic respondent in Bandarban hill district while it was about 34% each in Khagrachari and Rangamati. In Khagrachari, most of the rat attack happened in plain land especially in rice. It is generally said that when hill bamboos bloom, the rodent threat happens. According to the folk observation, every five decades bamboo blooms and fruits, and the rats eat those, resulting in a huge increase in their regeneration. Rats destroy Jhum crops including rice, cotton, turmeric, ginger, oil seed, potatoes, papaya, chili, gourd and bananas. The crisis starts from late March and continues until September, the next harvest. As a result, many people, particularly the Jhumias in the affected areas face a food crisis.

According to DAE (2008), about 1386 ha of hilly land and 2126 households were affected by rodent threats in Bandarban hill district during 2007. The highest percentage of respondents reported experiencing flash floods and drought in Khagrachari and Rangamati. On the other hand, ethnic groups of Rangamati and Khagrachari were slightly affected by heavy rainfall but major landslides happened in Bandarban and Rangamati. Most of the households of non-ethnic community in Rangamati were affected by cyclone followed by those of Bandarban hill district. Pest and birds attacks and diseases prevalence in crops (especially in rice) were severe in Bandarban and moderate in Rangamati hill district. The discussion provides a clear picture of risk to livelihoods. Rodent threat was the first ranked problem followed by lower yield of Jhum crops.

Table -17: Natural Risk/Vulnerabilities to Livelihoods in CHT

Natural Risks	Farmers Responded (%)				
	Bandarban	Rangamati	Khagrachari	All	
				Ethnic	Non-Ethnic
Rodent threats	74.1	33.4	34.1	47.2	11.1
Flash flood	-	4.6	34.8	13.1	7.8
Hail storm	4.6	2.8	-	2.5	-
Drought	0.9	34.6	43.6	26.4	13.3
Heavy rainfall	-	10.2	5.4	5.2	-
Land slide	20.3	5.6	-	8.6	-
Cyclone	10.6	9.4	4.5	8.2	13.3
Attacks of birds in crops	31.6	16.7	2.9	17.1	4.5
Diseases in crops	29.7	23.3	14.5	22.5	10.8
Pest attack in crops	46.2	43.9	30.5	40.2	24.4

Source: Uddin et al., 2010

Physical risk

The study revealed that majority of the ethnic respondents (62.9%) reported attack of wild animal in the locality is the major physical risk to livelihoods followed by theft of garden fruit (17.9%) and loan receive (14.6%) in CHT (Table 18). It was found that 76.9% ethnic

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respondents reported that their Jhum crop was damaged in the last year due to droughts or attack of wild animal (pig) or attack of rat in Bandarban, while the damages were 70.2% and 41.7% for Khagrachari and Rangamati, respectively. In Khagrachari, most of the crops especially rice were damaged due to drought or lack of irrigation or flash flood. In Rangamati, most of the crops were damaged due to fringe land causing water flow/stagnation from Kaptai Lake. In Bandarban hill district, non-ethnic settlers cultivate some vegetables or banana or papaya or pineapple at hill valleys due to limited land availability.

Table-18: Physical Risks to Livelihoods of Ethnic and Non-Ethnic Households in CHT

Physical Risk	Farmers Responded (%)				
	Bandarban	Khagrachari	Rangamati	All	
				Ethnic	Non-ethnic
Attack of wild animal	76.9	41.8	70.3	62.9	24.4
Land conflict	1.3	12.3	5.9	6.5	2.2
Boundary conflict	0.01	2.8	2.0	1.6	-
Theft of garden fruit	19.2	30.9	3.8	17.9	2.2
Death of income earner	0.3	0.4	0.6	0.4	-
Robbery	0.9	0.7	-	0.7	0.2
Loan receive	7.5	23.5	12.7	14.6	5.6

Source: Uddin et al., 2010

Most of the households lived on temporary basis in that area. Theft of garden fruits was a social problem, as reported by ethnic groups in Rangamati and Bandarban. In addition, death of income earner was found higher in Khagrachari followed by Bandarban due to old age and disease as mentioned by the respondents. Robbery in the houses also happened occasionally to the ethnic households in Khagrachari. About 8 to 24% ethnic respondents opined that receiving loan from NGOs was a risk, because they had less ability to repay the monthly installments.

Conclusion and Recommendations

Conclusion

Chittagong Hill Tracts has an enormous potentiality for agricultural production. Of the total 1, 51,960 ha cultivated land, single cropped area is 43.8%, double cropped area 28.1% and 7.4% triple cropped. Livelihoods in this region are still dependent on Jhum cultivation and natural forest resources. The important sources of income are intensive valley/plain/fringe land farming, petty business, sale of fuel wood, timber, fruits, livestock, wage earning and weaving. Most of the households in remote places are much worse off than those in other areas. The livelihoods of ethnic minorities are quite different from non-ethnic people in many ways. The ethnic households growing rice in Jhum fields and other plain/valley land have comparatively more cereal sufficiency than non-ethnic households.

Food availability in the Hill Tracts has been decreasing with rapidly increasing population and it is a great pressure on the land available for production. Traditional Jhum farming, the major livelihood options for ethnic minorities did not meet their food requirement for more than four months because of low yield. For the remaining months, they survive by wage earning,

selling fuel wood, bamboo, timber, poultry/livestock or fruits; engaged in petty business or taking loan from neighbors/relatives. Food insecurity is apparent in the rural households due to lack of availability of rice, lack of cash and limited work facilities especially in rainy season. The average yield of rice and other Jhum crops were estimated to be very low (due to use of local variety, low soil fertility and less or no use of fertilizer, pesticide etc.) compared to improved varieties developed by different research institutions.

Crop damaged from drought, rodent threats, flash flood etc. were the major risk/vulnerabilities to livelihoods. About 72% non-ethnic and 24% ethnic households were found landless in the study area. About 70.0% non-ethnic and 61.5% ethnic household could 'never' afford to take balanced meals. About 12.4% ethnic and 24.4% non-ethnic respondents were 'always' worried about their next meal in CHT. The causes of food insecurity were low yield in Jhum crops, limited land for cultivation, crop damage, rodent threats in Jhum crops and limited working facilities and lack of cash. Relying on less preferred food, borrowing food, money or consuming food stock, cutting quantity of food, adults taking less food, reducing number of meals per day and keeping entire day without eating were their consumption coping strategies during food crisis. Selling fuel wood, livestock/poultry, timber/fruits, doing petty business, wage earning etc. were non-consumption coping strategies mentioned by the ethnic and non-ethnic respondents.

On the basis of empirical findings it might be concluded that the food and livelihood security can be ensured at household level by adjusting government policy related to food security in the Hill Tract region. Location specific sustainable agricultural technologies and extensive extension services can also be ensured for food security for rural household in the CHT.

Recommendations

The results provide significant implications for food security as well as livelihood security in the CHT. No single policy can be prescribed for improving these; instead mixed policies have to be followed. Raising crop productivity and real income of the farmer will be a top strategy for ensuring both food and livelihood security. The following recommendations are made on the basis of findings:

- Shifting cultivation in the remote areas needs to be modernized by introducing modern agricultural practices. In peri-urban areas where road communication and marketing facilities are mostly available, settle farming i.e. mixed fruit orchard might be suitable as an alternative to Jhum. The farmers would be able to cultivate rice and other short term vegetables in the fruit orchards during first three to four years when the canopy size of trees are small. In this aspect, government could provide cereal (rice) incentives through social safety net program to the most vulnerable households until they receive benefit from fruit orchard.
- Settle farming (fruit orchard) may be able to generate more income than jhum farming in the long-run. The establishment of fruit orchard will require proper management i.e. fertilization, weeding and watering after plantation. Due to lack of cash, poor farmers cannot ensure proper management of fruit orchards. Therefore, the concerned government department could create irrigation facilities by constructing small-scale

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creek dams and provide other necessary agricultural inputs (fertilizer, insecticide, sprayer etc.) with low cost. Existing fruit gardens need more support in applying fertilizers and insecticides for receiving more benefits which could raise food and nutritional security to a great extent.

- Rodent threat in Jhum crops is a current problem in the study areas causing risk to food security and livelihood. To overcome this problem, a special program could be undertaken by the concerned department.
- In order to minimize the crop damage due to drought, drought tolerant crop variety should be developed. Some Jhum crops have already been found to be drought resistant but it needs more management oriented package of technology which can be provided by the Department of Agricultural Extension (DAE) and On-Farm Research Division (OFRD) of BARI.
- Limited land available per household is one of the important bottlenecks of food security. To overcome this problem, a reasonable size of land per households could be provided through spot settlement to the landless and marginal households. They should also be provided legal ownership document of land for cultivation or creating settled farming.
- During food crisis in the CHT, government program i.e. Food for Work and/or Cash for Work should be strengthened.
- Government should take necessary steps to reduce household size and minimize dependency ratio by creating new jobs and income generating activities. Family planning programme should also be strengthening in this regard.

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New Energy for Livelihood : Energizing to Power the Tribal Rural Poor

Rajesh Dubey

Today the fight against poverty will be won or lost in rural areas, home to about 70% of the world's poor. At the beginning of the new millennium, 260 million people in the country did not have incomes to access a consumption basket which defines the poverty line. Of these, 75 per cent were in the rural areas. India is home to 22 per cent of the world's poor. Such a high incidence of poverty is a matter of concern in view of the fact that poverty eradication has been one of the major objectives of the development planning process. Indeed, poverty is a global issue. Its eradication is considered integral to humanity's quest for sustainable development. Reduction of poverty in India, is, therefore, vital for the attainment of international goals.

As carbon mitigation is increasingly becoming the need of the generation its not late than never to accept that **"poor is the power"**. Energizing the poor by traditional knowledge with modern technological blend is the call of the day. The livelihood development of these poor's is challenge as well as opportunity for the world. To achieve the Millennium Development Goals without a focus on improving the livelihoods and service accessibility of rural dwellers is low. Sustainable rural development entails improving the well-being of rural people in the broadest possible sense. Consistent with the vision of a world free of poverty, rural development efforts address quality of life issues that comprise the livelihoods of rural people. The approach to rural development should be holistic and multi-sectoral, focused on improving the well-being of rural people by building their productive, social, and environmental assets. Research-or technology generation-provides rural people with knowledge and innovations needed to increase productivity and sustainability of their production systems in meeting the global food needs. The focus in research is shifting from institutional support to supporting innovation systems that aim to serve the needs of the economy by achieving better integration of the science and technology infrastructure with production needs, by increasing private sector participation in technology development, and by developing stronger linkages between producers, industry, universities, and research institutions. Such research systems must ultimately be demand-driven with closer linkages to clients, must become more efficient, and must develop sustainable sources of financing. Strengthening agricultural innovation and research systems through projects and work should be the focused area.

With a strong and growing demand, rapid institutional and macroeconomic policy changes, and a fundamental shift in the functions of livestock, there is a significant danger that the poor are being crowded out, the environment eroded, and global food security and safety compromised. In this strategy, the livestock can play an important role in poverty reduction that the effects of livestock on the environment can be adequately managed, and that livestock can make an important contribution to global food security. Natural resource management demands attention to crosscutting and cross-sectoral issues, perhaps to an even greater degree than other areas of development. Many natural resources are subject to multiple uses by multiple users and overlapping and contested claims, all of which raise governance and assurance problems requiring institutional responses at various scales. 'Institutions' include both formal and informal interactions between individuals and groups in society. This definition encompasses organizations such as water user associations and village forestry committees, but also institutions that are more simply normative, for example property institutions such as common property. Questions of who has access to and control over land and natural resources are central to understanding patterns of rural growth and stagnation, social inclusion and exclusion and natural resource dynamics themselves. These issues are especially relevant and conflicting in situations involving indigenous peoples. Innovation is the theme of sustainable development. The decade of 2010-2020 is the decade of innovation. Innovation is all about doing things differently. It is only through the process of innovation that knowledge can be converted into wealth and social good. Through this movement, every citizen, every constituent of India must become an innovator.

Likely social risks include unequal access to inputs, marginalization and increasing disparities, vulnerability to crop failure and animal diseases, increased poverty and indebtedness, more dependence on external resources, increased workload for women and children, greater competition for natural resources, changes in land use, changes in occupational patterns, increased incidence of diseases, health and safety hazards, communities' deprived of benefits, risk of bio-piracy, increased unemployment but increased role of middlemen, cash crops displacing food crops, exotic varieties replacing indigenous varieties, fodder razing area shortage, gender discrimination, and social conflicts. Mitigation against most of these impacts are possible, both at project development and implementation, and these will be identified from among the measures suggested in the framework. Among these measures are included rainwater harvesting and choosing crops requiring less water, irrigation, soil conservation, cow resource management, bio-farming & integrated pest management, protective equipment, disposing of hazardous waste, reviving traditional practices (except for burning crop residue), community consultation, improving grazing areas, intercropping and crop rotation, crop diversification, terracing, recycling organic waste, and gender sensitization.

Ensuring food security - the basic right of people to the food they need - is one of the greatest challenges facing the world community. Meeting this challenge will require new technologies and new ways of collaborating. But technologies will be fully exploited only if the knowledge of how to put them to use is widely disseminated and applied. Sustainable development model helps to strengthen the capabilities of national and regional research, extension, education and communication systems so that rural people have the knowledge and skills they need to improve their productivity, incomes and livelihoods, and manage the natural

resources on which they depend in sustainable ways. The challenge for tribal communities & developing societies is to develop land management programs to increase the availability of high-quality fertile lands in areas where population growth is high, poverty is endemic, and existing institutional capacity is weak. The Rural Land Resources Management develops and promotes knowledge-based technical, social, institutional and policy choices for our clients, which improve management of this critical resource.

The influx of non-tribals into tribal areas as a result of various developmental projects, exploitation of natural resources and industrial activities has led to the alienation of tribal land. It is extremely paradoxical that while outsiders/non-tribals have come into the Scheduled areas in the name of development, the local tribal population gets displaced and migrates to urban areas in search of employment. This has given rise to severe discontent in the tribal areas. The Indian decade of innovation (2010-2020) is a grand opportunity. It will be great to see India achieve a place amongst the top ten of the innovative nations in the world? But it is not about remaining alone. It is about achieving innovation led inclusive development and growth. It is about the Indian innovative mind winning over the inhibiting Indian mindset. It is about innovation being a way of life for a billion plus Indians. It is about a freedom of a billion plus minds from fear of risk taking and adventure. And it is also about innovative India rapidly moving, through the innovation route, to becoming a truly inclusive society, where the distinction on the basis of income, caste, religion and language melts away leading the green way of inclusive & sustainable development. The promotion of a movement which enhances social capital and forges linkages with other formal and informal stakeholders engaged in developmental activities would be a major thrust.

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Role of Environment in Tribal Livelihood : Issues and Challenges

Somenath Bhattacharjee

Introduction

The term ecology was first defined by Ernst Haeckel in 1866 as “the science of relations between organisms and their environment” (Barnwell, 1989:40). Human population have an ongoing contact with and impact upon the land, climate, plant and animal species in their vicinities and these elements of their environment have reciprocal impacts on human (Salzman and Altwood, 1996:169). We get our food, water and respiratory means from the surface of the Earth to satisfy the needs of our hunger, thirst and respiration. While we get fuel, minerals and ores form the stratum beneath the surface of the Earth which provides us the required energy to meet up with different economic pursuits. Thus the need of the human society is totally depended on the nature in a diversified manner and their way of accumulation reflects the culture of the human being. Man selects and tries to modify his environment in such a way that that the inevitable adaptation shall admit the greater fulfillment of his wants.

In our country, the tribal people are dwelling in the high hills, isolated forest covered region. Their entire livelihood is very much depended on the forest based natural products. They collect their foods from their environment. They primarily consume the fruits, roots and tubers of the locally available plants. Moreover, they collect the honey from their surroundings. In the concerned areas there a number of local rivers and other water resources. Those provide them the fishes and other aquatic animals as a source of animal protein. Thus, the prime requirement of food of the concerned people is totally depended upon environment. Moreover, the environment not only provides food to the human society, rather it is the major source of animal fodder too. Meanwhile, being closely associated with forest and environment, the concerned people are very much depended on the natural products for their dresses. For this purpose they collect the raw materials from their surroundings and weave it by their own hands. The economic aspects of the simple societies are intimately related with their environmental perspective. They collect the fuel from their surroundings. Moreover, a number of forest based products like latex, honey are major economic pursuit for them. Most of the communities in the North–Eastern states are depended on the shifting hill cultivation by utilizing

the natural resources and climatic conditions in a proper manner. A number of communities are depending on the handicrafts by utilizing the natural resources like bamboo and cane. Ultimately, the ecological and surrounding environmental consequences are deeply co-related with economic feature of the human being. One of the basic requirements of the human being is the habitation and it is very much depended upon the environment. They collect the wood, bamboo and other raw materials from the natural surroundings to build up the houses.

The religious aspects deserve a special attention in the livelihood of the human society. The people of the simple societies are primarily animists. Being closely associated with the nature, they have a number of deities related with their forest and environment. For them all spots and places are holy as they are the seats of spirits. Animals, plants, trees, rivers, stones, hills or mountains are all abodes of spirits. Apart from nature as a whole the people of simple societies have also cognated themselves with the animals and plants in the form of totem (Vidyarthi, 1977:236-244). They believe to be the descendants of the totemic plants and animals and forbid to kill them or to harm them in any sort. Their livelihood in the lap of nature is made up of a strong community sentiment. Another major cultural aspect of the simple societies is their folk cultural heritages (Vidyarthi, 1977:308-330). These are not merely for their recreation but they are performed to reflect the beauty of the nature. Another major aspect of their folk based tradition is the environmental sustainability. They have a common sentiment to use the natural resources equally and only according to the need. They do not misuse those and also they have a strong desire to preserve them as precious material.

In the multifarious relationship between man and environment, one of the major aspects lies in the domain of health. Every culture, irrespective of its simplicity and complexity has its own beliefs and practices concerning health, disease and treatment. The health care system and traditional treatment are based on their deep observation and understanding of nature and environment. The concerned people use a number of plant and animal resources for the ailment of their different types of diseases and in this regard they have their indigenous knowledge which is carried out from generation after generation. From the overall discussion it can be summarized that, the role of environment upon the livelihood of the human being has a multidimensional aspect. Roy Burman opined in 1982 that “directly or indirectly in the tribal mind forest symbolizes life in its manifold manifestations i.e. home, worship, food, employment, income and entire gamut. Tribals can in fact be regarded as children of forest.

Environmental Degradation: An Emerging Global Problem

The contemporary world is deeply concerned with environment as well as ecological issues. At present the world is facing a tremendous environmental crisis, because in different ways a continuous environmental degradation is happening and increasing the crisis of survival. In this regard accelerated land degradation and soil erosion is a serious matter or problem. More than 50 per cent of the total area of India is affected deleteriously by land degradation resulting from soil erosion (Seghal and Abrol, 1994).

Table -1: Nature and Extent of Land Degradation Severity in India

Type of Degradation	Severity of Degradation (million hectares)				
	Low	Medium	High	Very High	Total Area
Water erosion	5.0	24.3	107.2	12.4	148.9
Wind erosion	-	-	-	-	-
Loss of top soil	-	-	6.2	-	6.2
Loss of top soil or terrain deformation	-	-	46	-	4.6
Loss of soil due to terrain deformation/ over-blowing	-	-	-	2.7	2.7
Chemical deterioration	-	-	-	-	-
Loss of nutrients	-	-	3.7	-	3.7
Salinization	2.8	2.0	5.3	-	10.1
Physical deterioration	-	-	-	-	-
Water logging	6.4	5.2	-	-	11.6
Total area	14.2	31.5	127.0	15.1	187.7

Source : Sehgal and Abrol, 1994: 5-7

Deforestation is also another major issue related with environmental degradation. Officially the forest in India cover an area of 7, 43,584 sq.km. Between 1951 to 1980 India had lost 4.3 million hector of forestland which means 1, 40,000 hector annually and it was converted to non forest uses. Forest and environment help to maintain a balance ecosystem and provide sufficient food to the people. So any type of degradation of the forest environment and ecological set up is likely to affect the whole balance and thereby create an adverse effect on the concerned people. Thus, environmental degradation can cause a rapid change to the socio-cultural, socio-economic as well as religious life of any tribal community in the world.

The Studied Area and The People

The Karbi Anglong District is situated in the central part of Assam. The district with dense tropical forest covered hills and flat plains. The population of the district is predominantly tribal. Karbis are the indigenous community of the said region. It has the total geographical area of 10,434 sq. K.M.s. It mostly consists of undulating and hilly terrain with numerous rivers and streams. The district can be broadly divided into two physiographic units viz. hills and plains. About 85 percent of the district is covered by the hills. As per the State of Forest report 1999 of Forest Survey of India, Dehradun, 6044 sq. Km of the district are under dense forest cover while 2776 sq. km are under open forest cover. The important forest types found in Karbi Anglong District are:- 1. Moist semi-evergreen forests. 2. Moist Mixed Deciduous forests. 3. Riverrain Type. 4. Miscellaneous type with scattered pure or mixed patches of bamboos.

The livelihood of the Karbis has a deep co-relation with surrounding forest and environment from multidimensional perspective. However due to continuous growth of habitation and several other factors, 6844 hectares of land became degraded. It had reduced their scope

of accessibility of natural resources. However, for the sustenance of their livelihood, prevention of environmental degradation is earnestly required. In this regard the folk culture of the concerned community can be applied for environmental sustainability and security of livelihood.

To conduct the present study, a field work was conducted in the selected villages of Karbi Anglong district. The studied areas were the earliest settlements of the Karbi people. The study was conducted among 525 families with a total population of 2890. Among them there were 1450 males and 1440 females.

Methodology Applied

In this study Preliminary Census schedule was applied to collect data about their period of present occupational pursuits, daily working schedule, demographic composition, concept of health, disease and treatment and their daily food habit. Further, interviews were taken from the key informants to know about their traditional cultural practices particularly focusing on the issue of folk culture. Thereafter, case studies were taken on the people who are involved with different occupational pursuits and in this regard, their resources of economy were given a major emphasis. Case studies were also taken on their traditional health care practices and in this concern the prime importance was focused on locally available medicinal plant resources and their way of utilization by the studied people.

Purpose of the Study

The present study is primarily focused on three important aspects-

1. To know about the relationship between environment and livelihood of human being.
2. To know about the importance of environment on the livelihood of the Karbi people.
3. To focus on the issue of environmental sustainability and its importance in the folk cultural tradition of the Karbis.

Environmental Resources and Livelihood of the Karbis

The Economic Life of The Karbis

Forest, streams and natural resources have emerged as a prime resource of economic pursuit among the studied people. Their different economic pursuits of the studied people and the role of women in them are discussed below in brief-

Agriculture

The major economic pursuit of them is agriculture. The people have to survive on the collected fruits, roots and tubers from the jungles. Most of the people depend on jhum cultivation and settled agriculture. The shifting hill or jhum cultivation is mostly practiced in the hilly regions. It begins from the middle months of February or the beginning of March. The principles crops are Rice, Maize, Cotton, etc. Settled agriculture is done on the plains areas. The technological implements related with agriculture were of quite primitive type. Paddy cultivation with the help of plough is also extensively carried along the narrow and isolated foothill plains bordering.

Kitchen Gardening

It occupies a very important position under the permanent or settled system of agriculture. It had generated among the people a substantial amount through the cultivation of ginger, pineapple, jackfruit, betel nut, betel leaves, maize, sesame, taro, ginger, turmeric, brinjal, chilly, pumpkin, cucumber, sweet potato etc.

Animal Husbandry

Apart from agricultural crops, they keep domestic animals for socio-economic purpose. Pigs, chickens and goats are not only indispensable for various ritual and social feasts but these are also good cash earner. A number of streams particularly the Longnit river is flowing in a close vicinity from the studied area. It has provided them the scope to get involved in fishing with the help of self prepared bamboo made implements. It is used as a source of animal protein as well as sold in the market as a major source of earning..

Handicrafts

Natural resources play a prime role in the economic pursuit of the Karbis. With the help of bamboo, locally available cotton, thread and different wild fruits, they prepare lucrative handicrafts and garments. It is one of their prime secondary occupational pursuit. The traditional costumes of the Karbis are quite expensive. Again, they also give the colour on the threads which are collected from different jungle fruits collected from the forest. It is to be mentioned here that, these locally prepared garments play a dual role. It is their source of earning as well as they meet their requisite of cloths in daily livelihood.

Another major handicraft of the studied people is made up of bamboo products. It primarily includes bamboo mats, baskets, agricultural implements or house hold uses like for carry rice and vegetables, Mats, Storage for rice, Hand fan etc. Along with daily usage they prepare the bamboo and wooden models of traditional Karbi Houses, Jambili athan i.e. the traditional symbol of Karbi social structure, different sculptures, masks, table mats and a number of other decorative implements. These have a huge demand among the common mass in the market both among the Karbis and non Karbis.

Traditional Health Care System of the Karbis

It is to be mentioned here that, in the studied area there were a number of medicinal plants and the concerned people had adequate knowledge about their utilization. Such plants and their medicinal properties had provided the scope to the concerned people for their ailment related with a number of ill health condition. It is to be mentioned here that some instances of the utilization of the medicinal plants like leaves of Bap kaen plants collected and washed with water. It was then squashed and the juice was used as coagulant of blood physical portion is met with any injury and also sometimes during malaria and belly ache. The leaves of Thui ang and Thui ache were washed and then squashed. The juice was then used as antidote during snake bite which is believed to prevent the spread of the poison through the blood. For this purpose they also used the extract of honey comb known as Joram. The leaf extract of Thui ang and Thui ache were also utilized for the treatment of dog bite. During the period of recovery

there food taboo related with spice, turmeric and garlic. The fruit of Prampri and Pramso plants were utilized for the remedy of cold and cough. Again their leaves were mixed together, grinded and the extract or juice was drunk to prevent the skin rash. Apart from these stomach ache and dysentery were a few other major health problems of the concerned people. For its ailment they used to mix the leaves of lemon and guava. Further it was grinded and consumed by them. So they had the scope and knowledge to utilize the local resources and medicinal plants for the ailment of a number of health problems which were a common occurrence. Besides them the concerned people utilized some wild varieties of plants, both as vegetables and indigenous medicinal resources in their daily livelihood. The following table illustrates the multifarious utilization of local plant resources in few cases-

Table -2: List of different Plants used as Medicine by the Karbi tribe

Sl. No.	Botanical name of the Plant	Local name	Consumed for	Method of Use and Dosage
1	<i>Abrus precatorius</i> Linn.	Chuselok	Cough	Two table spoons of fresh juice, twice daily after meals for six days.
2	<i>Acmella paniculata</i>	Bapchuki	Stomachache	One table spoon of leaf juice is taken after meals, twice daily for five days.
3	<i>Adhatoda zeylanica</i>	Jok –an- kelok	Dysentery	Juice of two matured leaves, trice daily before meal for three days.
4	<i>Alpinia galanga</i>	Phrikangnek	Bronchiits	Half a tea cup of rhizome juice, once daily after meal for ten days.
5	<i>Alternanthera sessilis</i>	Raeaba	Skin disease	Fresh leaves paste applied on the affected parts twice daily for eight days.
6	<i>Amorphophalus bulbifer</i>	Hen saiku	Piles	100g tuber boiled and taken with rice twice daily for a month.
7	<i>Antidesma acidum</i>	Ingchum	Apetetizer	Two boiled tender shoots taken with rice, once a day for five days.
8	<i>Arisaema tortuosum</i>	Chamua	Piles	50g tuber boiled and taken with rice, twice daily for a month.
9	<i>Beta vulgaris</i>	Bengali dido	Jaundice	50g boiled tender shoots taken once a day with meal for ten days.
10	<i>Calamus rotang</i>	Pri	Vitality	50g boiled tender shoots taken with meal for twenty days.

Environment and Folk Culture

The Karbis are the early settlers of Karbi Anglong in Assam. They have a deep ownership about nature and environment in every aspect of their livelihood through multifarious ways. They have deep faith on the existence of God. Being a dweller of the hilly, isolated tracts they worshipped the dense forest, big rivers, mountains, waterfalls and even sun and moon as God (Bey, 2009: 2). In their daily livelihood nature has played a major role. On the other hand the concerned people were also aware of the fact that, proper utilization of natural resources could sustain their livelihood. So, in every aspect their socio-cultural aspects are deeply correlated with nature. Their daily livelihood and its close interaction with environment could be noticed through a number of verses as mentioned below-

- a) The verse related with their first ever village establishment named as Miring Rongsopi stated that, it was on the bank of river Kopli and the villagers fetched drinking water from there. The river was abundant in fishes and the people never felt scarcity of it.
- b) The verse related with the establishment of their second village Teron Rongsopo was actually praised the greatness of Harbamon, who became the village Sarthe (headman). Here a creeper plant was nursed and as it was gradually grown up it bore the flowers and fruits. The flowers were sucked by the birds coming from distant places and the fame of Harbamon was spreaded everywhere.
- c) The concerned people worshipped the God of cultivation Rit Anglong Arnam for good cultivation and harvesting. They worshipped the God of forest Duikari with a prayer to get plentiful of medicinal plant resources.
- d) According to Karbi verse, when the “vo krokchur” (a small bird) chirped on the trees, it sets the New Year and season for cultivation. The youth group or ‘jirsong’ then used to go for cultivation with tools, weapons and a number of bamboo made musical implements like cheng burup, cheng kumbang, cheng langpong. They used to perform a dance Hacha kekan on the occasion of sok keroi kekan (harvesting festival) to mark the completion to carry paddy.
- e) Since the formation of Karbi society, a kind of creeper fruit called as ‘bong’ (gourd shell) has its social importance from the cradle to grave. Throughout the entire rite-de-passage dry gourd shell was an inseparable part related with ritual blessings and purifications. Yeast also had a major importance in their social life to produce the country liquor, and it was an inseparable part of their rituals.
- f) The Jambili Athon or traditional emblem of Karbi society was build up of a tree called as ‘Bengvoi’. The emblem had five branches. On the top of every four branches there was a wood cutter bird and on the top of main branch there was ‘vojaru’ (racket tailed drago). The concerned people believed vojaru as the king of birds. Its feather was generally used on the occasion of traditional death ceremony and the bird had an immense social importance among the Karbi people (Bey, 2004: 2-37).

General Observation

Every society is exposed to an environmental milieu and it is the main resource from where the concerned individuals can accumulate their requirements. Culture controls the social

behaviour of human beings and it is keenly related with the environment. The ample production of environment control the economic backbone, material needs of the society in diversified ways. The tribal society worship the nature as their mother and the impact of environment on their social, economic and cultural life can be noticed from several dimensions. Particularly their folk tunes reflect the beauty of nature and simultaneously it is the prayer for its preservation.

From the above all discussion it can be easily revealed that, the Karbi society had an inseparable interaction with nature and natural objects. They utilize the natural products for the well being of their entire community. They were quite well known about the importance of such resources. In every aspect of their livelihood, they had the notion to preserve the environmental resources for the sake of the safety and protection of their entire community. They had a deep obedience to the natural objects which marked their own traditional social identity. Their folk culture carried out the note of environmental preservation and sustainable community development approaches from one generation to another as well as it demarked the natural beauty of their place of habitation from a prolonged period.

At present the environmental degradation and sustainable development has become a global emerging issue. In this concern we can apply the knowledge of the tribals for environmental preservation as well as to protect the environment from its gradual degradation and sustain it for our improvement. The tribal concept of environmental preservation may have some regional variation but the key concept lies to the issues of safety, security and sustainability of the environment.

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Dissemination with Outcome of Climate Resilient Agricultural Technologies in a Tribal Village of Tripura

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Introduction

Climate change impacts on agriculture are being witnessed all over the world, but country like India are more vulnerable in view of the high population depending on agriculture, excessive pressure on natural resources and poor coping mechanism. The warming trend in India over the past 100 years was estimated to be 0.60°C (Arunachalam, 2011). It is astonishing to know that Agricultural activity also contribute to global warming. The agriculture sector emitted 334.41 million tons of carbon dioxide in 2007. Estimates of green house gas emissions from the agricultural sector arise from enteric fermentation in livestock, manure management, paddy cultivation, and agricultural soils and on field burning of crops residue (Singh et al., 2012). Climate change is also affecting Tripura in a big way. Its impacts are many and serious like erratic monsoon, spread of pests and diseases, floods, storms, increase in temperature etc. Therefore small and marginal farmers will be more vulnerable to climate change. Making the farming systems of rural poor of Tripura less vulnerable to climate change is imperative. Managing the connections among agriculture, natural resource conservation and the environment must be an integral part of using agriculture for development.

North Pulinpur is one of the draught prone ADC village of West Tripura district. There are no perennial streams or rivers in the entire village. Cropping system is mainly rice based monocropped which is purely rainfed. Agriculture is the mainstay of the people of North Pulinpur ADC village. Rice is cultivated in the lowlands whereas maize, vegetables are cultivated in the hills. Important livestock are pig, cows, poultry, duck, goat and also fishery contribute handsome percentage to family income. Water scarcity and unavailability of irrigation facility forced the farmers towards practice of Jhumming which leads to high rate of erosion with rapid loss of top soil and reducing agricultural area due to more area being utilized for rubber plantation. So based on this the present Climate Resilience Project entitled 'National Initiative on Climate Resilient Agriculture' (NICRA) was started at village North Pulinpur of West Tripura district. This is a network project of the Indian Council of Agriculture Research (ICAR) launched in February; 2011. The project aims to enhance resilience of Indian agriculture to

climate change and climate vulnerability through strategic research and technology demonstration. The research on adaptation and mitigation covers crops, livestock, fisheries and natural resource management (Venkateswarlu et al. 2012).

Materials and Methods

Work village profile

North Pulinpur, a tribal village is located at 50 km from state capital Agartala and 25 km from KVK West Tripura Campus. The village comes under Tripura Tribal Area Autonomous District Council (TTAADC) and falls under Teliamura RD Block. The village consists of 5 wards and 806 families with total population of 3681, (Male: 1779 and Female: 1902). The total BPL family is 121. The village is inhabited by 100 percent tribal community. The total geographical area of the village is 950 hectare where as cultivable area is 250 hectare. There are no perennial streams or rivers in the village. Prevailing temperature ranges from 16°C to 37°C. The soils are classified as hill red loamy to plain sandy loamy soil. Annual rainfall ranges from 2050 to 2550 mm. Agriculture is the mainstay of the people, about 85 percent of them engage in agriculture and its allied activities. There is a galaxy of scope for integrated farming approach for overall agricultural development of the village which ultimately can contribute to the state.

Demonstration Component

The technology demonstration component consists of i) 100 Krishi Vigyan Kendra (KVK) in all over India including 17 KVK of NE India with 1 in Tripura, i.e., KVK, West Tripura, Chebri, Khowai; ii) Co-operative centres of All India Coordinated Research Project (AICRP) on Dry land Agriculture-25 and iii) Technology Transfer Divisions of Core Institute-7. Under this component, an integrated package of proven technologies would be demonstrated in one village Panchayat in each district for adaptation and mitigation the crop and livestock production system to climate variability based on available technologies. The intervention cover four modules: **Module I: Natural resources-** This module consist of interventions related to in-situ moisture conservation, water harvesting and recycling for supplemental irrigation, improved drainage in flood prone areas , conservation tillage where appropriate, artificial ground water recharge and water saving irrigation methods. **Module II: Crop production-** This module consist of introducing draught/ temperature tolerant varieties, advancement of planting dates of rabi crops in areas with terminal heat stress, water saving paddy cultivation methods(SRI, direct seeding), frost management in horticulture through fumigation, community nurseries for delayed monsoon, custom hiring centres for timely planting, location specific intercropping system with high sustainable yield index. **Module III: Livestock and fisheries-** use of community lands for fodder production during draught /floods, improved fodder/feed storage methods, preventing vaccination, improved shelters for reducing heat stress in livestock, management of fish pond/tanks during water scarcity and excess water, etc. **Module IV: Institutional intervention-** This module consist of either of institutional interventions either by strengthening the existing one or initiating new ones relating to seed bank, commodity groups, custom hiring centre, collective marketing , introduction of weather index based insurance and climate literacy through a village level weather station.

Climate variability of the selected village: Water scarcity and erratic rainfall followed by seasonal or terminal drought.

Climate resilient Interventions taken under different Modules

The above mentioned module wise different climate resilient agricultural interventions which were considered for demonstration in farmers' field during the year 2011-2013 are as follows.

Module I: Natural Resource Management (NRM) - Community bund, Rejuvenation of pond, Jalkund, Vermicomposting and Construction of pond

Module II: Crop production – Row paddy transplanter introduction, Introduction of TPS potato, introduction of kitchen garden, SRI paddy cultivation with short duration variety MTU 1010, Introduction of maize/lentil/vegetable pea as second crop etc.

Module III: Farm livestock – Introduction of pigsty, Backyard layering of improved poultry, composite fish culture

Module IV: Institutional Intervention - Formation of village climate risk management committee (VCRMC) with custom hiring centre (CHC), Capacity building through training, exposure visit, farmer to farmer technology transmission programme etc.

Results and Discussion

A. Dissemination with outcome of climate resilient technology under Natural Resource Management (NRM)

Different interventions under NRM with unit and beneficiary numbers to cope up with main climatic variability i.e water stress have been presented in table 1. Rain water harvesting structures including community bund, jalkund and farm pond were constructed to minimize water scarcity. Community bund in between two hillocks was meant for harvesting water in rainy season and utilizing for fish cultivation as well as crop cultivation in other seasons. Rooftop water were channelized and collected in jalkund for the utilization of water in the non rainy season. Ponds were constructed to store water. Rejuvenation of ponds was done to maximize water retention and economic utilization even during dry spell of the year. Approximately 95000 ft³ rainwater had been harvested by construction of 4 Community Bunds, 2 Farm Ponds, 2 Jalkunds and rejuvenation of 13 old Ponds all of which provided life saving irrigation for vegetables during kharif dry spell as well as during rabi summer season covering an area of about 5.0 ha. In addition to this, a total area of about 1 ha waste land had been converted to paddy land using water from community bund. Ponds were also used for composite fish culture with average yield of 2.5 ton/ha/year.

Vermicompost as organic manure is produced from different farm wastages like cow dung, leaves and young stems of vegetables, banana leaves, and other easily decomposable materials of plants or animals with the help of some particular earth worms. This organic manure can increase soil fertility as well as growth of crops as a non hazardous bio-fertilizer. In this regard, to cope up with soil fertility deterioration in shifting climate, KVK, West Tripura has demonstrated vermicompost production technology along with its application and benefits at NICRA adopted North Pulinpur village. For this purpose, twenty five (25) vermicompost units (Paired) have been developed as a partial NRM intervention on available organic resource management as well as to enhance soil buffer system leading to better plant growth and surviving ability in water stress situation due to climate change. After successful adoption of the technology,

each beneficiary is now harvesting on an average of around 3 quintal vermicompost along with 15 litre vermish/chamber (2mX1mX0.6mx 2)/cycle. The adopted farmers are regularly using the Vermicompost & Vermish as bio-fertilizer in their agricultural land and also selling to other farmers. They are acting as a source of earth worm for other villages also.

B. Dissemination with outcome of Climate resilient Technology under Crop Production

a) Introduction of Row paddy Transplanter

Demonstration on Row Paddy Transplanter (RPT) was done covering an area of 2.08 ha from 13 numbers of farmers with an aim timely planting of paddy as well as to reduce cost of cultivation. Kharif paddy is grown as rainfed crop at village North Pulipur which is being faced with erratic rainfall. So, farmers are facing to manage sufficient labour to transplant the paddy in short time that leads them to late transplanting of kharif paddy causing below optimum yield for the crop. It was revealed that the cost of production per hectare was less by around rupees three thousand and five hundred with 10 to 15 percent more yield in case of RPT than conventional manual transplanting. The participated farmers got more net profit by reducing cost of cultivation and increased yield from paddy as staple food.

b) Utilization of Kharif Paddy fallow Land through Introduction of TPS Potato as Second Crop

Under shifting climate the land locked village North Pulipur with 100 % tribal community is under tremendous water stress situation particularly during winter and summer season. The rainfed kharif paddy as monocrop is only grown by the farmers. Considering crop diversification and to popularize slightly blight resistant variety of potato with regard to minimize bad effect of weather variability, KVK-West Tripura conducted a case study followed by demonstration on TPS presently known as Hybrid Potato Seed (HPS) technology as comparatively less irrigated second crop after aman paddy with the provision of irrigation from the rejuvenated pond or new excavated pond under NRM intervention of NICRA. So under crop demonstration intervention with respect to coping strategy against climatic effect, after completion of the TPS demonstrations covering an area of 1.68 ha with 19 numbers of framers, benefit cost ratio for the farmers were calculated and found as average 7.8:1. Apart from this direct outcome, the benefited farmers may act as practical trainer to other villagers. The F1 tuber lets from TPS had been kept in cold storage. In the next potato season, they have harvested good amount of ware potato from the stored F1 tuber lets. The participated villagers have been fully convinced about the feasible opportunity of TPS potato technology to enhance cropping intensity of their field where there is a scope for irrigation during rabi season from nearby stored water of kharif season.

c) Introduction of Kitchen Garden

Interventions had taken on demonstration of nutritional garden in an area of 0.16 ha covering 13 numbers of farm women. This was meant for providing self produce supplemental horticultural crops nutrition to farm family with considerable protection against the bad effect of weather conditions. Now, this technology has been horizontally adopted to around thirty families, all of them are growing horticultural crops with organic inputs only.

d) Introduction of Water saving SRI Paddy Cultivation with short duration variety MTU 1010

Most of the farmers preferred to grow kharif paddy variety ranjit having duration of about 145 days under rainfed condition through conventional method. Due to erratic as well as insufficient rainfall in time, it has become a problem for the farmers to transplant this variety of paddy within the month of July. Dry spell during crop growing period is also common nowadays. So, farmers could face huge loss in that climatic condition. Adaptation of SRI in paddy by the farmers could minimize the losses due to water shortage in paddy cultivation. Keeping in mind a demonstration on SRI paddy cultivation using high yielding short duration variety MTU 1010 having 105 days duration was done covering an area of 0.8 ha which helps 5 numbers of farmers to overcome the problem of water scarcity due to less water requirement in SRI practices as well as shorter duration of the undertaken variety. Although, yield (4.0 ton/ha) performance of MTU 1010 was not satisfactory in comparison to ranjit (5 ton/ha), it may be recommended under rainfed condition in erratic rainfall situation with less crop risk. On the other hand, second crop for winter season after kharif paddy could also be grown earlier or in time if short duration paddy MTU 1010 is grown instead of long duration variety ranjit.

e) Crop Intensification through Introduction of Maize (var. HQPM 1), Lentil (var. WBL 77) and Vegetable Pea (var. Arkel 1)

The tribal inhabitant village North Pulinpur comes under rainfed area where agriculture based only on monocropped aman paddy. After aman rice they used to keep the land fallow for the next aman season utilizing some pockets for rabi summer bitter melon cultivation with straw mulching as moisture conservation and weed control wherever minimum water availability is there from nearby pond. Maize (var. HQPM 1) was introduced covering an area of about 0.76 ha including 9 farmers to utilize kharif paddy fallow land as sole crop in the area where it has been possible to provide live saving irrigation from the water structures created under NRM interventions. The participated farmers have gained momentum for maize cultivation as second crop after aman paddy waste land with a net profit of more than rupees 1.0 lakh per hectare. Moreover, demonstration on intercropping of maize (var. HQPM 1) with straw mulched bitter melon crop covering an area of 0.32 ha including 4 farmers was also done successfully that gave more net profit than their sole cultivation.

The more or less similar interventions had been taken by economic utilizing stored water in created reservoir structures under NRM for demonstration on Vegetable pea, var. Arkel 1 (1.48 ha) as short duration varieties and cultivation of Lentil, var. WBL 77 (0.48 ha) as relatively drought tolerant variety with optimum yield. The participated as well as surrounding farmers have built up their practical confidence for growing second crop with less irrigated vegetable pea and lentil by utilizing their fallow land after rainfed kharif paddy.

C) Dissemination with Outcome of Climate resilient Interventions under Livestock & Fishery

Introduction of improved poultry, improved pig with housing management (Pig sty) and composite fish culture were meant for nutritional security as well as alternative livelihood strategies

to adjust with shifting climate. Poultry farming in large scale is not possible in the adopted village due to high cost of feed and maintenance. Therefore, Swarnadhara breed of bird was introduced under backyard poultry rearing system. Each beneficiary was given a target to maintain a flock size of 50 to 100 from initial 10 numbers of birds. The distributed birds started laying eggs & were sold to other farmers for brooding & some were utilized by the farmers themselves for brooding by using deshi broody hen and also income generated (Rs.500.00/month/beneficiary) by selling of eggs. For piggery three SHG_s had been selected and each SHG comprises of 10 members. Each SHG has been given 5 numbers of improved cross breed of piglet of LWYS x LR. Pig sty had been formed to provide shelter and to protect them from extreme weather condition. Demonstration on composite fish culture had been conducted in four numbers of farmers' pond covering 0.32 ha water area.

D) Institutional Intervention

a) Village Climate Risk Management Committee (VCRMC) with Custom Hiring Centre

For grounding the four major modules (NRM activities, Crop production components, Livestock components and Institutional interventions) under NICRA project with respect to coping up strategies against climate shifting effect in North Pulinpur tribal village of West Tripura district, Kami Humkrai Climate Risk Management Committee (KHCRMC) has been formed and it is functioning very well from the year 2011. This committee has opened a bank account in the name of KHCRMC. They have also given responsibility to operate a Custom Hiring Centre (CHC) equipped with modern farm machineries and implements like pump set (2), power tiller (1), row paddy transplanter (1), sprayer (10), cono weeder (8), water cane (25), power thresher (1), wheel hoe (1), weed cutter (1), khurpi (25), hand transplanter (25), hand fork weeder (25), digital balance (1), soil and water testing kit (2), sickle (16) and rake (2). These are meant for early coping up with climatic hazard, reduction in drudgery and cost of cultivation through farm mechanization, scientific crop management, timely agricultural operation and achieving more work efficiency. The resource poor tribal farmers of the area are using above mentioned mentioned machineries and implements on hiring basis and the minimum hiring rate is written over the display board in custom hiring centre. The most significant outcome of this village based custom hiring centre is that a sum of rupees forty thousand and forty Eight (Rs. 40048.00) has been generated as revenue through hiring the above mentioned farm machines or implements by the local people of the village. Apart from this, with the assistance of KHCRMC the KVK-West Tripura have also completed bench Mark Survey of 100 nos. of families, collection of soil sample from 100 locations with GPS record, collection of data for Inventory of Organic Resources of Village.

b) Capacity building

Farmers' skill and knowledge up gradation were done through various training programmes, group discussion, meeting, exposure visit etc. Various awareness programmes were conducted in North Pulinpur tribal village to make the people conscious about climate change with its effect on agriculture and ways to combat the problem. During 2011-2013,

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thirty seven (37) numbers of training programmes including one (1) vocational training for women on weaving were imparted under NICRA covering 797 numbers of beneficiaries in total. Apart from these, other extension programmes such as farmer scientist interactions (2), exposure visits (2), farmer to farmer interaction (1), animal health camp (1), group discussion (6), TV programme (1), convergence cum awareness workshop (1), method demonstration (1) and diagnostic visit (22) were also conducted covering 692 beneficiaries for their further skill development on climate resilient agriculture during the year 2011-2013. All the above mentioned interventions and their outcomes corroborate directly or indirectly with earlier documentation done by Venkateswarlu et al., 2012).

Conclusion

Lack of adequate proper climate resilient technology, reluctance among the beneficiaries to adopt climate resilient new technology and lack of coordination, interest for social service and proper understanding among the members of VCRMC are the major constrains facing during implementation of various interventions. These problems could be solved by introduction of adequate technology related to climate and institutional intervention like VCRMC can easily solve farmer's problem in participatory mode involving local PRI body also. Collaboration with other related departments while demonstrating technologies creates greater impact.

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Challenges of Tribal Livelihood: A Study with Special Reference to North Bengal

Samar Kumar Biswas

Introduction

A person's livelihood refers to their "means of securing the basic necessities -food, water, shelter and clothing- of life". Livelihood is defined as a set of activities, involving securing water, food, fodder, medicine, shelter, clothing and the capacity to acquire above necessities working either individually or as a group by using endowments (both human and material) for meeting the requirements of the self and his/her household on a sustainable basis with dignity. The activities are usually carried out repeatedly. For instance, a fisherman's livelihood depends on the availability and accessibility of fish livelihood (Oxford Dictionary of English, 31 January 2011, cited in Wikipedia, http://en.wikipedia.org/wiki/Livelihood#cite_note-1. Retrieved on 13.7. 2013). In social sciences the concept of livelihood extends to include social and cultural means, i.e. "the command an individual, family, or other social group has over an income and/or bundles of resources that can be used or exchanged to satisfy its needs. This may involve information, cultural knowledge, social networks and legal rights as well as tools, land and other physical resources" (Blaikie P., T. Cannon, I. Davis, and B. Wisner 2004, cited in Wikipedia, http://en.wikipedia.org/wiki/Livelihood#cite_note-1. Retrieved on 13.7. 2013). However, if the basic requirements- food, water, shelter and clothing are secured then people can execute their life. Thus, apart from psychic needs, material wants are very much necessary for survival. The economic life deals with material wants of the people. The activity associated with the fulfillment of material want also constituent part of economic life. In this regard, Ralph Paddington (1952: 18) told "Economic system is designed to satisfy material wants of the people to organize production, to control distribution and to determine the rights and claims of ownership within the community." Dalton (1971: 89) stated "All society have structured arrangement to provide the material means of individual and community life. It is this structured rules that will call an economic system." Meanwhile Majumdar and Madan (1970: 188) told "It consists of the ordering and organizing of human relation and human efforts in order to procure as many of the necessities of day to day life as possible with the expenditure of minimum effort. It is attempted to secure the maximum satisfaction possible through adopting limited means to unlimited ends (needs) in an organized manner." Obviously, economy is an important constituent of community life and plays a deciding role in the formation of cultural

and social structure of society. Thus, any kind of change of it has an impact on society and obviously it has a great impact on tribal as well as indigenous people. In this concern, all over the world huge numbers of indigenous peoples are living, and in 70 countries around the world there are about 370 million indigenous people (UNO, March 2008). And, India is the second highest tribal populated country, after Africa, where 84.33 million schedule tribes who account for 8.6 per cent of the total people of India and 22.79 per cent of the total indigenous people of the world. Presently, 698 indigenous groups of people are living in India, among which 75 tribes have been identified as endangered too by the government of India (Census, 2011).

The tribal as well as indigenous people are early inhabitants of India. They cleared the jungle and made it cultivable. They are closely related with the nature. Yet now most of the tribals depend on nature for maintaining their daily livelihood, and in this regard, their prime source of earning is forest, land and water. They are very simple in nature and mostly live in the hilly, forested and isolated areas of different parts of India. But with the passage of time, so many non-tribal people migrated to tribal areas and started to settle, and exploited various resources in an uncontrolled manner. In the name of development, huge amount of tribal land has been acquired or alienated, deforestation has been done to a large extent; even by making industry, township dams, various power plants, and so on changed the biodiversity. As a consequence, nowadays many of these tribal people are facing severe problems to maintain their daily livelihood due to several reasons, which are the prime focusing issues to discuss in respect to few tribes of North Bengal.

Livelihood of the Tribals of India and Major Issues

From the very beginning, the tribals and their livelihood have the close relation with the nature and even their ways of living are mostly dependent on nature. Though there are so many changes occurring and many of the Hindu castes and other non-tribal people have shifted from their traditional occupations to others but the tribals would not do this totally. Their social, cultural, religious, political, economic and so on are directly and indirectly related with the nature. In this regard, the tribals of India have got a heterogeneous socio-cultural pattern with varied economic condition and activities which mostly based on ecological setting and ethnic environment. The tribal economy has been classified in various ways by the number of scholars like, Majumdar and Madan (1956), Majumdar (1961), Atal (1965), Das (1967), Dube (1969), Vidhyarthi (1977), etc., and they have suggested three-fold to eight-fold classification (cited in Choudhuri and Choudhuri, 1990: 83). These are (i) forest-hunting type, (ii) hill cultivation type, (iii) settled agricultural type, (iv) simple artisan type, (v) Pastoral and cattle herder type, (vi) labour- agricultural and industrial type, (vii) Folk-artist type and (viii) white-collar jobs and traders type (Vidhyarthi and Rai, 1976: 116). However, broadly the basic economic activities of the tribals may be classified into the following.

Food-Gathering

Yet now, a sufficient number of tribes like Birhors, Hill-Khariyas, Parahiya, Birjias, Korwas, Juangs, Hill Maria Gonds, Chenchus, Yanadis, Kadars, Mala-pantarams, Kurumbas, Paliyans, Onges, Jarwas, Sentinalese, Shompens and Nicobaris etc. are primarily the food

gathering tribes of India. The forest surroundings, rivers are the main resource for their economy-collection of minor forest produce, hunting and fishing. Their individual as well as community life is organized to procure food by hunting, collecting roots, tubers, mushrooms, fruits, nuts, flowers, leaves, fibers as raw materials for ropes, bamboo, honey, latex, wax, etc.. They also hunt various wild animals like deer, hares, birds, monkey, and fish are taken and as a consequence they totally depend on nature.

Pastoralism

Many of the tribal people are living in India who depends on pastoralism directly and indirectly. The Todas of Nilgiri hills; Gujjars, Bakarwals, Gaddis and Jads inhabit Chamb in Himachal Pradesh in north-western Himalaya are fully dependent on pastoralism. In middle India, Kisan or Nagesias of Bihar and Madhya Pradesh are also dependent on it to a little extent. The Bharward or Maldhari and Roisipotra of Gujarat and the Rabaris of Gujarat and Rajasthan are the cattle herders of western India. The Gollas, Kurubas and Lambadas are the herders in south India. The Sansis of Punjab and the Choupans of Jammu and Kashmir in the Himalayan region also come under the herder type. The Bhots of Almora district depend on cattle rearing. Apart from these, many of the tribals like Sherpas are partly dependent also on pastoralism. However, except the purely food-gatherers and few other tribes, most of the tribes of India rear the cows, buffalos, sheep, goats etc.

Agriculture

Basically except the pure food-gatherers and pure pastoralists, most of the tribals of India are directly and indirectly are engaged in agriculture for maintaining their livelihood. In this context, the tribal people inhabiting the hill forest of Assam, Meghalaya, Manipur, Nagaland, Tripura, etc. in north-east Himalaya, Bihar, Orissa and Madhya Pradesh in middle India and Andhra Pradesh in South India are dependent on hill cultivation for their livelihood. In this regard, the Abor, Khasi, Garo, Mismi, Baiga, Chakmas, Mogs, Riangs, Nagas, Malers, Hill Kharia, Birjias, the Saoras, Kuttiya Khonds in Orissa, the Kamars, Maria Gonds, Khond, Juangs, etc. follow the shifting hill cultivation. Apart from these, many of the tribes are practicing the plain agriculture among them, the Khasi, Bhuiya, Santhal, Munda, Ho, Kharia, Baiga, Gond, Bhills, Minas, Khasas, Tharus, Korkles, Dubla, Koyas, Malayalis and so many other tribes are practicing the plain agriculture.

Handicrafts

Apart from other economy, the tribals of the various parts of India have distinguished themselves as good craftsmen. The Agariyas, Abor, Baiga, Gond, Khasi, Rabha, Mech, Kota, Kurumba, Mismi, Naga etc. are expert to make various objects of wood, bamboo, cotton, fur, various reeds and other materials usually gathered from forest and natural resources mainly.

Labour

Nowadays, huge section of tribal people of India follow labour work in agricultural and other industrial sectors. In earlier they primarily worked in agricultural sector but with the changing situation now many of them are working in non-agricultural sectors which may be organized or unorganized sector. In this regard, many of them work in non-agricultural industries on a casual basis.

Skilled White Collar Jobs, Trade and Commerce

Nowadays few families of tribal communities of various region of India are working for their livelihood in various offices, factories and business enterprises. Even few of them are engaged in commercial trade of their own. The Bhotiyas, traders of the Indo-Tibetan border, the Valmikis, the Haiskers of Andhra Pradesh and a few individuals of different tribes are engaged in it. Bamcha of Gujarat, Bhots of Noth India, Birhor of Chhotanagpur, Chari of Andaman Islands etc. are the examples of the tribes who follow this occupation. Basically the tribal economy is very simple and in so called exact 'trade and commerce' is absolutely absent among the tribes of India (Chouddhuri and Choudhuri, 1990: 83-95 and Vidhyatthi and Rai, 1976: 93-140).

Many of the tribals, particularly who are living nearer to the streams, falls, river or sea or in the Island they have very close intimacy with this water source. Various aquatic plants and animals are their parts and parcels of their livelihood. The tribals who depend on pastoralism or earn a lot from domestication of cattle like cows, sheep, buffaloes, goats, yak and so on, they also depend on pasture land and forest in combined. The tribal people, who are the agricultural labourers, are dependent on land. Even their trade, commerce and their handicraft industries are also dependent on forest resources, agricultural resources and so on. It is noteworthy to mention that a greater section of tribal people who earn their livelihood from the agricultural sector, shifting hill cultivation and plain land cultivation, depend on land.

Moreover, it is clear that most in cases the tribal economy is related with the nature and in this regard, it may be said that the first and foremost characteristic of tribal economy is the close relationship between their economic life and the natural environment or habitat which is, in general, the forest. Directly, forests meet needs of small timber, fuel, bamboos and a variety of other products, including fodders which are indispensable requirements of the tribal people living in close proximity of the forests. They provide facility for the grazing of their livestock. Forest also provides employment to a large number of tribal people. The economy of a vast majority of the forest-dwellers as well as indigenous people depends primarily on the minor forest products for their subsistence. Forest provides food, fruits, fuel, herbal medicine, bidi leaves, gums, resin, dyes, tans and a number of other economic products and various non-timber forests produce to them. Even their socio-cultural life is intimately connected with forest. Roy Burman opined in 1982 that "directly or indirectly in the tribal mind forest symbolizes life in its manifold manifestations i.e. home, worship, food, employment, income and entire gamut. Tribals can, in fact, be regarded as children of the forest" Ramkrishnan (1989: 72) said that "it is believed that the deities, representing various elements of nature such as sun, rain, fire etc. reside in these sacred groves". Therefore, it is clear that tribal socio-cultural system, i.e. family, marriage, kinship, economy, political system, religion, health, unity and solidarity or so on are very much related with this nature, forest, as their economy is very much related with it. But at present the serious forest degradation and exploitation of forest resources are going on. Officially designated forest land in India between 1951 to 1980 India had lost 4.3 million hector of forest land. The forest cover of the country as per 2007 assessment is 690,899 km² which is 21.02 per cent of the geographical area of the country. Very dense forest constitutes 83510 km² (2.54%), the moderately dense forest 319012 km² (9.71%) and open forest constitutes 288377 km² (8.77%) of the Geographical area. The scrub accounts for 41,525 km² (1.26%), (FSI, 2009: 16). However, many of these forests are now poor in

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condition. The tribal areas which were covered mostly by the forest, but now-a-days these are replaced into deforested areas. Thus, obviously it has a very serious impact on tribal life as the economy of a vast majority of them depends on forest.

With the passage of time various changes have occurred. In the name of urbanization, industrialization, globalization as well as development the prime resources of the tribal economy, forest, land, water sources are on the way of clutch. The above factors have spread and engulfing livelihood sources of tribal in the name of development. Huge numbers of industries, dams, hydral-projects, resorts, hotels, township, rail track etc. have been made. And as a consequence, the concerned authorities had to acquire a huge amount of land. In this concern, particularly in the Jharkhand state, the following amount of land has been acquired from the marginal people including tribal people to build up various big projects.

Name of the Project	Land in Acre	Displaced Family
H.E.C Hatia, Ranchiacres	7,711.00	4551
Adityapur, Jamshedpur	34,432	635
Tenughat	97,843	
Bokaro	34,227	6066
Koelkaro	85,000	
Patratu Thermal Power	4,450	202

Source: Upadhyay and Pandey, 2003: 52-53

There has been provision for rehabilitation of uprooted families. For this purpose, uprooted families have been given land for house, land for agriculture and compensation amount. But the studies of H.E.C. by Vidyarthi (1976), Patratu Thermal Power by Singh (1976), Bokaro Steel City by Sarkar (1970), and Jhikpani by Das Gupta (1973) reveal that uprooted families were not rehabilitated properly (cited in Upadhyay and Pandey, 2003: 53). In India, resettlement researches indicate that during the last four decades, over 20 million people resettled, but as much as 75 per cent of them have not been rehabilitated, and more than 40 percent of them are tribal and poorer section of the society. The Report of the Working Group on Development and Welfare of Scheduled Tribes of Eighth Five Year Plan (1990-1995), says about the rehabilitation of the displaced tribals, out of 16.94 lakh people displaced by 110 projects studied by them, about 8.14 lakh are tribals (Verma, 2004:18-19). Moreover, among the displaced people, a larger section was the tribal people.

Apart from these, in various ways a huge amount of tribal land has been alienated and still it is going on at a faster rate. The reports from the Ministry of Rural Development, Government of India 2007-2008, mentioned that 5.06 lakh cases of tribal land alienation have been registered in various states of India covering a total of 9.02 acres of land, of which 2.25 lakh cases have been disposed off in favour of tribals causing just the area of 5.00 lakh acres (cited in Indigenous Rights Quarterly, 2008, http://www.aitpn.org/IRQ/Vol-III/issue_4/story09.html). We can see various cases of alienation and restoration of tribal land in different states of India. In Madhya Pradesh, out of 29,596 cases, not a single case has been ruled in favour of the tribals. Similarly, in Tripura, out of 29,112 cases, 20,043 were rejected. And in

Orissa, an overwhelming 43,213 out of 104,644 cases were gone against the tribals. These are serious matters of concern (IRQ, ivid). In Assam, we can see how the non-tribal people have brought plots from the community land of the indigenous tribal groups in the name of schools, societies, trusts, etc., but ultimately used them for individual benefit and commercial purpose (The Assam Tribune, 1st February, 2007).

Due to such above acquiring and alienation of land many of the tribals had to deprive from their permanent occupational pursuits. Many of them were displaced from their shelters and even many became shelterless too. Any type of land alienation affects the people. In many cases the landowner tribals become landless. As a result, the tribal people have to face many problems to maintain their minimum livelihood. To meet up with the common minimum familial requirements they were grabbed into the nexus to take debt from the local moneylenders. Ultimately due to their poor level of income it became impossible for them to repay the loan. As a consequence, the money lenders croaked their remaining sources of income, land and settlement and gradually they became completely roofless and resource less. The situation forced them to work as bonded labour in the land of land lords or in other sectors. It is true, with this poor level of income they had to face all sorts of inconveniences to maintain their livelihood.

However, huge amount of tribal land had been alienated and acquired by various agents and as a result, many of them became landless, displaced and had to face a lot of problems to maintain their daily livelihood. Even it was the fact that many of them did not get the compensation and rehabilitation, which might have a great impact on tribal lives and livelihood. In this concern, the tribal people who depended on land, forest and water resources, if they lost it they will face problem in various respects in their life which may be observed through the following study.

Livelihood and Challenges of the Tribes of West Bengal

West Bengal being the fourth most populated state of India and second most densely populated state after Bihar, where various religious groups of people including various indigenous groups of people are living. Among the various groups of people, the tribal people occupied an important place as because they are 5.8 per cent of total population of west Bengal (Census, 2011). They are living in all the districts of West Bengal while mostly concentrated in Jalpaiguri, Purulia, West Midnapur, Birbhum, Darjeeling districts and so on. More or less 40 numbers of tribal communities are living in different parts of West Bengal. For maintaining their livelihood primarily most of them depend on agriculture, food-gathering and forest collection, daily wage labour and few of them also engaged in trade, service etc.

However, the tribals of West Bengal are also facing the problems of land alienation and deforestation mainly. In case of land alienation in West Bengal, CRI conducted a survey to know the nature of land alienation of tribal communities in 1960-1961, 1960-1965 and 1972-1973. CRI observed that land transferred to the non-tribals was enormous. CRI also conducted a survey under the SC and ST Welfare Department (Government of West Bengal) over 407 mouzas in 12 administrative blocks under then West Dinajpur district over 15, 148 people and found that 31.4 per cent were landless agricultural labourers, and there were also marginal farmers who had their own land but also used to work as agricultural labourer. It was also known from several studies that near about 4500 acres of tribal land have been occupied

illegally by the Tea Planters in North Dinajpur district; in 126 tribal villages in Malda district, 2/3 tribal peasants' land is in the possession of non-tribals; and at Samukhtala of Alipurduar subdivision of Jalpaiguri district, about 45000 acres of tribal land have been illegally transferred to non-tribals (cited in Sen, 2011).

In case of forest situation in West Bengal, at present the recorded forest area/land in the State, West Bengal is 11879 km², which is 13.38 per cent of the total geographical area. Of which Reserved, Protected and Unclassed Forests constitute 7054 km² (59.38%), 3772 km² (31.75%), and 1053 km² (8.87%) of the total forest area respectively (FSI, 2009:163; & West Bengal Forest Department, 2008). The legal status of the forest in North Bengal (six districts) is 3089 km² (14.11%) of the total geographical area. However, the legal status of forests, i.e. recorded forest area/land in the district, Jalpaiguri is 1790 km², of which 1483 km² is Reserved Forest, 217 km² is Protected Forest and 90 km² is Unclassed State Forests and Others constituting 28.75 per cent of the geographical area of the district (West Bengal Forest Department, 2008; and FSI, 2009:165). According to the estimate of 2011, individual wise forest cover in West Bengal is hardly 0.0142 hectare whereas in all-India level it was 0.0571 hectare (FSI, 2009: 17 and 165). Ultimately the forest situation in West Bengal is very poor and this scenario is very serious in case of tribal because the economy of a vast majority of them depends on forest.

Issues of the Livelihood of Few Tribes of North Bengal

The so called North Bengal constituted by six districts- Malda, South Dinajpur, North Dinajpur, Darjeeling, Jalpaiguri and Cooch Behar where so many tribal communities are living. Mainly Santhal, Ho, Munda, Oroan, Malpaharia, Kharia, Mahali, Chik Baraik, Kora, Nagesia, Kisan, Bhumij, Kharwar; and Bhutia, Lepcha, Tamang, Limbu, Sherpa, Yolmo/Kagatey, Rava, Chakma, Garo, Mech, Toto, Hazong, Mru are living in various parts of North Bengal. Basically the mongoloid tribes primarily of the three districts, Darjeeling, Jalpaiguri and Cooch Behar are living from very early where the others are mostly migrated to this area from other parts in different time. However, this area was covered by forest, and the extreme northern three districts were mostly covered by dense forest, hilly areas and these were isolated too. Meanwhile, most of the others migrated tribal people who started to come from mainly Chhotanagpur and Santal Parganas areas mainly at the beginning of clearing of jungles as well as beginning of tea plantation¹ around mid 18th centuries. They were brought by British tea estate owners primarily from this region (<http://www.actionaid.org/india/explore-projects/our-work-tea-garden-workers-west-bengal>. Retrieved on 19.7.2013 AT 2.38 p.m.). Apart from day laboring work, they were living in this area by exploiting various natural resources like forest, land and water and so on. Besides these migrated tribal groups, so many indigenous/tribal groups of people were living in this region from very early.

In respect to challenges of tribal livelihood it is very much important that a huge numbers of tribal people mostly came from Chhotanagpur and other areas to this area to do work as tea labourers. It is the fact that more than 85 per cent of the tea plantation workers of West Bengal are tribal. But, now their situation is very alarming as many of the tea gardens have been closed. Due to this fact, many of them lost their source of earning and were facing a lot of problems in all respects. In this concern, it was reported that in various time many of the tea gardens of Terai and

Doors regions were closed and ultimate 19 numbers of tea gardens were fully closed in different time though few of them have been reopened later. However, the labourers who were migrated from Chhotanagpur region had the land, forest and other left behind are now fully depended on tea garden. Thus, with the shutdown of these tea gardens they are obvious to have faced a lot of problem. Several studies reveal that- reports of death, starvation, wage cuts, health problem, and dropout in education were happened. Even inhuman condition was raised. It was also reported that the human trafficking including young girl and children too took place for the sake of their survival. It was fact that in the tea gardens of four districts, Darjeeling, Jalpaiguri, Cooch Behar, and North Dinajpur of North Bengal, there were around 3.5 lakh permanent workers, and more than 25,00,000 people were dependent on the tea industry in this region. Among the plantation workers more than 75 per cent were the tribal people and they were living in the gardens for last 3-4 generations. But they have been facing terrible insecurity over decades. They lived in the shelters provided by the management; they did not hold any land for agriculture or any other source of livelihoods except work as plantation labourers (Wikipedia, North Bengal Tea Industry, http://en.wikipedia.org/wiki/North_Bengal_Tea_Industry, retrieved on 18.7. 2013 at 2.05 p.m.). However, due to various reasons in several times so many tea gardens were closed. It was published in Anandabazaar Patrika, on 15th January 2004 that 19 tea gardens were closed and 28,000 workers became jobless (cited in, Tea Industry: Starvation Deaths in West Bengal, [http://www.cpiml.org/liberation/year_2004/february/INVESTIGATION .htm](http://www.cpiml.org/liberation/year_2004/february/INVESTIGATION.htm), retrieved on 18.7. 2013 at 11.55 a.m.). When the gardens were closed, most of the basic amenities like drinking water, light, ration, health service etc. were withdrawn from the closed tea gardens. As a consequence they had to face a serious problem. As per government data, between 1 January 2006 and 31 March 2007, the number of deaths in the North Bengal tea gardens was 571. Of these deaths, 402 were of less than 60 years of age, 317 were male and 254 were female, 62 were children less than 10 years of age (<http://sanhati.com/articles/361/>, retrieved on 18.7.2013 at 4.10 p.m.). Industries Minister, Partha Chatterjee said: “This is on record, 3,500 garden labourers have died of malnutrition in the last decade. It has been quoted in the Supreme Court.” He also told that “people died in the last one decade in north Bengal tea gardens because of malnutrition” (The Telegraph, 27.8. 2011. Tea tragedy on record - Figures on fingertips, Partha lists garden woes, http://www.telegraphindia.com/1110827/jsp/siliguri/story_14430287.jsp, retrieved on 18.7.2013 at 5.15 p.m). Moreover, poverty was the prime cause for those deaths in the tea gardens of North Bengal.

Ultimately, most of the tribal people including migrated and local both are dependent on tea gardens for earning as well as survival. The migrated tribal already they lost their property, land, forest and water of Chhotanagpur region. They have no option to return to their homeland, Chhotagnapur again. The tribal people are very simple and saving mode is absolutely absent among them. The present tea labourers are paid a low remuneration which is varied between Rs. 60 to Rs. 100 which is absolutely difficult to maintain the daily livelihood. In comparison to the price of tea leaf they worked here with a very low wage rate. However, if the minimum source of earning is stopped, then, obviously they have to face serious problem. But unfortunately it is continuously happening in their life. With this poor income they could not continue their

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education, unable to repair the broken houses, and failed to provide food, dress, health services as well as basic amenities to them. Naturally, continuous quarrels and conflict took place in this settlement. Here the matter of development was secondary or tertiary as their survival were in the way of challenges.

Further, some of the tea gardens have been converted in residential areas in the name of the development and townships have also been made. As an example, now the Uttarayan Township has been made nearer to Siliguri town. The tea garden workers constituting mainly the tribals protested against it. The government shoot them by using police, as a result, spot deaths were happened in two cases and many were injured too.

In respect to North Bengal, ethnographic studies were conducted by the author also on Toto, Rabha, Mech, Garo, Kharawar, Drukpa, Tamang, Sherpa and the tea labourers belonging to Santhal, Oroans, Kharia, Mahali etc. in different time and observed a vulnerable situation among most of the tribals. The entire tea garden labourers including Tamang had no agricultural land and fully depended on tea garden as a labour for maintaining their daily livelihood. But the monthly income of the tea garden labour families varied from Rs. 1500 to Rs. 2500 only, and with this mere source of income they had to provide the daily requirement to their average five members' family. As a result, with this mere source of income most in cases they had to starve or half feed. Malnutrition as well as disease, poor health etc. were the parts and parcels of their daily life. They failed to continue their education and as a result most of them had to stop it in primary or in the high school level. Even, the quality of education was lacking fully.

The other studied tribes were the agriculturists primarily though few of them besides agriculture also depended on food-gathering and forest collections partially from the forest. The studied tribes mostly had a close relation with the forest but the forest situation was reached to poor condition. The forest resources were not available. The Garos lived in the Dewanhat area of Cooch Behar district, which was very nearer to the forest but they rarely could collect the forest material as the situation of the forest was very poor and primarily most of them had to depend on agriculture and agricultural labour work. The Mech and Totos of the Madrihat areas of Jalpaiguri district, Rabhas of Cooch Behar district and Kharowars of Malda district primarily depended on agriculture and agricultural labour work. But to conduct the agriculture they had to face a lot of problem as they lost their land. Though some of them had some agricultural had some land but the amount was not sufficient. The data reveals that land of all the studied Garo, Rabha, Mech, Toto and Kharawar families' ranges from 1 bigha to 15 bighas. However, around 20 per cent of these studied tribal families had no agricultural land, and had to depend on other works like day labour work etc. Again, among the agricultural land owners, 60 per cent of them had the land which was not more than one acre (3 bighas). Further, always the land was not arable and had to depend on monsoon water for cultivation. Apart from these, they used very simple technology. In this concern, the situation of the Kharawars was very serious as they mostly depended on labour work because most of them had not the sufficient amount of land for cultivation. On the other hand, the Rabha, Mech and Kharawars had a very close relation with forest. They had to depend on forest for domestication, fuel, fruits, roots, raw materials for making house, medicinal plants but then due to scarcity of forest resources or materials they were facing a lot of problems. The Drukpas lived in the Buxa-Dooar areas of Jalpaiguri district depended

on orange orchard, agriculture, forest collection pastoralism; and Sherpa of Srikhola village of Darjeeling district depended on agriculture, forest collection and domestication of cows and goats. The situations of the Drukpas were not good though most of them had some agricultural land which was not fertile. They depended on orange orchards mainly but now the situations of these orange orchards were on the way of abolishment. Apart from these, little amount of crops and vegetables were produced in their agricultural land but this never fulfilled their requirement. Various forest materials i.e. fuel, medicinal plants, other raw materials for making house, and other minor forest produces were collected but nowadays they are facing problem as the natural forest are decreasing rapidly due to deforestation. Though some afforestation programmes were taken by the concerned authority but these were mostly commercial plants. To fulfill the shortage of food and also to fulfill the other requirements of the family members, major section of them depended on other works as day labourer. Moreover, they did not get the sufficient agricultural production from their unfertile land; orange production was on the way of decreasing; this area was reserved as a forest area, thus, some restrictions were also there to use the forest materials; and further, due to non availability of forest materials they had to face the problems to maintain their livelihood. The Sherpa lived in the extreme northern part of Darjeeling district of West Bengal. The studied Sherpa lived in the highest point of West Bengal and there was a plentiful resource of forest and the hilly areas made by them cultivable by making terrace. Their situation is comparative good than all other studied tribes in respect to economy, unity, solidarity and peace.

However, among the studied tribes, except Sherpa, all of them were facing severe problem to maintain their livelihood. The tribals have a close relationship with nature as their socio-cultural life, economy and all other aspects are very much related with forest and land. But due to several reasons these are reducing rapidly.

In this regard, the primitive tribe, Toto of the Jalpaiguri district of North Bengal, mostly depended on forest for maintaining their daily livelihood are facing severe problem as this district was covered by mostly dense forest but now it, covers not more than 28.75 per cent forest of its entire territory (West Bengal Forest Department, 2008; and FSI, 2009: 165). The extensive forest surrounding was the main resource for their economy and considered as the major source to get the raw materials. They depended on forest for fruits, roots, tubers, leaves, vegetables, flowers, wild animals and birds as their prime source of feeding during lean months of the year. The dependence of the Totos on forest as a source of latex, honey, spices, herbal plants collected from forests were important source of income for them. Besides being the main source of fuel for cooking, the collected fuel wood was also sold in the market. Again, they depended on forest for the pasture of their flock consisting of cows and goats. Raw materials for the craft and cottage industries of the Totos were mostly collected from forests. For making plough, they depended on jungle Sal trees. The Totos were equipped with indigenous tools like wooden or bamboo pots and vessels, bamboo baskets and bamboo logs for food gathering. Besides these, they made brooms, winnowing fans, fishing nets, traps for animals and containers out of it. Most of them knew matting, spinning, rope making etc. Bamboo was the pivot of Toto material culture which provided them most of their requirements.

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Further, the land, which was their another prime source of earning and in earlier they had a remarkable portion of land in their hand but nowadays due to several reasons major portion of their land has been alienated or shifted to others and therefore, many of them became landless. Due to unavailability of these earning sources many of them had to face several problems even to earn a little as well as survival as a labour they had to go in other areas. In earlier, the land of this village was recorded 1996.76 acres under the name of Toto heads, but now they are the owner of only 343 acres of land (17.18%) as because 81.72 per cent of lands have already been handed over to the non-Totos. This influx has caused many problems for the Totos as non-Totos are now sharing the natural resources of them. Their authority over power, politics and traditional resources started to decline (Biswas, 2009; and 2012).

Previously the Totos had the control over their entire territory but with the gradual influx of the non-Toto people their control over land and forest had rapidly started to degenerate. The new comers, traders started to cut down the forest and also with it exploited the other natural resources for their own purpose. Due to huge pressure of other population on this land, the forest areas were rapidly decreasing that's why the prime income source of Totos was seriously affected. It was the fact that a Toto could not earn more than 20 rupees a day by selling medicinal plants or spices or fire wood or others from the forest. It was a serious problem particularly for the primitive tribes like the Totos because their major earning came from the forest and their socio-cultural and the socio-religious life was very much inter-related with it. However, with the decrease of forest area, it became extremely difficult for the Totos to collect the fuel wood or other daily necessities. Even the collection of raw materials for their traditional handicrafts, and house making became difficult. Previously the entire territory was prevailed with plentiful bamboo bushes. But the commercialization and greed of bamboo traders made the severe destruction and consequently there was not a single bamboo bush in their village. Even some of them had to face the problems to thatch the roof of the houses properly as the forest materials became scarce and thus, during rainy season the shower came into their houses and some time they fell in ill health. The orange orchards in Toto Para village was in a very good condition up to 1930s, but due to gradual degradation of forest and soil erosion, the orchards were unable to tolerate direct sunlight and it might be due to these anticlimactic factors, humus formation in the soil got seriously affected. Therefore, the entire orange based economy was totally ruined up. Since the advent of non-Toto in this area, the forest was started to clear for preparing settled agricultural land and also for trade. Earlier they were totally depended on folk medicine and the medicinal plants which were collected from forest. But due to massive deforestation most of the herbal plants, roots and tubers, animals and other medicinal resources were not available in this area, which affected the health and nutrition seriously. Now the forest can not provide their requirements related to the rituals and it was observed that they were getting debarred from socio-religious life and other ceremonial occasions of the traditional Toto society which resulted in a societal disharmony among them, and as a result, the social integrity and unity of the Totos were in continuous disturbances.

A number of afforestation programmes have been taken in these areas for the development of the forests and new trees have been planted. But the new afforestation programmes have not only affected the Totos economy; it could not have provided an alternative. Fernandes and Mahapatra have conducted two very interesting studies on the nature of displacement of tribal population due to various so-called development programmes. Unfortunately, the tribals have mostly suffered but they did not receive much benefit of these programmes. The observation of Fernandes (1989:211) that the new afforestation programmes have helped the strong and went against the interest of the weak is really applicable to many cases in India. Moreover, the Totos were suffering a major setback for their existence.

General Observation and Remarks

The tribals of India have got a heterogeneous cultural pattern with different economic condition and activities largely based on ecological setting and ethnic environment. Economy is a most important need of a human being. Without economy a person, a community may be extinct. The disturbances of economy largely affect the ways of living and even their all aspects of life including social, cultural, and political and so on. The tribals are integral part of Indian society and civilization and no doubt they are the people of this country. Different jungles and hilly areas were converted into agricultural land and settlement by them. They are very simple in nature; they are cordial and peace loving people. They are the claimant and have the right over these natural resource, forest, land and water. This is their property as because they converted it to cultivable and made it arable. Obviously these are their property but in the name of development the non-tribal people as well as state mechanisms are also responsible to increase the crises of tribal life. By exploiting their simplicity, their property; land, forest, rivers are being used by others and mostly the tribals are losing their benefit even their basic needs too. The above studies show that how a huge amount of land of the tribal has been alienated; how a huge amount of land of the tribal has been acquired by the government or others for making the industries, dams, townships, power plants and so on. And a huge amount of forest areas got reduced which were the property as well as source of survival for the tribals. Basically they lost land which went in to the hand of money lenders, land lords; they were displaced from land by public projects or for other; and the growth of the tribal population and rise in the burden of agricultural work made them landless workers. They were facing the crisis to fulfil their basic needs and now the matter of survival is a great question for them. If we want the development, then first, we have to ensure them to provide food, shelter, dress, health, education through proper implementation of policies and providing services. It is necessary to ensure land, forest and water rights to them and parallely land transfer, deforestation have to be stopped and further afforestation programme and land alienation should be checked and development should be implemented immediately.

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End Notes

¹ Tea was planted first in 1856 in Darjeeling district and its surrounding area in North Bengal.

Impact of Rubber Processing among the Tribal Community in Tripura: With special reference to Livelihood and Environment

Arobindo Mahato and Barnali Roy

Introduction

In recent times the rubber industry has become one of the most widely accepted and vastly spreadup sector among rural people. This study has been undertaken in order to find out the impact of these rubber processing industry on livelihood of the tribal people as well as on environment. Nowadays many researchers and scientist are doing hard in order to find out the fact if rubber plantation really have any serious impact on environment or not and what exactly id its role in improvement of livelihood of the rural people. This study is a small initiative taken in order to find out at the least a little truth about impact of rubber processing sector on environment and livelihood of the people. Also its impact on health of the people has been given a try to find out. Before moving further let us first know a little about natural rubber.

Natural rubber, also called Indian Rubber or Caoutchouc, is a mixture of organic compoundpolyisoprene and small amounts of other organic compounds as well as water. This polymer is the main component. This material is classified as an elastomer (an elasticpolymer). It is derived from latex, a milky colloid produced by some plants. The plants are ‘tapped’, that is, an incision made into the bark of the tree and the sticky, milk colored latex sap collected and refined into a usable rubber. Polyisoprenecan also be produced synthetically. Natural rubber is used extensively in many applications and products, as is synthetic rubber. It is normally very stretchy and flexible and extremely waterproof.

Rubber Plantation and Processing

Rubber is generally cultivated in large plantations. The coconut shell is used in collecting latex, in plantations in Tripura, India. Rubber latex is extracted from rubber trees. The economic life period of rubber trees in plantations is around 32 years – up to 7 years of immature phase and about 25 years of productive phase. The soil requirement of the plant is generally well-drained weathered soil consisting of laterite, lateritic types, and sedimentary types, non-lateritic red or alluvial soils.

The climatic conditions for optimum growth of rubber trees consist of :

- Rainfall of around 250 cm evenly distributed without any marked dry season and with at least 100 rainy days per year.
- Temperature range of about 20°C to 34°C with a monthly mean of 25°C to 28°C.
- High atmospheric humidity of around 80%.
- Bright sunshine amounting to about 2000 hours per year at the rate of 6 hours per day throughout the year.
- Absence of strong winds.

Rubber Processing

Rubber processing refers to formation of solid rubber from the latex collected. Latex, which is basically a sap, is collected and with the use of formic acid and water it is turned into solid rubber.

Processing natural rubber consists of the following steps :

1. People begin by obtaining the latex fluid, which means tapping the sap from the rubber trees, filtering the latex and then packaging it in drums for export or processing.
2. They make smoked sheets of latex rubber. They clump the latex by adding formic acid, roll the clumped fluid into sheets in a mill to remove water, and then they dry, smoke and export the sheets.
3. The latex is chemically treated and heated at low temperatures to pre-vulcanize it. Pre-vulcanized latex is easier to transport and can be converted to regular rubber later by gentle heating

In Tripura, the half shell of coconut is used as the collection container for the latex but glazed pottery or aluminium or plastic cups are more common elsewhere.

Contribution of Rubber to Economic Development in Tripura

Economic development refers to the development of the economy in a sustainable way. The development that ensures economic independence and sustainability is what expected in a state. Rubber is giving that same thing to the state.

Rubber in Tripura is actually making a new road map to the rural economy. With the establishment and popularity of rubber plantations, it has also created many other related avenues to come into being and play an important role in improving the rural economy. Actually, rubber in Tripura has made a new lease of life to the un-employed rural youths. Rural youths who otherwise were involved in agriculture, small agriculture business and other wages employment are now engaged with rubber and rubber resource of the state. ⁷Rubber, therefore, has rightly taken a good shape in the rural foothold influencing the rural livelihood and also improving the living standard of the rural people. Anybody ever visited to rubber growing belts can actually feel the pulse.

In Tripura in 2005 area was 33220 ha, and out of that maintainable area was 29120 ha. Mission's Action Plan envisaged further extension of rubber plantation over 51894 ha to reach 85094 ha in twenty years from 2006-07:

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- a. Degraded forestland: 26874 ha
 - b. Non-forest land including private holdings: 25000 ha
- Total: 51874 ha

Rubber plantation plays a vital role in improvement of economy of the state. Rehabilitation of tribal people by various agencies has also been done by rubber processing in Tripura.

Methodology

For this survey a sample respondents were asked different question.

- ❖ The present study has been undertaken both on the basis of secondary source, from Panchayat Office and Block Office, as well as a small sample survey done at three villages of Bishalgarh RD Block and one Tribal village.
- ❖ The available literatures on the immergence and performance of rubber cultivation have been mostly referred.
- ❖ The statistical data used in fulfillment of the objectives of study were collected through the small survey done.
- ❖ The raw data has been processed using various statistical tools and MS Excel to derive the desired form.

Study has also used secondary data from various sources and primary data gathered by own efforts. For primary data standard questionnaire has been made, and data has been collected by interview and observation method.

Study Area

One of the first steps in the process of this survey was choosing the survey area. 54 processing units were surveyed from 2 different villages where people belonging to ST community and unreserved community reside. The villages are South Charilam GP under⁹Bishalgarh RD Block and Maharanipur under Kamalpur, Dhalai. Bishalgarh subdivision is credited with the maximum area under rubber plantation, 5127.15 ha. While it is Kamalpur ranking first in the Dhalai district with 802.33 ha of rubber plantation.

Study Tools

Primary data are of utmost importance in any research or survey as they are the most authentic. It is no different for this survey; hence, no effort has been spared in the acquiring of these data. There were basically 3 methods or tools involved in order to acquire the primary data in this survey – a) schedule, b) face-to-face interaction and, c) observation.

- a) The schedule method, as we know, involves a list of carefully selected questions which are both open-ended and closed ended. While the latter helps in easing the assessment especially percentage-wise while still having high accuracy, the former helps in getting specific views and opinions of the beneficiaries. This method had been employed in the present survey and was found to be very effective.
- b) Face-to-face interactions both group and individual help a long way in acquiring information that would, otherwise, be difficult to obtain through questionnaire alone, that is – the findings under this method is qualitative in nature as opposed to that of the questionnaire

method. As mentioned earlier, besides schedule method other methods have also been used as answering few questions can't bring out the real scenario, and unless we employ other means of obtaining primary data, the survey would be incomplete. People often reveal vital information in conversations which they may not do in a formal situation. Thus face-to-face interactions played an important role in this particular research survey.

- c) A lot has been acquired in terms of data through the simple yet effective method of observation of the surveyed area, the beneficiaries and their households. Of course, in this method, one has to be efficient in deducing from what one sees and hears of the normal atmosphere because the information may not always be directly offered in certain cases. For example, the body language of a beneficiary may convey a certain attitude that he or she cannot express.

Secondary data are as important as primary data especially when one has to work on a limited time frame. For this research, the main sources have been internet, books, library, articles, etc. Most of them has also been collected from the Panchayat office.

Sampling Pattern

Sampling pattern refers to the way in which a sample has been selected. The sampling pattern used here has been stratified random sampling in the choice of sample. The only fact while choosing the respondent that had been kept under consideration is that they must be engaged in rubber processing.

Stratified random sampling refers to a way of sampling where the population is divided into smaller groups called strata. Here strata are formed on the basis of an attribute that the members share. The respondents were selected using stratified random sampling measures, with processing of rubber as a means of livelihood as the basis of the stratification.

Conditions for choosing the Exclusion

The person who are engaged in growing rubber nursery or they who are grower but whose plants aren't matured enough to produce latex are though a part of the process of rubber plantation but have been excluded from the study. The reason being, the study has been done to assess the impact of rubber processing on livelihood and environment and not just rubber plantation.

Inclusion

The study has been carried out on the people who are engaged in rubber processing in private sector. Though it has been found that all the people who are engaged in rubber processing are themselves engaged in rubber growing as well. Only the people who are engaged in processing rubber, may or may not be a grower as well, are considered under the study. The obvious reason being, the study has been carried out to find out the awareness of rubber processors and the impact of rubber processing on their livelihood.

Data Entry

Data has been entered on MS Excel worksheets and analysis has been done using various statistical tools to derive the desired form.

Data Analysis

Structured data analysis has been carried out on the basis of collected data. The data has been structured and then used for analysis like comparisons, prediction etc.

- **Limitations :**
- ❖ The small size of the sample is in itself a major limitation.
- ❖ A part of the study is dependent on the information provided by secondary sources, i.e., different agencies
- **Discussion on tables :**

Table 1- Income from Rubber Processing showing Positive Impact on Economy.

Income From Rubber Processing													
Expenditure	1000-5000		5001-10000		10001-20000		20001-50000		50001-100000		100001-500000		>500000
	Charilam	Maharanipur	Charilam	Maharanipur	Charilam	Maharanipur	Charilam	Maharanipur	Charilam	Maharanipur	Charilam	Maharanipur	
1000-5000	0	0	0	8(31%)	0	5(19%)	0	0	0	0	0	0	0
5001-10000	0	0	0	0	13(45%)	4(15%)	0	5(19%)	0	0	0	0	0
10001-20000	0	0	0	0	0	0	3(10%)	3(12%)	0	1(4%)	0	0	0
20001-50000	0	0	0	0	0	0	0	0	4(14%)	0	2(7%)	0	0
50001-100000	0	0	0	0	0	0	0	0	0	0	2(7%)	0	0
100001-500000	0	0	0	0	0	0	0	0	0	0	0	0	1(3%)
Income Over Expenditure													
1000-5000	0	1(4%)	0	0	0	0	0	0	0	0	0	0	0
5001-10000	0	0	2(7%)	7(27%)	3(10%)	2(16%)	0	0	0	0	0	0	0
10001-20000	0	0	0	0	12(41%)	6(23%)	0	1(4%)	0	0	0	0	0
20001-50000	0	0	0	0	0	1(4%)	3(10%)	7(27%)	1(3%)	1(4%)	0	0	0
50001-100000	0	0	0	0	0	0	0	0	3(10%)	0	2(7%)	0	0
100001-500000	0	0	0	0	0	0	0	0	0	0	2(7%)	0	1(3%)
Income From Other Sources													
1000-5000	0	0	2(7%)	8(31%)	14(48%)	7(27%)	2	8(31%)	0	1(4%)	0	0	0
5001-10000	0	0	0	0	1(3%)	2(16%)	1(3%)	0	1(3%)	0	2(7%)	0	0
10001-20000	0	0	0	0	0	0	0	0	2(7%)	0	2(7%)	0	1(3%)
20001-50000	0	0	0	0	0	0	0	0	0	0	0	0	0
50001-100000	0	0	0	0	0	0	0	0	0	0	0	0	0
100001-500000	0	0	0	0	0	0	0	0	0	0	0	0	0
Area Under Cultivation													
0.1 To 1	0	0	2(7%)	8(31%)	15(52%)	9(35%)	1(5%)	4(15%)	0	0	0	0	0
1.1 To 5	0	0	0	0	0	0	0	2(7%)	4(15%)	1(4%)	1(3%)	0	0
5.1 To 10	0	0	0	0	0	0	0	0	0	0	2(7%)	0	0
10.1 To 15	0	0	0	0	0	0	0	0	0	0	0	0	0
15.1 To 20	0	0	0	0	0	0	0	0	0	0	0	0	1(3%)

Source : Field Survey, 2013

Findings From table 1

The Table-1 that deals with the impact of rubber processing on economy of the tribal people in Tripura shows that income generated from rubber processing has been found to be a very high and significant one in both the communities. The improvement in their income is immense.

It has been found that income of the people in most of the cases has increased drastically as we can see that in most of the cases the range of expenditure is one step behind that of the income. That shows the profit earned by the individual. Again the investment in most of the cases has been found to be in the range of 1000-10,000/- whereas the income in most of the cases is between the range of 5000-20,000/- that shows the noticeable difference and the appreciable profit earned. It has been noticed that investment in case of general community is higher than the tribal community in most of the cases that might be the result of poor condition of the latter, but income ranges in similar ranges in most of the cases thus showing high profit generation by rubber processing. The income varies noticeably thus showing why individuals get tempted about rubber planting and processing.

By comparing the income and the income generated over expenditure in the rubber processing unit. It is clearly seen that most people earn a net income that ranges from 5000-10000, followed by the range of 10000-20000 and 20000-50000 respectively. This shows the fascinating income level seen among people in rubber processing sector. The sector facilitates with huge earning scope for the rural people, be rich or poor. And definitely acts as a major source of income among the people. But on comparing the performance of two communities it has been found that their performances vary highly. The reasons might be the difference in economic condition of the two communities.

The income generation from rubber cultivation as obvious does increase with the increase in area under cultivation. But what's fascinating is that irrespective of the community in small land holdings also the income generated is quite tempting. We are all familiar with this popular proverb that "poverty waits at the gate of idleness", and this is well known by the rural people. They thus know how to use their little share of land to earn big prices and what's helping them with it is certainly the good market of rubber in Tripura as well as all over the world.

It's not often that we find cent percent of people nodding head for a particular issue. Strange but true, I found this very same situation not once or twice but thrice. On asking about importance of rubber processing in their income, consumption and savings level, everyone concerned said this same thing that "ofcourse there is improvement". The level of income, consumption and saving in each and every case has been found to increase. And this undoubtedly is an indicator of positive impact of rubber processing in livelihood.

Table-2 : Unawareness regarding Environment Protocol showing Critical Impact on Health and Environment.

Awareness regarding Environment Protocol				
	Charilam		Maharanipur	
	Yes	No	Yes	No
1.] Do You Follow All The Rules Of Environment Protocol?				
Yes	2(7%)	7(24%)	0	0
No	2(7%)	18(62%)	5(24%)	21(76%)
2.] Do You Take Any Step To Cut The Pollution?				
Yes	2(7%)	7(24%)	0	0
No	2(7%)	18(62%)	5(24%)	21(76%)
3.] Do Your Employees Wear Masks And Gloves While Working?				
Yes	0	0	0	0
No	4(14%)	25(86%)	5(24%)	21(76%)
4.] Do You Think The Way You Process The Rubber Is Eco-Friendly?				
Yes	2(7%)	7(24%)	0	0
No	2(7%)	18(62%)	5(24%)	21(76%)
5.] Do You Get Any Foul Smell?				
Yes	4(14%)	17(59%)	4(15%)	15(58%)
No	0	8(28%)	1(4%)	6(23%)
6.] Impact On Health				
Allergy	6(9%)	1(2%)	2(6%)	3(8%)
Skin Blisters	1(2%)		0	0
Skin Rashes	5(8%)	3(5%)	0	2(6%)
Irritation	4(6%)	2(3%)	1(3%)	3(8%)
Asthma	1(2%)	1(2%)	0	2(6%)
Runny Nose	3(5%)	4(6%)	0	2(6%)
Sneezing	2(3%)	2(3%)	0	1(3%)
Swelling Of Face, Lips And Airways	2(3%)	1(2%)	0	1(3%)
7.] Disposal Of Waste Water				
Use It In Smoke House	2(7%)	2(7%)	0	0
Dispose To Pit	1(34%)	8(28%)	0	0
Dispose To Water Body	0		5(24%)	21(76%)
Dispose To Surrounding	1(34%)	10(34%)	0	0
Dispose To Drain	0	5(17%)	0	0
8.] Effect Of Disposing The Water In Water Body				
+Ve	0	0	0	0
-Ve	0	0	5(24%)	21(76%)
9.] Effect Of Disposing The Water In Surrounding				
+Ve	0	0	0	0
-Ve	0	0	0	0

Source : Field Survey, 2013

Findings from table-2

The Table-1 that deals with the impact of rubber processing on environment shows that Rubber that has been introduced in the state as a source of rehabilitation of the tribal shifting cultivators and as a soil conservation method considering the potential of rubber in degraded forests is no doubt making a new road map to the rural economy and improving it. But the impact of this rubber plantation and processing shows some serious impact on the environment and forest cover of the state and unfortunately the impact have two faces, not only a positive one which is surely a good sign but also an exceptionally negative one.

The table states with utter disappointment that most of the people don't know about environment protocol. Though surprisingly, it has been found that the awareness among tribal people is though negligibly but higher than that of unreserved community. But very few of them follow any major step to cut the pollution so generated. They don't even take any safety measures while processing the latex and forming sheets out of it. In most of the cases it has been found that the rubber is giving foul smell and thus polluting the environment but no step has been found to be taken to cut it. The facts so discovered are really disappointing and need serious concern.

Unfortunately the number of people of tribal community who are found to be aware of environment protocol is larger than that of unreserved community but none of them are concerned about it. Whereas few, irrespective of their knowledge about environment protocol, in unreserved or unreserved community are found to be taking active steps in reducing the pollution.

Thus, the impact of the rubber processing on environment is making the sustainability of rubber processing a serious question. If people keep on polluting the environment from the lackadaisical methods of processing, that day isn't far when we all would need to face serious problems.

A number of people were found to have skin and respiratory problems due to rubber processing. The type of problem varies from person to person. Though the problem has been found to be little more apparent in unreserved community Among the people who have health issues, it has been found that most are suffering from skin problems rather than respiratory problem. It has also been admitted by the respondents that on leaving the latex for 2 days or more, it causes allergic reactions to skin.

On asking about disposal of the waste water containing chemical that is produced while processing rubber, all the people of tribal community admitted that they dispose it on water body. Among people of general community being unaware of the need to keep the environment clean, most of the people are found to dispose it in surrounding and thus polluting the surrounding area. Again few of the people said they dispose it in the drains from where it flows to the main drains, this again we know is a bad practice as the water flows through the drains and as we have seen, the drains are not cemented thus it mixes with the ground water and pollute it. Again third highest portion of the population I.e., few said they dig a pit and dispose all the waste water in it so as to cut the pollution. But does it really cut the pollution? The water when disposed into the pits makes the soil highly combined with chemicals thus adversely affecting the quality of the soil.

It has been admitted by most of the people who dispose the waste water to water bodies that the intensity of mosquitoes and other insects have definitely increased since they have started disposing the water in the water bodies. Thus it has been found that most of the people are not aware of environment protocol. And what's more disappointing is that they who are aware of environment protocol, among them also most are neither taking any step to aware others nor themselves are doing anything to minimize the pollution generated. Only a few are taking initiative in using the waste water generated in a productive way. Again among them who are not very aware of environmental protocol, as are not expected to, most of them don't do anything to minimize the pollution. But in spite of unawareness a handful of such people are also there who are taking smart initiatives. They use the waste water generated in smoke houses to make gases. That is how they are making it productive.

The Major Findings from the Field Study are Findings about Impact Of Rubber Processing On Economic Condition Of The Family of people of unreservedcommunity and that of tribal community

- ☞ The income generated from rubber processing has been found to be a very high and significant one. It has been found that the expenditure made and income generated shows significant difference and the later is noticeably higher than the former. The rubber processing sector certainly shows signs of sustainability with its huge income generation. Respondent's reaction on asking about the significance in most of the cases was "I grow and process rubber to earn bread. If I stopped it I and my family will die out of starvation. The income generated from other sources are negligible"
- ☞ The individuals who once earned only a small amount of money from other sector is now earning handful after joining rubber-processing sector.

Findings about Impact of Rubber Processing with respect to Awareness and concern regarding Environment Protocol by the People of General Community and that of Tribal Community.

- Most of the people are unaware of environmental protocol and don't take any initiative to cut the pollution. The number of people of tribal community who are found to be aware of environment protocol is larger than that of unreservedcommunity but none of them are concerned about it. Whereas few, irrespective of their knowledge about environment protocol, in unreserved community are found to be taking active steps in reducing the pollution.
- The process of transforming latex to sheet rubber involves use of chemical and smoke. A pungent smell accompanies the processing work as well as the nearby locations. Hence, it might be regarded as air pollution
- It has been found that many workers suffer from Skin problem and respiratory problems. The reasons being they don't use any preventive measure like use of gloves and masks. Prevention like use of gloves and masks must be taken.

The study has found that tribal mostly use indigenous ways that causes harm to their health as well as to the environment. Though it has been found that irrespective of community under observation, rubber processing has adverse effect on health and environment; but the effect on tribal community has been found to be worse due to various reasonable causes. Again, the income generated from rubber processing has been found to be a very high and significant one in both the communities. The improvement in their income is immense. In this circumstance there¹⁰



is an urgent need to have deep look on the policy perspective of rubber processing expansion. It has to keep deep concern about its impact in different category people and ethnicity group.

Although some enigma and fear is associated with rubber, nevertheless, rubber in Tripura is quietly changing the very rural landscape that has definitely helped rural youths and state at large. The point is; beginning has been made and success has been achieved but it is to be long lasting, sustaining and inclusive of all.

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Livestock based Tribal Livelihood-With special reference to Piggery

Jayanta Choudhury and Sandip Sinha

Introduction

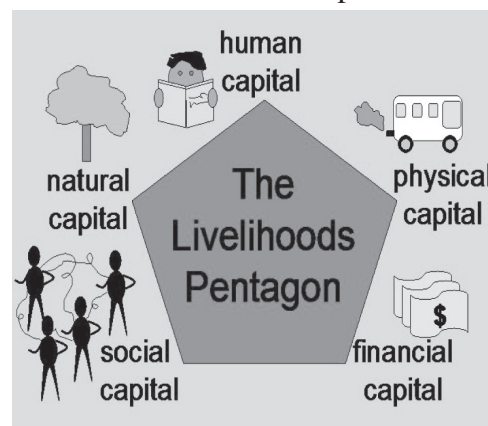
The financial means whereby one lives or a means of supporting one's existence, esp. financially or vocationally. Livelihood is a means of living, especially of earning enough money to feed oneself etc. A person's livelihood refers to their "means of securing the necessities of life". Livelihood is defined as a set of economic activities, involving self-employment, and or wage employment by using one's endowments (both human and material) to generate adequate resources for meeting the requirements of the self and household on a sustainable basis with dignity. The activity is usually carried out repeatedly (Oxford Dictionary of English.). For instance, a fisherman's livelihood depends on the availability and accessibility of fish.

In social sciences, the concept of livelihood extends to include social and cultural means, i.e. "the command an individual, family, or other social group has over an income and/or bundles of resources that can be used or exchanged to satisfy its needs. This may involve information, cultural knowledge, social networks and legal rights as well as tools, land and other physical resources. The concept of livelihood is used in the fields such as political ecology (Frank Thone) in research that focuses on sustainability and human rights. The word 'livelihood' can be used in many different ways. The following definition captures the broad notion of livelihoods understood here: 'A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base.'

A livelihood can sometimes generate adequate income, but may not be desirable or dignified, such as being a sex worker or a beggar. In other cases, a livelihood may generate adequate income and may even be reasonably dignified, but may not offer adequate opportunities to participate in the wider social, cultural or political aspects of the community one lives in. In yet other cases, it may be adequate, dignified and offer opportunities to participate in social, cultural or political life, but may not be sustainable, as it may be based on fast-dwindling natural resources. Near shore fishing in Kerala and timber-logging in Arunachal Pradesh are examples of this.

Livelihood- Static vs Dynamic View

Livelihoods must be viewed not as a static phenomenon but in a dynamic, ever-changing context. One of the most commonly used frameworks for understanding livelihoods is the Sustainable Livelihoods Framework originally posited by Conway and Chambers⁴. Here, a household is posited to have access to five types of capital: human, social, natural, physical, and financial. Human capital refers to the ability to labour, skills, intelligence and talent. Social capital includes trust, status, networks, local institutions and norms. Natural capital includes land, water, forests, minerals and agro-climatic conditions. Physical capital includes tools, plant and machinery, and roads, electricity supply, etc. Financial capital includes cash, savings deposits, insurance paid up, debts given to others and bonds and shares, if any in an enterprise. These five types of capital/assets give a household a livelihood platform, and access to this is either enhanced or let down by social relations such as gender and caste, or by institutions such as customs, land tenure or market practices. A household adopts different livelihood strategies in the context of demographic



trends, technical changes and policies and programmes, as well specific shocks like a drought, an epidemic or civil unrest. These comprise a set of natural resource-based activities such as farming, livestock rearing or fishing, as well as other activities like trading. Coping strategies adopted in times of crisis include sale of assets, diversification and migration. If successful, these strategies lead to livelihood security at the level of a household, and more widely, for the community. In a happy scenario, the strategies are also sustainable environmentally. In most cases, however, livelihood strategies may barely lead to household level livelihood security and may not be able to assure sustainability. It is here that one needs to come up with policy interventions (Ellis, 2000.)⁵

Why Livelihood ?

There are three reasons why we need to act on the issue of livelihoods urgently. The first is growth, the second is equity and the third is the environment. After many decades of planning, investment and effort, the Indian economy has moved into a higher growth path, where GDP growth of 8% p.a. or more has become possible. This puts India among the fastest growing economies of the world. But this growth can be retarded if it does not simultaneously generate stable and adequate livelihoods for everyone. In the absence of livelihoods and adequate income for all, the demand for wage goods and consumer goods will not be widespread enough. For some time, it is possible to run industries mainly for exports. However, if exports account for a major part of the demand, then an industry can suffer from instability as demand can shift. On the other hand, if part of the demand is domestic, there is more chance of stability. Domestic demand requires a better income distribution – thus livelihoods for everyone, would promote economic growth in a virtuous cycle. The larger demand base also will lead to

economies of scale and price competition, thereby enabling greater efficiency in the economy. On the other hand, a small demand base leads to inadequate capacity utilisation, higher costs and low competition, breeding overall inefficiency in the system. Thus the widespread availability of livelihoods leads to broader and larger demand and thus the possibility of harvesting efficiencies in the economy. An example of this is the low-end motorized two-wheelers. India became the world's largest producer of mopeds because of strong and widespread domestic demand. The same is true of cell phones. With 260 million users, India is the second largest cell phone market in the world. This had been made possible only because a large number of poor households are able to use cell phones. This in turn has driven cell phone providers to compete with each other and bring costs down, generating more demand. Thus universal availability of stable and adequate livelihoods is the main requirement to ensure efficiency and continue the high growth path in the Indian economy.

Livestock

Animal-rearing has its origins in the transition of cultures to settled farming communities rather than hunter-gatherer lifestyles. Animals are 'domesticated' when their breeding and living conditions are controlled by humans. Over time, the collective behavior, life cycle, and physiology of livestock have changed radically. Many modern farm animals are unsuited to life in the wild. Dogs were domesticated in East Asia about 15,000 years ago, Goats and sheep were domesticated around 8000 BCE in Asia. Swine or pigs were domesticated by 7000 BCE in the Middle East and China. The earliest evidence of horse domestication dates to around 4000 BC ("Breeds of Livestock - Oklahoma State University").

Livestock are domesticated animals raised in an agricultural setting to produce commodities such as food, fiber and labor. This article does not discuss poultry or farmed fish, although these, especially poultry, are commonly included within the meaning of "livestock". Livestock generally are raised for profit. Raising animals (animal husbandry) is a component of modern agriculture. It has been practiced in many cultures since the transition to farming from hunter-gather lifestyles.

The term "livestock" is nebulous and may be defined narrowly or broadly. On a broader view, livestock refers to any breed or population of animal kept by humans for a useful, commercial purpose (nationalgeographic.com). This can mean domestic animals, semi-domestic animals, or captive wild animals. Semi-domesticated refers to animals which are only lightly domesticated or of disputed status. These populations may also be in the process of domestication. Some people may use the term livestock to refer to only domestic animals or even to only red meat animals.

Livestock Scenario in North-Eastern States

The North-eastern India is a chicken-necked region, connected to the mainland with a narrow corridor and surrounded by international boundaries of Bangladesh and Bhutan. This unique characteristic adversely affects the economy and other regional factors, such as a sense of isolation, remoteness etc. North-eastern India consists of Assam, Arunachal Pradesh,

Meghalaya, Mizoram, Nagaland, Tripura and Sikkim covering 255.08 million hectares, which is about 8 per cent of country's land mass. More than 64 per cent of the total geographical area is covered by thick and deciduous forest (164.101 million hectares under forest). Except a small valley plain of about 30 per cent, the rest of about 70 per cent of the total area is hilly and mountainous track of very steep to moderate slope. Thirty per cent of valley plain consists of upland, lowland, deep water and very deep water ecological situation. The region is highly diverse in terms of agro-ecosystem, socio-cultural mixture of the people, a blend of multiplicity of ethnicity and geo-topographical variability. Average rainfall in the region is the highest in the country. The renowned agricultural scientist Dr M S Swaminathan describes the region as a cultural and genetic paradise and granary of mega biodiversity in terms of flora and fauna as well as micro-flora and micro-fauna. Despite richness in natural endowment, the NEI is the most backward areas of the country, home for a very high proportion of the poor, agriculture is highly risky and productivity is low. The crucial message is that the abundant and rich natural resources are neglected in the past but must put to efficient use now to catalyse the developmental process. In the absence of concerted efforts, the state is unable to provide necessary support system to manage these resources for the benefit of the people. Rather than conserving biodiversity, the stock of the biological resources are fast dwindling and making the social life devoid of harmony and lack of coexistence. Large stock of natural resources, abundant water resources, number of perennial river systems and the precious human capital are actually wasted. As a result, the region suffers from drought situation even during monsoon season on one hand and frequent floods inundating vast plain areas on the other hand. Under the circumstances, if resources are not properly developed and managed, the food security in the predominantly agrarian economy will be endangered (B.C Barah). Flood causes loss of crops, lives and properties regularly and its occurrences are increasing. Therefore, the missing policy link between effective supporting infrastructure, coordination and implementation of the developmental schemes is a major cause of concern requiring urgent attention.

Livestock is considered as one of the important homestead activities in the farm households in almost all the N. E. states while fishery enhances family income. In the rural household economy, livestock is considered as an inseparable component in the whole farm business, which is the source of milk, meat, egg, manure, draught and transportation. It provides nutritional security to farm family and stabilizes farm income too. There are certain breeds of animals, which are unique in the N.E. India. Nevertheless, large percentage of the animals in this part of the country is of non-descript type, poorly reared and less productive. Whatever development has taken place in terms of production and productivity of livestock and fisheries in this region could be attributed to mainly the efforts of the farmer/rearer in general and natural growth of animals rather than technological intervention (B.C. Bhowmik and D C Kalita).

Objective of the Study

The study has been conducted with the principal objective of evaluating the enormity of livestock in livelihood especially among the rural tribes. The specific objectives are:

1. To know the socio-economic status of livestock holders.

2. To study the piggery management system in rural Tripura.
3. To identify the constraints of piggery in rural Tripura.
4. To assess the contribution of piggery in rural livelihood.

The present study has been conducted with the principal objective of evaluating the contribution of piggery in livelihood and also identifying the constraints in pig farming in rural Tripura. The study was conducted in the Sepahijala District of Tripura. West Takarjala & Nehal Chandra Nagar was selected as sample villages. 98 numbers of households were selected through snowball sampling. Secondary data was collected from internet sources and Directorate of Economics & Statistics. The primary data collected directly from the villages through household survey, with the help of pre-framed structural schedules to fulfil the objectives of the study. The data was analyzed & tabulated through percentile and graphical presentation.

The study was conducted in Shipahijala District of Tripura. The Murabari ADC village of West Takarjala and Senkumar Para of Nehal Chandra Nagar Gram Panchayet was selected under Shipahijala District. West Takarjala & Nehal Chandra Nagar Gram Panchayet was chosen on the basis of tribal habitation. In Takarjala 100 percentages tribal population was there and Nehal Chandra Nagar Gram Panchayet also more than 70 percent population in Tribal. Out of 1248 households 49 Households in Takarjala and out of 1378 Households 49 Households were selected through snowball sampling method which includes both Tribe and non tribe households in Nehal Chandra Nagar Gram Panchayet. The data was analyzed and tabulated in percentile and graphical presentation. 98 nos of Households were selected from two Gram Panchayets out of 2626 Households. For complete assessment of the study the secondary data as well as primary data was very much important. Secondary data was very important for the analysis of piggery related issues in Tripura and various schemes of livelihood in Tripura and India as well. Secondary data was collected from Directorate of Economics & Statistics and internet sources. The primary data was collected from the villages through door to door survey with the help of pre-framed structural schedules to fulfil the objective of the study.

Findings, Recommendations and Conclusion

The livestock sub sector has emerged as one of the key components of agricultural growth in developing countries in recent years. The Indian livestock system is the endeavour of small holders and it is a centuries old tradition. As a result of gradual transition from subsistence to market system, the economic dimensions of livestock keeping have assumed increasing significance in household behaviour. Over 70 percent of the rural households in India depend on livestock farming for supplementary income. The sector is highly gender sensitive and over 90 per cent of activities related to care and management of livestock are carried out by family's women folk.

Agriculture in India is considered as the mainstay of a majority of people. It contributes around 14 per cent to the gross domestic product (GDP) of the country. The livestock sector in India contributes to nearly 32% of total agricultural output. India with 2.3% share of global geographical area supports nearly 20% of the livestock population of the World. 38 percent of world's meat production is supported by pork. So there is a great demand and scope in piggery.

Major Findings

Analysis of the primary data in various aspects and dimension, some major facts was identified though the size of the sample was quite limited. The analysis was not only made on the data collected on the basis of the schedule. But many more information was gathered through close observation. The following are the major findings which came out through the analysis.

Socio-Economic Eminence

Whereas the literacy in the state is about 94.65% but both in the study areas the literacy rate is only 63.27%. An adverse relationship pattern was found in between high education and piggery. More the education level is high less the people are associated with piggery. More than half of the population (53.06%) are dependent on agriculture for their livelihood and are also directly involved in agriculture. The monthly income of 98 % people is ranging between Rs. 1000 to 3500. More than half (55.10%) of the families are under BPL category and all the families are doing piggery. Majority (87.75) of the area are scheduled tribe and especially in rural areas having a pig or piglet in seen commonly.

Table -1 : Constraints in Piggery Management

Management of Pigs	Takarjala G.P	N.C. Nagar G.P	Total
	Number & percentage	Number & percentage	Number & percentage
Waterproof roof	2(4.08%)	nil	2(4.08%)
Under open sky	49(100%)	49(100%)	98(100%)
Pucca floor	nil	nil	nil
Kutchra(On clay)	49(100%)	49(100%)	98(100%)
Not Vaccinated	38(77.55%)	26(53.06%)	64 (65.30%)
Fed on kitchen waste	49(100%)	49(100%)	98(100%)
Pig death	4(8.16%)	2(4.08%)	6(6.12%)
Vaccination	11(22.45%)	23(46.94%)	(34.69%)
Female association	46(93.88%)	42(85.71%)	88(89.80%)
Female association	46(93.88%)	42(85.71%)	88(89.80%)

Both agricultural and labour, non- agricultural labours and cultivators were involved in piggery. There were no organized farms for the procurement of the piglets in the locality or in the entire area. Having a pig is a common observable fact but scientific farming is a totally ignored issue. Vaccination is also a neglected issue among the pig owner and more than (65.30%) pigs are not vaccinated. Fodder source is a major problem and 100% of the pig population is fed on kitchen wastes and locally collected wild vegetables. Though the scientific methods and vaccination is not done properly than also the death rate of pigs/piglets are low

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as 6.12%. This is because of the indigenous methods they are using and cross breed piglets were more vulnerable to diseases and death. There were middle men in selling the pigs and as a result of that the pig owners are not getting the projected selling price. A proper market was also not there, where the pigs could be sold. There was no slaughter house which was a major factor of hindrance in maximising the profit. Veterinary services were not available at time and it was also a major cause for the practice of indigenous methods of treatment and which is resulting in the poor output at the end. The most interesting fact was the association of women (89.80%) were more associated with piggery. There was “share piggery” system in one of the sample villages. This “share piggery” system reflects the gloomy economic condition of the pig farmers who are not even able to buy a piglet and vulnerably doing share piggery where in the system someone else buys the piglet and the poor farmer rear the piglet.

Recommendation

Under the above mentioned circumstances, some suggestion can be put forward for the development of the system of pig farming and on analyzing the aforesaid factors it is recommended that:

1. Scientific farming is totally ignored in rural Tripura which is resulting in poor profit margin. Almost all the pig owner and farmers know very little about scientific pig farming and they are practicing unhygienic and unscientific methods. Social organizations, NGOs or VOs can create awareness on scientific pig farming.
2. Procurement of piglets is a problem and they are collecting the piglets from local sellers and quality piglets are not availed by the farmers. Therefore organized farm may be setup by government for better piglets.
3. One of the major problems in pig farming in Tripura is the problem of marketing which may be mitigated to some extent by setting up clusters for marketing.
4. Due to the absence proper forward linkage middlemen are eating the vital and pig farmers are getting less. Middleman should be eliminated and to maximize the profit.
5. Tripura is having an apposite climatic condition for pig farming and the demand of pork is also in growth. Thereafter Projects/schemes may be offered from governments end for promoting rural entrepreneurs.
6. The demand of fodder is not fulfilled only through the kitchen waste or with the wild vegetables. PDF (Panchayet Development Fund) may be utilized for the development of fodder as piggery is exclusively common among the people.
7. There is a good demand of pork in the state and beyond the national borders too and on the other hand there is a positive and growing source of pigs. As there is a huge source of pigs, pork processing unit may also be setup in the city or in the villages itself from where the processed meat can be marketized in national and international markets.

Conclusion

The study on “Livestock based livelihood-with special reference to piggery” showed that there is great scope in pig farming. The farming kind is having potential to grow up. It seems that everything is in a status of hibernation. The entire system seems to cry out for a

spark. If pig farming is adopted as a major source, than it can not only lead the way to a sustainable livelihood but also an economically fatty lifestyle. Because the demand market of pork is tremendous outside the international borders. So scope is there to boom. If, being abide by all the codes of scientific farming by utilizing the booming pork market, than piggery can be synonymous to livelihood. Though there are many more constrains apart, but can be mitigated logically and can lead to a sustainable rural livelihood approach.

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Gender Aspects and Tribal Livelihood

Rights of Women over the means of Livelihood in Nagaland: A Study on Angami Tribe

Nazmul Hussain Laskar

Introduction

Nagaland situated at the extreme north east of India, is bounded by Arunachal Pradesh to the north, Assam in the west, Manipur in the South and Myanmar in the East. The total area of Nagaland is 16579 sq kms. The State is largely mountainous in terrain, with several ranges breaking into many spurs. The hills take the form of serrated ridges and are separated from one another by deep valleys through which streams and rivers make their way.

As its very name indicates, Nagaland is the land of the Nagas, a group of tribes racially and culturally distinct from other tribal groups. The Naga tribes belong to the Mongoloid racial stock. The exact number of Naga tribes is not known because they are now found not only in Nagaland but also in the contiguous areas of Manipur, Assam and Arunachal Pradesh, as also in Myanmar. There are 14 major Naga tribes in Nagaland alone, and the Angami is the fourth largest of them.

One can see from Table-1 on Nagaland's demographic aspect that there has been a rather high rate of population growth since 1961. In fact during the last decade we find a declining trend of population. Sex ratio is adverse to women. Both the high growth rate and the sex ratio are probably due to immigration, chiefly of males. The population density is relatively low chiefly because of the mountainous terrain. Literacy rates have been rising steadily during the past decades but female literacy is lower than that among males. What is significant from the demographic point of view is the high percentage of tribal population which makes Nagaland a tribal state.

Table 1: Demographic Data of Nagaland 1961-2011

Year	Population	Density	Growth	Sex Ratio	Literacy (Male)	Literacy (Female)
1961	369200	NA	14.07	933	24.04	11.34
1971	516449	32	39.88	871	35.02	88.61
1981	774930	47	50.05	867	50.06	84.00
1991	1209546	73	56.08	886	66.09	87.73
2001	1990036	120	64.41	909	76.04	56.87
2011	1980602	119	-0.47	931	83.29	76.69

Source: Govt. Of Nagaland 1972, 1990, 1998, Registrar General & Census Commissioner 2001, 2011.

The economy of Nagaland depends on agriculture. Shifting cultivation is the dominant mode of production. However, the Angami tribe practises a type of settled agriculture called terrace cultivation. Nagaland has had a troubled political history ever since the British tried to control its people. The political situation became more complicated after India's independence with widespread armed ethnic conflict. An end to this conflict is not yet in sight.

The Angami Tribe

The Angami constituted 8.06 percent of the Nagaland population. Most of the Angami inhabit the central and southern parts of Kohima district and parts of Dimapur district. Hutton (1921: 15) identifies four distinct groups among them viz. The Khonoma group, the Kohima group, the Viswema group and the Chakroma group. At present it is common to identify three groups chiefly on the basis of their geographic distribution. Those living in Kohima and the villages surrounding it, are the Northern Angamis, those living to its west are the Western Angamis and those to its south are the Southern Angamis.

The Southern Angamis identify themselves as the Zuonuo-Kehynuo and demand that this name be granted proper recognition as distinct from the Western Angamis called Tengima, and the Northern Angamis known as Chakri (Das 1987: 133-34). In fact, the Southern Angamis have not only clearly identifiable territory but also distinctive traditions in matters of their social structure, cultural practices and linguistic patterns. Hence the Southern Angamis are a distinct group of people forming part of the larger Angami tribe. That is the main reason why this paper deal primarily with the Southern Angamis. At present the Southern Angamis prefer to call themselves 'Japfuphiki' (those living in the vicinity of Mount Japfu).

According to tradition, the Southern Angamis are the descendants of two brothers named Zuonuo and Kehnuo (Sanyu 1996:28). In the process of migration and expansion, they formed ten villages. They are Kigwema, Viswema, Jakhama, Khuzama, Kedima, Kezoma, Phesama, Pfuchama, Mima and Mitelephe. Later Kezobasa, the eleventh village, emerged from Kezoma. The general information on these villages is given in Table-2.

The Southern Angami or the Japfuphiki area is a compact geographical unit, covering 403.8 sq.km including a good amount of forest. Information given in Table- 2 shows that most of the villages are large in area as well as in population. The density of population in 2001 was 67 which were lower than that of Nagaland. The higher sex ratio is also an indication that single male immigration is the main cause of the overall sex ratio of Nagaland.

Table- 2 (The villages of Southern Angami Area)

Village	Area in Hac.	Households	Population	Male	Female
Kedima	1230	380	2618	1273	1345
Kezocha	850	43	272	137	135
Kezoma	690	199	1437	720	717
Kezo Town	110	108	524	266	258
Kezo Basa	280	42	218	101	117
Mitelephe	1800	35	120	59	61
Chakabhama	420	99	599	301	298
Khuzama	3100	395	2116	1071	1045
Viswema	4600	829	5466	2683	2783
Sweba	4100	54	215	122	93
Jakhama	4500	803	4576	2436	2140
Jakhama Town	4300	211	1035	634	401
Kigwe Town	1700	97	402	198	204
Kigwe Basa	3700	08	24	14	10
Kigwema	1800	617	3346	1655	1681
Mima	1900	238	1716	848	868
Phesama	3700	335	1884	930	954
Phuchama	1600	103	701	368	333
Total	40380	4596	27269	13826	13443

Source: Government of Nagaland, Census 2001.

Means of Livelihood

It is possible to get an idea of the means of livelihood by looking at the nature of the economy and the occupational classification of the population. It is important to understand it in order to analyse the role women play in it. The economy of Nagaland depends mainly on subsistence agriculture with shifting cultivation as the principal mode of production. Shifting cultivation covers over 73 percent of the total arable land in Nagaland(Kelhou 1998:55). In the Southern Angami area settled terrace cultivation is practised. But there is also considerable shifting cultivation. While terrace cultivation provides food grains, chiefly paddy, shifting cultivation is the source of cash crops like potatoes and vegetables.

The occupational classification of the population as shown in Table-3 indicates that the vast majority of the workers in Nagaland(72.68%) are cultivators. About a fourth(25.54%) are classified as 'other workers', most of them are government servants because the government is the principal employer. The situation in Southern Angami area is similar ie 74.61 percent are cultivators. An important aspect of the occupational classification is that both in Nagaland as a whole and in the Southern Angami area in particular, more than 90 percent of the women workers are cultivators. This shows that women play a dominant role in agriculture. Two types of cultivation are practised by the Southern Angamis: Shifting(jhum) and terrace(panikheti). Terrace cultivation is by far the more important type. Women play a dominant role in both

types of cultivation. They not only contribute the major portion of labour but also exercise control over the different stages of cultivation and the final produce. Hence, Angami terrace cultivation may be termed female farming, an expression used by some scholars in the context of shifting cultivation(D'Souza 2001:52).

Table-3 : Economic Classification of the Population in Nagaland and Southern Angami, 2001

Area		Nagaland		Southern Angami		
Component	Total	Male	Female	Total	Male	Female
Population	1209546	641282	568264	27269	13826	13443
Main Worker(MW)	511497	299437	212060	12261	6354	5907
MW as % of Population	42.29	46.69	37.31	44.96	45.96	43.94
Cultivators as % of MW	72.65	59.77	90.83	74.61	60.02	90.30

Given the importance of cultivation as the principal occupation it is possible to conclude that land in general and agricultural land in particular is the chief source of livelihood. With this in mind , we shall now look at the position of women with regard to the control over their livelihood. Specifically, I shall examine the nature of women’s rights over land and other forms of property.

Traditional Rights of Angami women over the means of Livelihood

The traditional rights of the woman over the means of livelihood refer mainly to her right to different types of property. Among the Angamis, the term ‘property’ includes both immovable and movable items. The chief immovable forms of property are the house, the residential site, and all forms of land. Land itself is a comprehensive term as it includes arable land, water channels and forest areas. Items of movable property include agricultural implements and tools, weapons, personal objects like clothing, ornaments, livestock, stores of food grains and any other item that is considered valuable.

Property rights are well defined. Both men and women have rights over immovable and movable property but of interest to us are the woman’s property rights which can be examined in terms of her condition as a daughter, wife and mother. Like other Angamis, the Southern Angamis are patrilineal and men exercise authority. There are different types of property. First of all, there is property that is individually owned, as also what is owned in common by the lineage, clan or village. Because of the patrilineal system, ownership rights in common property are restricted to males alone. However, the women has the right to use overall common property.

Property owned by individuals can be ancestral or personally acquired. Under normal circumstances, a son inherits ancestral property and a daughter does not. But a daughter can inherit acquired property including land and house. However if a man does not have a male issue, the daughter can inherit even ancestral property. She can come with her husband and children and occupy that portion of the ancestral house that comes to her as her share. In such

a case, the patrilineal system requires that a symbolic transfer of a small piece of land and some household articles be made to the immediate male kin of the man who traditionally performs the funeral rites. If an unmarried daughter desires to live by herself, she has a right to build her own house, to cultivate a portion of the ancestral jhum land, to sell the produce and to maintain herself. She can use the surplus to acquire her own personal property. If she is given a terrace field as a gift by her father or brother's, she acquires ownership rights over such a field. Once such a gift is made, it is usually not claimed back by her father or brother. If she dies unmarried, such gifted land goes to the brother or to the person who looked after her. But it is possible that the land was given as gift under the condition that it reverts to her father or brothers after her death. In such a case, the daughter does not have the right of ownership but only the right to use. An unmarried daughter has rights over her personal property like clothes, ornaments and weaving equipment. These items of property are personal and she retains absolute right over them even when she gets married. At her marriage a daughter is given various gifts like clothing, ornaments, baskets and paddy. She may also get agricultural land from her mother that she personally owned. It is common for the mother to give her personal land to the eldest daughter.

In Angami society, a wife acquires certain rights in the property of her husband. As neolocal residence is the usual practice, the wife has a right to live in the new house though the husband is the owner. She also acquires the right to manage the property of her husband. With this she can cultivate the land of her husband, gather the produce and store it. She can decide what type of crops to grow, especially on jhum land. If there is a surplus, she can sell it without consulting her husband. In addition, she has the right over all domestic animals and their rearing. She can decide what animals to rear, when and how to dispose of them and so on. Thus she has control over the entire process of production, storage and disposal of agricultural produce. At her marriage a woman acquires rights over all the means of livelihood of her new household. The husband may be the owner, but it is the wife who manages and controls it.

A widow, who continues to stay in her husband's house, particularly if she has grown up children, enjoys the same rights as a wife. But a widow may return to her parental home for better care and support. If she has no children, she loses all her rights in her husband's property. If she has children, she continues to control and use the property of her husband because her son's will inherit it. She and her children may stay with her parents, but she continues to control and use her husband's property. Such rights are recognised and respected by all, including the members of her husband's lineage and clan. Thus the tradition confers on women considerable rights over the means of livelihood in general and land in particular.

Changes in Women's Control over the means of Livelihood

Social change in Naga society assumed multi-dimensional proportions after the establishment of British control in the areas they inhabited. The colonial policies and administrative procedures adopted by the British in dealing with the Nagas led to radical changes. The acceptance of Christianity by the Nagas and the spread of modern education were the other major factors of change. In more recent times increasing commercialisation and growing globalisation have further affected Naga society.

An important area of change in the Angami villages is the transfer of land. In recent times there has been an increase in the buying and selling of land. This is bound to reduce the control of women over agricultural land and therefore over the means of livelihood. Some women have begun to adapt to the changing situation by taking up non-agricultural occupations like retail trade, weaving etc. This gives them some independence. Besides, a growing number of Angami women have salaried jobs. They have taken up various modern occupations in towns. At present they control their salaries, but they are expected to help their families. At present many Angamis have taken up non-agricultural occupations and live in towns. Such households live away from the villages but women continue to exercise control over the means of livelihood. In Angami villages, there is a common practice for a man to hand over his entire salary to his wife who then spends on whatever is needed by the household. However, one is not certain that this practice will continue for long.

Thus in Angami society, tradition confers property rights on women within the context of agriculture. Even when there is a shift to non-agricultural occupations, she retains a hold on the income and expenditure of the household. These rights give a certain amount of freedom to women in the control and management of the household. But it must be kept in mind that Angami society is basically patrilineal. The most pertinent question is whether the patrilineal ethos will make sufficient space for women to retain their traditional control over the means of livelihood as further changes take place in the pattern of occupations.

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Change of Occupational Pattern among the Tribal Women in Tripura

Swapna Biswas

Introduction

Tripura is a small state in North – East India with a population of 36,71,032 people according to the census report of 2011. Out of this population, 0.83 million are tribal who live in the interior parts of the state in the hills. Economically the tribal population of Tripura may be classified into broad groups of settled cultivators and shifting (known as Jhum) cultivators. In the last few decades, their economic activities have shown commendable changes following an increased tendency of the educated section to seek employment industries and in the public sector. Women's education is given considerable importance. Their participation in activities outside, the domestic sphere has encouragingly contributed to the ensuring of a better quality of life and improved standard of living.

Objective of the Study

The present study aims to analyse the socio-economic status and the changing occupational patterns of the Tribal women in Tripura. The specific objectives of the study are:

1. To study the socio-economic status of the Tribal Women.
2. To analyse the changing occupational patterns of the Tribal Women.

Socio-Economic status of the Tribal Women

Education is very important in promoting upward social mobility. People with higher levels of education generally get good opportunities for social mobility – say, for getting better jobs, earning more money and maintaining a better life-style. On the other hand, social mobility of people may be restricted in absence of proper educational qualification. In tribal society, it is found that women are characterized by high incidence of literacy and perhaps this is one of the reasons of their low availability of employment opportunities in other services.

Data and its Interpretation**Table - 1 : Tribal Literacy as compared to Non-Tribal Literacy in Tripura.**

Year	Percentage of literates to the tribal population			Percentage of literates to the total non-tribal population		
	Male	Female	Total	Male	Female	Total
1981	33.46	12.27	23.07	57.53	39.93	48.73
1991	43.56	18.38	30.86	68.43	45.53	56.98
2001	53.46	24.29	38.86	79.33	51.44	65.38

Source : Census Report 1981,1991, 2001

The table depicting trend of tribal literacy as compared to literacy of non-tribals and the total population in Tripura.

Table - 2 : Tripura's Demographic Change:1981-2011

Year	Total Population	Tribal Population	Percentage of Tribal Total Population
1981	20530	583920	28.44
1991	2757205	8,53,345	30.95
2001	3200000	99200	31%
2011	3600000	1166813	31.76

Source : Census Report: 1981,1991, 2001 and 2011

It shows that the growth rate of population in Tripura has maintained more or less a steady increasing trend since the beginning of this century.

Changing Occupational Patterns of the Tribal Women

Urbanisation, more precisely migration of people from rural to urban areas, is also a measure of social mobility. Urban areas have become centres for industrial and business establishments and are providing improved and more satisfactory standard of life. More and more people, therefore, rush to urban areas in search of their livelihoods and to avail the facilities of the urban way of life. This movement changes the population composition, provides new labour and introduces the groups of people to a new cultural setting. All these result in greater social mobility.

It also appears that although the trend of female literacy is on the increase over the decades, considerable disparity in the rates of literacy between tribal and non-tribal women exists in the society. Women, too face discrimination in the occupational field and find it extremely difficult to advance in social status except the status they gain from their husband. They are primarily placed in the job that require lower skills, less education and lesser pay. Again the insecurity of many women's position makes them vulnerable to salary discrimination and low ceiling on advancement of opportunities. A comparative study in respect of social mobility chances between tribal and non-tribal women will again indicate that tribal women face serious discrimination in comparison to non-tribal women of Tripura.

Table - 3 : Restricted Mobility of Tribal Women in Respect of Labour, Cultivation Literacy etc. as in 1981

Year	Characteristics	Women of Tripura	Tribal Women	Non-tribal Women
1981	Women labourers	28,634(2.8%)	20,268 (7.8%)	8,048 (1.13%)
1991	Women cultivators	34,174(3.4%)	30,408 (10.6%)	3,766 (0.52%)
2001	Women other workers	24,299(2.43%)	3,172 (1.11%)	21,107 (2.96%)
2011	Women literacy	3,19,398(32%)	35,126 (12.27%)	2,84,272 (39.93%)

Source : Census Report 1981,1991, 2001 and 2011

In 1981, the literacy of tribal women was only 12.27 per cent as against 39.93 per cent of non-tribal women literacy. The percentage of tribal women as unskilled labourers and cultivators are on higher side (7.8 and 10.6 respectively) in comparison to those of non-tribal women labourers and cultivators (1/13 and 0.52 respectively). Again the percentage of OW (the other worker) which help in increasing social status much lower (1.11%) for the tribal women than that of non-tribal women. All these are indicators of relatively low social mobility of tribal women. At present there is a tendency of increasing the above percentage of tribal and non-tribal labourers and cultivators.

Table - 4 : Percentage of Workers to total Tribal Male and total Tribal Female population in 1981, 1991, 2001, Tripura.

Year	Total		Rural		Urban	
	Male	Female	Male	Female	Male	Female
1981	54.13	27.86	54.27	28.06	44.69	10.96
1991	45.93	25.32	45.89	25.45	47.5	16.47
2001(Approx)	40.87	20.52	40.97	20.51	40.17	10.56

Source : Census Report: 1981,1991, 2001

It is evident from the table that the work participation rate of tribal women is not very much lower.

Table - 5 : Proportion (Percentage) of workers among general Males and Females, Tribal Males and Females and Non-Tribal Males and Females in 1981, 1991, 2001, 2011, Tripura

Year	General (Tribal+ Non-Tribal)		Tribal		Non-Tribal	
	Male	Female	Male	Female	Male	Female
1981	50.71	12.77	54.13	27.85	49.36	6.71
1991	47.56	13.76	45.92	25.32	47.81	8.5
2001(Approx)	45.59	10.67	40.89	20.43	40.85	5.7

Source : Census Report: 1981,1991, 2001

This table shows that Male-Female difference in the participation rates is higher among the non-tribal than that among the tribals in Tripura. Non-tribal population means total population minus total tribal population. The table indicates that in the tribal society the number of working women may be less that of the men but in this respect they are better of than their counter parts in the non-tribal society of the state among which women are economically more dependent on men.

Table - 6 : Proportion (Percentage) of workers among Tribal Females and Non-Tribal Females in 1981, 1991, 2001, Tripura.

Year	Total		Rural		Urban	
	Tribal	Non-Tribal	Tribal	Non-Tribal	Tribal	Non-Tribal
1981	27.86	6.71	28.06	6.37	10.96	7.81
1991	25.32	8.5	25.45	8.35	16.47	9.03
2001(Approx)	23.39	10.8	23.56	10.39	22.53	11.08

Source : Census Report: 1981, 1991, 2001

This table is evident that the economic participation of tribal women is much higher than that of their non-tribal counterparts in Tripura. Till today it is found that the level of participation rate of non-tribal women is lower vis-à-vis that of tribal women.

Table - 7 : Occupational Pattern of Tribal Men and Women in Tripura

Occupation	1981		1991		2001	
	Male	Female	Male	Female	Male	Female
Cultivators	66.89	55.33	58.58	54.24	50.52	52.34
Agri. Labourers	25.15	37.38	27.23	36.65	30.32	35.76
Livestock Allied activities	1.89	1.85	1.70	2.22	01.99	2.89
Mining & Quarrying	0.05	—	0.24	—	0.74	—
a)Household Industry	0.14	1.46	0.27	0.52	0.77	0.42
b)Other than Household Industry	0.72	1.2	0.75	0.74	0.90	0.77
Construction	0.28	.07	0.25	0.07	0.29	0.07
Trade & Commerce	0.41	.14	0.99	0.23	1.25	0.38
Transport, Storage & Communication	0.27	0.04	0.55	0.05	1.00	0.06
Other Services	4.20	2.53	9.44	5.28	12.22	7.31
Total:	100.00	100.00	100.00	100.00	100.00	100.00

Source : Census Report: 1981,1991, 2001

The table gives the industrial distribution of tribal male and tribal female main workers of Tripura. If we compare the occupational pattern of tribal women with that of tribal men, it is found that in all the Census years of proportions of cultivators are higher among tribal male workers than that among tribal female workers. This may probably be attributed to the fact that the process of proletariat situation has been more intense among tribal women than tribal men over the period between 1981 and 2001.

Among both tribal men and tribal women workers share of employment in services is very small and it is smaller among tribal women than among tribal men although both of them have made some gain in this respect during the decades 1981 and 2001. This indicates that the expansion of avenues of paid and secured employment is not shared equally by tribal men and tribal women are characterized by high incidence of illiteracy and perhaps this is one of the reasons of their low availability of employment opportunities in 'other services'.

The Major Findings

From the Census Report of 1981, 1991 and 2001 and also few data from 2011, it is evident that Tribal people have been coming out of their traditional Jhum economy to participate in a number of works like Govt. service, Industry, Trade, Transport etc. which they did not do before. In this study, the three major factors behind the change have been identified: literacy, reservation policy and cultivable variables. We find that the literacy rate among the Tribals of Tripura increased from 27.4% in 1991 to 44.6% in 2001, reaching 56.21% in 2011. The change is encouraging with the graph moving consistently upward.

The tribal reservation policy of the government has ensured education uplift and an altered occupational pattern. A large number of tribals including women have access to the Government sector. The third factor behind the improvement is consequent upon the shift from traditional crop cultivation to rubber plantation. It has given an immense economic boost to tribal families that have traditionally occupied large landholdings.

The numbers of NGOs are associated with the implementation of various components of the rubber-based projects. The continuous presence of the NGOs in the project has helped to ensure a firm link between the implementing of Government agency and the target group.

The Rubber-based development projects proved to be successful in ensuring employment to participant tribal families during the gestation period and provided them with attractive returns to enable the families to cross the poverty line and improve their socio-economic conditions considerably. The pre and the post scenario of some rubber plantation centers for the Jhumias have clearly demonstrated the positive impact of rubber plantations in changing the life style and socio-economic conditions of the underdeveloped tribal families of Tripura.

Now a day Occupational pattern of Tribal population has changed. The analysis of the census data on Occupational pattern of tribal women for the period between 1981, 1991, 2001 and 2011 clearly shows that occupational pattern has diversified.

It is also observed that the proportion of Cultivators are higher among male workers than that among female workers in all the census years, although in both cases it has been declining over the decades literacy rate among the tribal people has increased. Specially tribal women are advanced in education, occupation, industry trade and commerce, transport,

communication etc. Although we can say from 1991 census, occupational pattern of tribal women was not good. Tribal people have been coming out of their traditional jhum economy to participate in a number of works like Government service , Industry, Trade, Transport etc. which they did not do before.

Concluding Remarks and Policy Implication

In the three decades the change of occupation of tribal women of Tripura towards shifting from cultivation to other occupation is yet to reach the level of other neighbouring population such male, non-tribes. The little upward change has been occurred due to improvement in literacy rate among, the tribal women literate, 1991, 2001, 2011. Another important factor of changing pattern in occupation of tribal women is due to the reservation policy of Government. The reservation policy has encouraged more access the education and entrepreneurship opportunities and tribal women due to larger share of tribal women population in comparison to their counter parts in the other parts of the country.

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Sericulture - an Opportunity to meet Livelihood Challenges of the Tribal Women

G B Singh, T K Biswas, B.B. Bindroo and Nirmal Kumar

Introduction

The present strategy of rural development in India mainly focuses on poverty alleviation, better livelihood opportunities, provision of basic amenities and infrastructure facilities through innovative programme of wage and self-employment. Poverty is biggest challenge in India. Inomy. The concept of nuclear family has limited the availability of land, the limited cash return and agriculture being confined to one or two seasons in the year, have made villages to look for supporting rural industries, such as sericulture. It starts with rearing of silkworm for production of cocoons and then cocoons are utilized by the reelers and weavers for production of yarn and fabrics. Sericulture helps millions of tribes and improving their socio-economic status (Brahma et al. , 2011). The main occupation of the tribal is farming and they practices different types of agricultural & horticultural crops (Bhattacharya & Darlong,2013). Accordingly, an attempt was made to study the various socio-economic aspects of sericulture in Tripura state and assistance provided by the Government sector to establish sericulture - an opportunity to meet livelihood challenges of the tribal women

Cluster Location

The sample study was carried out in Champaknagar sericulture cluster of West Tripura district, Tripura state, was purposely selected for the study based on potentiality and production of mulberry cocoons. The survey was conducted with the beneficiaries covering sericulture areas. Survey result shows that Mulberry sericulture is practiced in this cluster for the last 20-22 years in an unorganized way. However, during 1995-96 a Mulberry Silkworm Rearers-cum- Reelers cooperative Society was formed and significant changes took place in the field of Sericulture. Society is being purchase the cocoons as per Govt. approved rate grade wise. Champaknagar cluster is having 325.5 acre mulberry plantation covering 661 beneficiaries. During 2012-13, 26,600 dfls were reared and 9,100 kg cocoons produced.

It is evident that sericulture is practiced by schedule tribes (94 %) followed by schedule cast and artisan. Among them 97 % families are engaged in labor work. 18 percent workforce

associated with sericulture activities are in between 21-30 years age group, 32 % between 31-40 years and 40 % are 41-50 years age group. 19 % persons involved in sericulture are illiterate and about 50 % are semi literate. Only 24 and 07 % are primary and secondary level educated. Almost all the Tribal women attached with sericulture activities are member of one or more than one organization. Only 2 % sericultural families are having more than 2.1 acre land and 78 % are with less than 0.5 acre land. Most of the families (81 %) are having kutcha house and 14 % are having huts.

By the analysis of the result it is clear that mostly middle aged semi literate tribal women are involved in sericulture occupation. These farmers are holding small land area. However, they are living together and indulge in sericulture activities. Sericulture is an occupation in which children or even age old persons are involved. This may be one of the reasons by which mostly beneficiaries are living and working together.

In Tripura, a large number of families (85.4%) reside in kachha houses while only 8.4% families have pucca houses and 6.2% have kachha roofs but pucca structure (Bhattacharya & Darlong, 2013). Almost same pattern except pucca house structure are observed with surveyed farmers also. Most of the farmers are having kachcha houses many of them constructed these house by taking the financial help under Catalytic Development program (CDP) which is the foremost programme of the Govt. of India for the development of Sericulture in the country (Saratchandra, 2005 : <http://www.csb.gov.in/>).

Role of Mulberry Rearers Cooperative Society to Empower the Beneficiaries

Sericulture has emerged as a profitable employment avenue for rural folk, particularly women in Tripura. Various government schemes for sericulture, which involves growing of mulberry trees for the leaf (which is the only food for silk worm), rearing of the silk worms and spinning of cocoon for the silk thread, are in operation in the state. Women entrepreneurs have been given special preference under the schemes. Tribal's particularly the Jhumias (nomadic farmers who slash and burn forests for cultivation) are also involved in sericulture as an alternative to Jhum cultivation. Most of the beneficiaries use their wasteland to grow mulberry trees where farmers rear silkworms till it reaches the spinning stages of cocoon.

In Tripura, Mulberry Sericulture is being practiced through cluster approach. There are total 18 nos. Sericulture Clusters are functioning effectively for production Mulberry cocoons in the State. The Mulberry Rearers have been organized into 12 nos. Mulberry Rearers Cooperative Society (MRCS) which are maintained backward and forward linkages for its member beneficiaries. All the members are women and actively participating in schematic activities from plantation to silk fabric production (DHHS, 2011).

After formation of cluster, cooperative society with the women only was formed. Society is known as Mulberry Rearers Co-operative Society (MRCS). All members are beneficiaries of the co-operative society belong to women especially with focus to tribal and other backward communities. Executive committee of the co-operative society is formed on election from the women member of the society. The Cluster & MRCS are responsible for overall development of Sericulture in the cluster areas. All monitory benefits are provided by the MRCS & Cocoons are purchase from the rearers with cash payment for elimination of middlemen. After purchase cocoons are deposited to reeling unit for processing of raw silk yarn.

In Tripura, around 4,500 beneficiaries are directly involved in the subsidiary occupation further improving their socio-economic status. Besides imparting technical know-how, the government also distributes silk threads to the weavers for producing the finished products like sarees, dress material through the handloom cluster co-operative societies.

Sericulture in Tripura - Improve the Livelihood of Tribal People

Sericulture in Tripura has long been associated with the people however, it is still sidelined by the people. It is an agro based cottage industry, capable of generating substantial and gainful employment in rural area with very little capital investment. Sericulture can be practiced in unutilized land of rural area. The eco-climatic nature of state is also favorable for mulberry sericulture.

This is one of the promising activities that small and marginal farmers could have been benefited in their economic prosperity and social dignity with the support from the Government in the pursuit for economic prosperity. Nevertheless, it is not creating buzz in the state. Sericulture industry is capable of generating substantial and gainful employment in rural areas of the State through mulberry cultivation, silk worm rearing, reeling, twisting and weaving. Effective measures have been taken to increase the productivity level through adoption of the latest technologies for sustaining the activity for better returns. Tripura adopted mulberry sericulture as silk activities since last one decade or more. Activities are more or less government farm based. Initially areas, where mulberry sericulture was known to the local people (especially the women), were identified and each such area were selected for formation of clusters. Details survey for getting information or availability of land and other basic data of the area have been conducted in 2009-10. Local Panchayats have been involved in all respect including the selection of beneficiaries, identification of land etc. At first each cluster area was of 5-6 km radius. Subsequently, area was expanded and more beneficiaries were brought under the activities. (<http://cultivation-information.blogspot.in/2011/11/sericulture-in-tripura-sidelined.html>)

Women Sericulture Project

A special project was launched in State in the name of “Women Sericulture Project” in collaboration with Human Resource Department, Government of India to promote the participation of women in sericulture industry in larger way. The rural women have come forward to take up sericulture industry as a support income of their family. Now a days by utilizing a minimum area (0.5 acre) of rainfed unutilized land a Tribal women could able to earn a minimum additional income of Rs. 7000-8000 / year by maintaining the house hold activities. More than 7500 nos. of rural women are directly involved with sericulture industry (DHHS, 2006-07).

Infrastructure available with State Sericulture Department- (DHHS, 2011).

Tripura state sericulture department having all the following required infra structures for the development of sericulture in the area.

Grainage Centre	01
Sericulture Cluster	18 nos
Mulberry Rearers Co operative Society	12
Chawki Rearing Centre	20
Multiend Reeling Unit	04
Twisting Unit	04
Powerloom Units	02
Printing Unit	01
Silk dyeing Unit	01
Sericulture Training Institute	01

The Silk Saree produce by the Beneficiaries

Since 1994-95 a number of weavers started production for gray silk sarees on pit loom. But due to low wages and aloofness by the marketing agencies, the weavers diverted into other productions. In 2007-08, a revivification for production and marketing the silk products through Primary Weavers Cooperative Societies was taken by the State Directorate of Handloom, Handicrafts and Sericulture. Initially, 5- Primary Weavers Cooperative Societies was selected for production of silk item by increasing wages. In 2010-11, about 50 weavers are producing silk fabric in the State. Subsequently, tribal weavers in-particulars also started producing value added silk fabric through loom with decorative tribal motive. A modern sales outlet namely - 'Tripura Silk Show Room' was started marketing exclusively for silk fabric from 2007-08. To ensure the buyers regarding quality of product this show room is registered under SMOI for 'Silk Mark'. The Hon'ble First Lady Governor of Tripura released the 'Silk Mark Level' in Tripura state in 2008-09 through an august occasion. (www.destripura.nic.in)

Helping Hand of Government for Sericulture- an alternate Source of Income

The Government of Tripura through sericulture department having realized the potentiality of sericulture in the state has been pursuing for spread and popularization of sericulture to the farming communities. The state Government of Tripura has, in its pursuit, supply Mulberry cutting, Fertilizers and other input costs to the farmers in free of cost. In addition silkworm seeds (Certified), chandrike and chemicals for controlling the disease etc are also provided in free of cost. (<http://cultivation-information.blogspot.in/2011/11/sericulture-in-tripura-sidelined.html>)

- **Silkworm rearing house**- One of the primary requirement for silkworm rearing, the house is provided with the monetary support of the sericulture department so that farming communities do not face the initial financial hiccup in sericulture that is silkworms rearing.
- Financial support for **new plantation, renovation, rearing appliances, and disinfectant** materials.
- Financial support for creation of **irrigation facilities**
- Financial assistance for the **purchase of fertilizers**

- **Two months training** imparted on plantation and silkworm rearing.
- Ensured **cocoon market**
- Assurance of **self employment** in rural areas.
- **Health insurance** to the beneficiaries.
- **Exposure visit** to sericulturally advanced states, viz; West Bengal, Tamilnadu, Karnataka and Andhra Pradesh.

Role of MGNREGA for the Implementation of Sericulture Scheme

Sericulture is the alternate source of additional income generation, which provides employment to the respondent throughout the year thus stops the inter-state migration. According to the MNREGA (Mahatma Gandhi National Rural Employment Guaranty Programme) population must receive 100 days employment in a year where as sericulture provides 151-200 days employment/year therefore the development of sericulture in the Tripura state is successfully linked with MNREGA scheme which yielding good results and creates an opportunity to meet livelihood challenges of the tribal women. Majority of the respondent were practicing agriculture before adopting the sericulture but later on they switch over to the sericulture (Dewangan, et al 2010).

Financial Assistance provided to the Beneficiaries under MGNREGA

- The unit cost of raising 1.0 acre new mulberry garden
- Renovate of existing mulberry garden
- For fencing the mulberry garden with bamboo or plastic net
- To create irrigation facility.
- Establishment of germplasm bank of mulberry varieties
- Purchase of mulberry saplings from the selected farmers for propagation.

Strategies for Increase of Bivoltine Silk during 12th Plan

Considering the homestead condition of environment plays around the year, 4 major crops are recommended for the State (Feb-March, May-June, Aug-Sept & Nov-Dec). Out of 4 crops only 2 crops i. e. Feb-March & Nov-Dec is favorable for Bivoltine rearing. For the rest 2 crops, the season does not permit for Bivoltine rearing due to high temperature & humidity. Hence, initially one Cluster is chosen for Bivoltine Centre which will be extended to other cluster areas of the State gradually to increase the Bivoltine Silk.

All the respondents attributed the impact by Sericulture, Conservation of environment, No cutting and felling of trees, Inter state migration is checked, Local employment is generated, served as additional income generating source, Regular savings habit has been developed, Reduction of human pressure on the forest. These observations were in total agreement made by Dewangan, et al 2011.

Among many agro-based cottage industries in India, in Tripura sericulture provides employment generating opportunities to rural poor and tribal folk. Largely the silk goods are purchased by the urban rich and middle class consumers which are estimated around 57% of the final value of the silk fabric in the rural areas (Gangopadhyay, 2009)

Income from the Sericulture

Per capita income is a unit to measure average income of an individual derived from the income of geography, such as a country or state or city. It is calculated by taking a measure of all sources of income of geography and dividing it by the total population. The per capita income of Tripura state is Rs. 50,750=00 which is at ninth place and better than Manipur (Rs. 32,284=00) and Assam (Rs. 33,633=00) among North Eastern States. As it is evident that a sericulturist of the Tripura state annually earn 8-9 thousand /0.5 acre mulberry which constitute about 18-20 % of their total earnings and having the potential to increase up to 35 %.(<http://trak.in/tags/business/2012/03/30/average-per-capita-income-indian-states/>). Therefore sericulture is an ideal business for the development of Tripura rural economy without any adverse effect. Which empower the tribal women to earn their livelihood and helps them to occupy the prestigious status in the family.

Additional Income

Earlier the mulberry saplings are generally raised in Govt. Farm and supplied to beneficiaries at free of cost. However, now mulberry saplings are being raised in village sector and procured by the department by paying the money to sapling raisers for supply to other beneficiaries. Thus the beneficiaries could also able to earn good earnings in year.

Future Strategies to develop Sericulture - an Opportunity to meet Livelihood Challenges of the Tribal Women

The Government although have done enough to attract the small and marginalized farmers should explore the idea with well to do farmers too. Unless, there is mass movement and exemplary result by anyone, people who are connected with may not gets the real life sharing inspiration. Sericulture is one such area which can create several steps of linkage in employment generation especially in rural areas. Hence there is a need for holistic development of sericulture programme for motivation and development which calls for strong and bold policy decisions at the highest levels. Let us explore the sericulture for improving the rural economy

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Sericulture : A Challenging and Prospective Livelihood for Tribal Women in Tripura

Soma Datta and Sharmistha Chakroborty

Introduction

Tripura is one of the small state of North East region which has 8 districts, geographically isolated with poor communication means. So the upliftment of socio-economic status of rural population is an uphill task. Sericulture is a proven tool that provides self employment to the farmers. This is because Sericulture activities starting from mulberry garden management, leaf harvesting and silkworm rearing is more effectively taken up by the women folk.

Tripura has unique traditional design and arts in Handloom textiles. Silk is the queen of textiles. Silk yarn is a very delicate fiber obtained from Lepidopteron insect called Silk moth. The productions of silk from the silk worm by rearing practices on commercial scale are called Sericulture. Although a number of species are found producing silk but only few species are used for Sericulture industry such as *Bombyx mori*, *Anthera assama*, *Anthera pahia*, *Attacus ricinii*. *Bombyx mori* is most widely used and intensively studied silk worm species. China is the native space of this silkworm but now it has been introduced in all the silk producing countries. It is called Mulberry silk worm because the natural food of this worm is mulberry whose scientific name is *Morus alba* Linn, *Morus indica* Linn.

The process of Sericulture in Tripura was started with Eri silk Industry and continued up to 1973-74. Since 1975-1976, deviating from normal trend of North East region Tripura Sericulture switched over completely towards Mulberry culture. Initially there were problems but with the passage of time and the guidance of the Central Silk Board (CSB) it has now established. From 1994-95 Government has given a special emphasis on development of sericulture with the view to utilize the unused tilla land and involve the rural masses in the field of Sericulture. To facilitate larger participation of rural women in Sericulture and highlight their active involvement in the sericulture activities the Directorate Of Handloom, Handicrafts and Sericulture has taken up special steps through implementation of special projects for women beneficiaries which support them as additional source of income of her family who can earn on average Rs 15,000/—20,000/- in 4 seasons of a year. In Tripura land holding capacity is very

poor and hence per unit 0.5 acre of land has been considered for raising of mulberry garden by the beneficiaries under rain fed land and hence they could able to harvest hardly 4 crops in a year and thus the sericulture in the state has been considered as subsidiary occupation.

Method

A survey was done through interview with beneficiaries of Vrigudasbari under Champaknagar Cluster; Grainage unit, Indranagar and Dept. of Handloom, Handicrafts and Sericulture, Gorkhabasti, Govt. of Tripura.

Observation and Discussion

At present, in Tripura 9012 numbers of beneficiaries has taken up Sericulture as additional source of income of their family and out of this nearly 80% women are beneficiaries. In Tripura the Sericulture schemes are being implemented through cluster approach. It was informed that among 8 districts Sericulture cluster are present in 7 districts except in Unokoti district. There are 18 numbers of clusters and 13 no. of Mulberry Rearer's Cooperation Societies (MRCS) are present in Tripura. From 2007-08 to 2011-12 the no. of MRCS was 10, in 2012-13 it was 18. Beneficiaries were 2531 in 2007-08, where AS in 2012-13 it was 9012; total area covered for plantation of mulberry plant is 1750 hector. Among the 18 clusters, Champaknagar cluster is one of the best cluster in West district of Tripura which is fully runs only by Tribal Women. The President of MRCS, Smt. Koministpati Rupini w/o Sri Budhi Rupini of Champaknagar informed all about their Cluster and informed about some successful tribal women namely Usha Debbarma, Bibiham Rupini, Ganga Rupini, Rani Debbarma, Rajlaxmi Debbarma, Chandraham Rupini. They are very active and earning more money as a result they provide support their family. There are 4 sub-clusters in champoknagar - Vrigudasbari, Sadhupara, Nowagaon and Tulakona. About 1237 beneficiaries (up to Feb' 13) are involved is working under chmpaknagar cluster. MRCS is in practice for the 20-22 years in Champaknagar area. From 1995-96 remarkable changes took place in the field of sericulture. At Badharghat, Udaipur, Santirbazar and Panisagar there are 4 reeling units are functioning. Three(3) twisting unit present at Badharghat, Indranagar and just installed at Santibazar. Twelve(12) power loom units are present there and another Twelve(12) machine will be implanted in near future. From the Table no. 1, it was revealed that number of cluster, MRCS, Number of beneficiaries, production area, production of cocoon and silk yarn is increasing gradually. Raw silk produced in the state is utilized to prepare 100% pure silk finished fabrics by the handloom and power loom weavers in the state. During the year of 2007-2008, 543 pieces of silk sarees were sold; it was 3969 in 2011-12 and 4005 in 2012-13. The grainage unit established at Indranagar, Agartala. At present the target production of disease free laying (DFL's) is fixed up to 70Percent of total yearly consumption of the state. Establishment of grainage is necessary to provide good quality of seed to the rearers. Due care should be taken of the 'crop of sericulture' for seed production from the very beginning i.e. the caterpillar stage, by providing them with proper nutrition and protection from the attack of disease.

In Champaknagar, 5527 thousand fund was utilized for 2011-12; in 2012-13 it was 7634 Thousand. Number of rearing house was 110 in 2009-10, 127 during 2011-12. 15, 235 DFL's was supplied to beneficiaries during the year of 2010-11 and total production of cocoon was 7800.00Kg. During 2011-12 and 2012-13 DFL's was supplied 24,000 and 13,600 respectively. Total cocoon produced in 2011-12 2012-13 as 8500.00 and 6100.00 (up to Sept, 2012). Champaknagar MRCS was established in 1995, bearing regd. No. 1793. Society is working mainly in the area of Jirania and Mandai Rural Development Block.

Objectives of Champaknagar MRCS

1. To raise the socio-economic standard of silkworm rearers and reelers.
2. To arrange purchase and sale of the silk cocoons and yarns of the members for their best advantage as well as benefits.
3. To purchase tools and kits as required by the members for mulberry cultivation, silkworm rearing etc.
4. To borrow advance, loan through the members on the pledge of their product.
5. To disseminate among the members a knowledge the latest technology improving Sericulture.
6. To act as an agent of Govt. or other institution.

Management of Champaknagar MRCS

The Board of Directors consists of nine members. Six members from general body for three years, one person from Directorate, customarily acts as Managing Director (MD). A staff each from Dept. of Co-operative, Govt. of Tripura and the Financing Bank is also included. After the full board is constituted by election and nomination, they will elect a President and Vice-President of the Board.

Way of Action of Champaknagar MRCS

1. Firstly, a joint survey is done by the field staff of sericulture cluster and the local Panchayat. The name of the selected villagers whose suitable land is between half to one acres is recorded.
2. They have to deposit Rs. 11/- (Rs. 10/- as membership fee and rs. 1/- as entry fee to the society) per head.
3. After that training for gardening for a month is given to them and a stipend provided for successful completion of the training.
4. After scrutiny for preparation of their own garden the rearers are being assisted from MGNREGA fund also CSBs share RS. 2200/- if his/her garden area in 0.5 acre.
5. After one year of plantation of mulberry, they are trained for month for silkworm rearing and a stipend is given.
6. Now the villagers are ready to be a rearer for the next crop.
7. A rearing house is built for an amount of Rs. 50,000/-.

8. Irrigation facilities are provided.
9. Tools and kits are provided to the beneficiaries.
10. Disinfectant and medicine are also provided to the beneficiaries.
11. DFL's cost@Rs.5/- per DFL's is being collected from the rearers to meet up the DFL's cost at state Grainage unit/NSSP,Banglore.
12. The society is being purchased cocoons from the rearers a sper Govt. Approved rate. A Grade-Rs.220/- , B Grade-Rs.160/-, C Grade-Rs.85/- per Kg. (2012-13). Grading depends upon production of cocoon from DFL's.

For betterment of Sericulture and production of quality products (i.e.,cocoon and silk yarn) the Central Silk Board. Govt. of India has come forward with financial and technical support under CDP (Catalytic Development Programme) with collaboration of State Govt. (CSB-80/-, State-10/-, Beneficiaries-10.The raw silk is being purchased by Tripura Apex Weavers Co-operative Society Ltd. and they are the consumer of the raw silk is and silk fabrics. THHDC has established glamorous show-room for silk sarees at heart of the Agartala city which is directed by Muhuripur Tant Shilpa Samabay Samity and Sarees are being sold by the use of logo of Central Sericulture Research Centre.

Conclusion

The poor and economically challenged TRIBAL women farmers/rearers are really benefitted through the Sericulture. They not only earn considerable money to run their family but secured a dignified position in her family and society. Thus the mulberry cocoon rearing earns a self respect and also uplifts the socio-economic structure of the poor TRIBAL women of that area.

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Table - 1: Sericulture in Tripura at a Glance

Important parameters	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
No. of Cluster	10	10	10	10	11	18
No. of MRCS	10	10	10	10	11	13
No. of Beneficiaries	2531	873	1208	1250	1323	1827
Area under plantation (hector)	1265.5	436.5	604	625	661.5	1750
Cocoon production(K g.)	16500	17500	19260	29260	31932	33120.6
Silk yarn product(Kg.)	102	107	109	1312	1972	1965
Production of Silk sarees	543	2143	2285	2538	3969	4005

Table - 2: Plantation Statement in Champaknagar Cluster

Year	No. of beneficiaries	Area in Acre	Fund Utilized(thousand)
2011-12	514	258	5527
2012-13	723	325.5	7634

Table - 3: Production of Cocoon in Champaknagar Cluster

Year	DFL's(thousand)	Total cocoon production in Kg.
2010-11	15,235	7800.00
2011-12	24,200	8500.00
2012-13	13,600	6100.00(up to Sept,2012)

Role of Institutions on Tribal Livelihood

Financial Inclusion amongst Tribals in North-East India : An Analytical Study

Ratan Deb

Introduction

Inclusive financing is the prerequisite to make the nation's goal of inclusive growth in reality and for sustainable economic development. As a strategy for economic development, inclusive growth aims at making product and services, including financial services, available to under privileged section of the society at an affordable cost. The under-privileged section of the society mainly consists of scheduled castes and scheduled tribes households, marginal farmers, landless labourers in rural India are yet to be allowed the benefit of formal financial services. The 49.77% of Scheduled Caste households, 63.68% of Scheduled Tribes households and 48.58% of Other Backward Class households in India are affected by financial exclusion. According to PIB, Government of India, 2nd May, 2013, out of total 89.3 million households in the country, 45.9 million farmer households do not access from either institutional or non-institutional sources of credit. 95.91% of Farm households of total households of Northeast region are not accessing credit from formal sources which adversely affects the tribal economy.

Financial Exclusion emerged as social evil in developing country creating hindrances in the developmental process of the national economy and encourages in increasing the level of poverty which ultimately led to strengthen the 'Rich- Poor' divide. Reserve Bank of India and Government of India both have taken measures in removing such evils namely financial exclusion and to bring financially excluded people under the umbrella of financial inclusion. The following initiatives were taken by RBI for financial inclusion:

- Introduction of 'No-Frills' account ,
- Relaxing 'Know Your Customer' (KYC) norms
- General Purpose Credit Card (GCC) Schemes
- Role NGOs, SHGs and MFIs
- Business Facilitator (BF) and Business Correspondent (BC) Models.
- Nationwide Electronic Financial Inclusion System (NEFIS)
- Project Financial Literacy National Rural Financial Inclusion Plan (NRFIP)

- Financial Inclusion Fund (FIF)
- Financial Literacy and Credit Counselling centres (FLCC) ,
- Financial Inclusion Technology Fund (FITF)
- SHG Credit Linkage Model

According to Rangarajan’s Committee “Financial inclusion is defined as the process of ensuring access to financial services and timely and adequate credit was needed by vulnerable groups such as weaker sections and low income groups at an affordable cost.” It is also termed as delivery of banking services at an affordable cost to the vast sections of disadvantaged and low income groups.

The definition of financial inclusion according to United Nations as under: “A financial sector that provides access for credit for all bankable people and firms and saving and payment services to everyone. Inclusive finance does not require that everyone is eligible to use each of services but they should be able to choose them if desired.” Asian Development Bank defines the financial inclusive as “Provision of broad range of financial services such as deposits, loans, payment services, money transfer and insurance to poor and low income households and their micro enterprises.”

The status of financial inclusion in India has been assessed by different committees in terms access to basic banking services by poor and weaker section. The self-help group (SHG)-bank linkage Programme has emerged as the major micro-finance Programme in the country and is being implemented by commercial banks, RRBs and cooperative banks.

Table - 1 : Key Statistics on Financial Inclusion in India

	Share with an account at a formal financial institution			Adults saving in the past year		Adults originating a new loan in the past year		Adults with a credit card	Adults with an outstanding mortgage	Adults paying personally for health insurance	Adults using mobile money in the past year
	All Adults	Poorest income quintile	women	Using formal accounts	Using a community based Method	formal financial institutio	From Family friend				
1	2	3	4	5	6	7	8	9	10	11	12
India	35	21	26	12	03	08	20	02	02	07	4
World	50	38	47	22	05	09	23	15	07	17	07

Source : Asli Demirguc-Kunt and Klapper, L. (2012): ‘Measuring Financial Inclusion’, Policy Research Working Paper, 6025, World Bank,

Table -1 highlights the survey on financial inclusion conducted by World Bank team in India between April-June, 2011. It is observed that in India 35% of people had formal accounts

which are 15% below the world average. In terms availing of credit card and mobile banking facilities the position of India is not encouraging only 2% & 7% respectively against the world average of 7% for each category.

Table -2 : Progress of SCBs in Financial Inclusion in India

SR	Particulars	Mar 2010	Mar 20 11	Mar 20 12	Quarter ended June 12
1	Total No. of Branches	85457	91145	99242	99771
2	No. of Rural Branches	33433	34811	37471	37635
3	Banking outlets in Villages with population >2000	37791	66447	112130	113173
4	Banking outlets in Villages with population <2000	29903	49761	69623	74855
5	No Frill A/Cs (No. In million)	73.45	104.76	138.50	147.94
6	KCCs-Total-No. In million	24.31	27.11	30.23	30.76
7	KCCs-Total-Amt In billion	1240.07	1600.05	2068.39	2094.00
8	GCC-Total-No. in million	1.39	1.70	2.11	2.29
9	ICT Based A/Cs-Transactions (No. In million)	26.52	84.16	141.09	45.96

Source : Keynote Address by Dr. K. C. Chakrabarty, Deputy Governor, RBI, at the BIS-BNM Workshop on Financial Inclusion Indicators, Kulalampur, Nov' 2012

Table -2 deals with the performances of scheduled commercial banks in the direction of financial inclusion in India. Total number of bank branches has increased by 16.74% which stands to 99771 in June 2012 from 85457 in 2010 but in terms of rural branches increasing rate is only 12.56% which stands to 37635 in June' 2012 from 33433 in March' 2010. Total number of rural bank branches increased during this period accounts to 4202.

Figure 1 : Distribution of new Bank Branches according to Population Group 2010-11

Figure-1 highlights the distribution of new bank branches according to population group across the country of scheduled commercial banks which indicates the poor share of rural areas in respect to opening of new branches. RBI and government of India have taken initiative to bring the financially excluded people under the umbrella of banking facilities but process of implementation is going on very slowly.

It is observed from the table 3 that 4826 bank branches were opened in the year 2010-11 out of which NER accounts for 2% only which indicates the poor banking services in the direction of financial inclusion in this region.

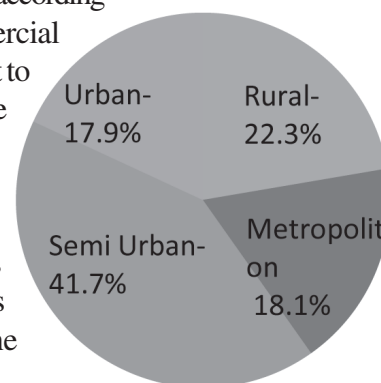


Table -3 : Distribution of New Bank Branches Region Wise (2010-2011)

Region	Total	Percentage
Central	874	18.1
Eastern	650	13.5
Northern	1120	23.2
Southern	1263	26.2
Western	822	17.0
North East	97	2.0
	4826	100

Review of Literature

Beg Ahamed Masroor made a study to find out the relationship between financial inclusion and the extent of poverty and unemployment. The study revealed the significant relationship between financial inclusion and poverty and made a suggestion to corroborate financial inclusion programme as an integral part of the poverty alleviation programmes.

Awasthi, Vhalla and Tewari (2012) in their study stressed upon the important of financial inclusion and highlighted various policies adopted to increase the inclusive finance in India.

Roy (2012) made a study to highlight the pros and cons of financial inclusion in India and opined that Banks have setup their branches in remote areas of the country to bring a large segment of society under the umbrella of financial inclusion.

Savagaon in his paper studied the extent of financial inclusion and measures adopted by govt. for promoting financial inclusion as tool for empowering the poor. The need of evolving appropriate strategy for mobilizing and training human resources for optimizing use of the financial resources was stressed upon in his study.

Swamy and Vijoy Lakshami (2012) in their study argued that the coordinated effort between the banks and government is necessary to facilitate access to bank accounts among the financially excluded segment of the society.

Sharma and Kukreja (2013) made a study to focus on the role of financial inclusion, in strengthening the India's position in relation to other countries economy and concluded that financial inclusion is playing a catalytic role for the economic and social development of society but still there is a long road ahead to achieve the desired outcomes.

Objectives of the Study

The main objective of the study is to examine the level of financial inclusion among tribal of North East India in general and Tripura in particular. The special objective of the study is to assess the level of financial inclusion among tribal of Tripura and to study the initiative of Reserve Bank of India to bring the financially excluded segment of the society under the umbrella of financial inclusion in this state for promoting balanced economic growth.

Methodology

The study is an analytical one based on secondary data. Report of Reserve Bank of India, Statistical abstract of respective state of NER, Economic Review of Tripura, SLBC Report,

Annual Report of Tripura Gramin Bank, Annual Report of Ministry of Tribal Affairs, Government of India. Annual Report of NABARD is consulted for collection of secondary data.

Performance of Banks in North-Eastern States

North Eastern Region of India comprises of eight states namely, Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, and Sikkim with an area of 2.62lakh square KM. It shares 7.98% of total landmass of the country and in respect of population this region accounts for 3.76% of country’s population which stands to 4,5587982 as per census 2011. The main peculiarity of this region lies on its population structure. ST people constitutes 56.61% of the of north east India. In India the share of STs is only 8.6% of its total population as per census 2011.

Table-4 depicts the share of STs in the population structure of northeast region. Mizoram with 94.4% occupies the highest position and Assam with 12.4% is the lowest position in terms of STs in the population structure of respective states. 120 tribes live in this region. The maximum number of community of tribes identified in the state of Manipur followed by Tripura.

Table-4 : State-wise Percentage of ST Population in NER

State	Percentage of ST	ST community
Assam	12.4	15
Arunachal Pradesh	68.8	16
Manipur	35.1	33
Meghalaya	86.1	17
Mizoram	94.4	15
Nagaland	86.5	05
Tripura	31.8	19
Sikkim	33.8	NA

Source : Tribal Profile At a Glance, May’ 2013, Ministry of Tribal Affairs, Government of India.

In the country the most financially excluded region is NER, mostly dominated by tribal people in its population structure. The NER poses more complex challenges for financial inclusion due to lower population densities, poor infrastructure, in-adequate communication facilities and disruption of law and order situation. The poor banking and finance infrastructure in this region indicates that STs are very much excluded from financial services.

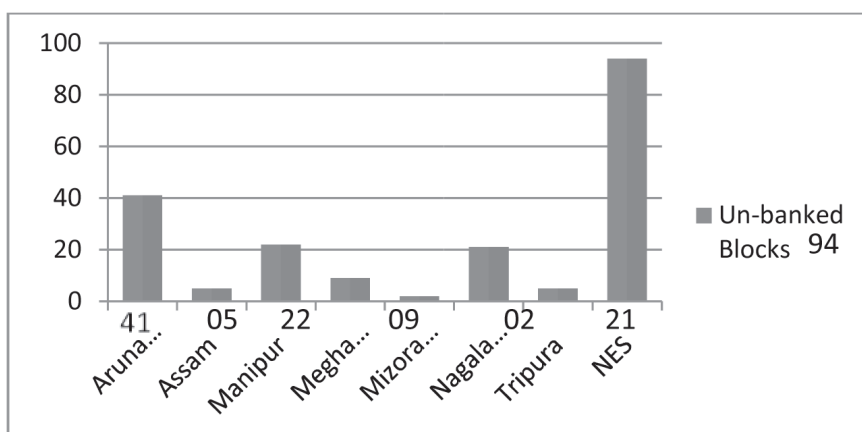
Table-5 : Development Indicators of Banks in N.E. States (in March 2010)

State	Population Per branch 2010	C-D Ratio		Investment plus C-D Ratio 2010
		2001	2010	
Assam	21000	32.8	34.4	40.3
Arunachal Pradesh	15000	12.7	40.5	49.2
Manipur	34000	38.9	44.8	69.5
Meghalaya	13000	23.5	32.7	41.2
Mizoram	10000	16.0	57.7	77.5
Nagaland	25000	13.8	40.2	66.1
Tripura	16000	20.0	31.6	38.7
NES	20000	27.8	39.1	49.3
India	14000	59.2	73.3	79.8

Source: Speech by Mr Deepak Mohanty, Executive Director of the Reserve Bank of India, at Gauhati University, Guwahati, 24 March 2011 and Report on Trend & Progress of Banking in India, RBI,2011

Table 5 highlights that this region offers low investment opportunity as reflected by low Credit Deposit Ratio with 39.1% which is less than the half of the country’s average of 73.3%. In terms of average population per branch the position of NER is much below than the national average. The Investment plus C-D Ratio in NE States is much lower than the national average. The position of Tripura in respect of C-D Ratio, and Investment plus C-D Ratio, is lowest and fourth in respect of Population Per branch in 2010. The above position clearly indicates the extent of financial exclusion of this region as well as respective states of NER.

Figure 2 : Un-banked Blocks in North East Region



Source: Based on the list provided by Ministry of RD, GOI, December, 2008

Figure 2 reflects that 94 un-banked blocks are lying with NER. Out of which Arunachal Pradesh with 41 had the maximum number of blocks and Mizoram had the lowest blocks. Tripura and Assam both had 05 blocks in 2008.

Table -6 : New Bank Branch Opened

SL. No	State	2010-2011		2011-2012	
		Rural	Total	Rural	Total
1	Arunachal Pradesh	nil	07	03	08
2	Assam	08	67	12	79
3	Manipur	01	04	06	10
4	Meghalaya	03	09	05	17
5	Mizoram	01	03	02	09
6	Nagaland	01	07	04	12
7	Sikkim	06	08	06	06
8	Tripura	04	09	11	22
9	NES	24 (21%)	114	49(30%)	163
10	India	1317(23.51)	5601	2264(31.09)	7282

Source : NEDFI DATA BANK

Table-6 deals with the opening up of new bank branches during the period of 2010-11 and 2011-12 in the country. Total bank branches opened during the period of 2010-11 and 2011-12 in India stands to 5601 and 7282 respectively. Out of this new branches the share of rural area is only 23.51% and 31.09 % in the year 2010-11 and 2011-12 respectively. The share of NE States in regard to country's new bank branches is only 2% and 2.23% during this period. Rural area of north east accounts for only 21% and 30% share of total new bank branches of this region during this period which is below the national average.

Table-7 : SHG –Bank Linkage in NER

State	2010				2012			
	No of SHG	Savings Amount	Loan Disbursed		No of SHG	Savings Amount	Loan Disbursed	
			No of SHG	Amount			No of SHG	Amount
Arunachal Pradesh	6418	164.89	5424	6270.72	8363	186.32	130	157.96
Assam	2183 52	7359.94	39058	19573.61	276565	6845.98	28012	18746.98
Manipur	1083 1	218.56	538	301.14	12711	219.38	1308	857.52
Meghalaya	1178 7	360.25	1895	884.18	14091	414.74	691	489.22
Mizoram	5097	251.4	417	466.87	4975	572.91	575	690.20
Nagaland	5926	334.37	603	637.83	10711	374.48	862	621.29
Sikkim	2428	141.98	Na	Na	5280	260.00	396	423.70
Tripura	3134 9	3335.7	5424	6270.72	34021	3377.95	19029	23141.87
Total	2921 88	12167.09	49307	28716.99	366718	15251.75	51003	45128.87

Source: NABARD, Status of Micro Finance India 2009-2010 & 2011-2012

SHG Bank linkage has been emerged as an important mechanism in achieving the financial inclusion. The performances of Assam and Tripura in regard to the number of SHG as well as savings during the period of 2010 and 2012 show that rural people has an enough scope for getting formal financing facilities through the model of SHG.

Tripura a backward state of NER has now eight districts namely, West Tripura, South Tripura, North Tripura, Sepahijala, Gomuti, Unakuti, Khowai, and Dhalai (earlier four districts) and each district is connected by banking network. In this state ST people constitutes 31.8% of the total population of 3671032 according to census 2011. But in Dhalai district it appears that more than 50% of population belongs to ST category. With 128 people per square KM this district occupies the lowest position in the state. Most ST concentrated Dhalai district is considered in this study.

Table-8 : Key Performances of Banks in Tripura

Particulars	Dec'2011	Dec'2012	Increase
No of Bank branches	286	328	
Deposit	10744.32	11710.15	20%
Advance	3464.69	3857.13	23%
C-D Ratio	32	33	1
Priority Sector Credit	2487.27	3173.86	28%
Credit to SC	475.82	574.67	21
Credit to ST	536.66	671.17	25

Source : SLBC Report, Tripura

Table 8 depicts that banking network has been spreading over in this state. The trend of total Deposit and Advances including C-D Ratio is increasing, Priority Sector Credit has also been increasing but credit to STs are not increasing at par with the priority sector credit. This argues the national phenomenon in the direction of exclusion of under **privileged** section from formal financing. The chart -3 highlights the growth of bank branches in Tripura. The bank branches has increased from 286 in 2010-11 to 380 up to June 2013. The 32.86% increased has been made during the period of April' 2010 to June 2013 which is an indication in the direction of financial inclusion.

Figure 3 : Growth of Bank Branches in Tripura

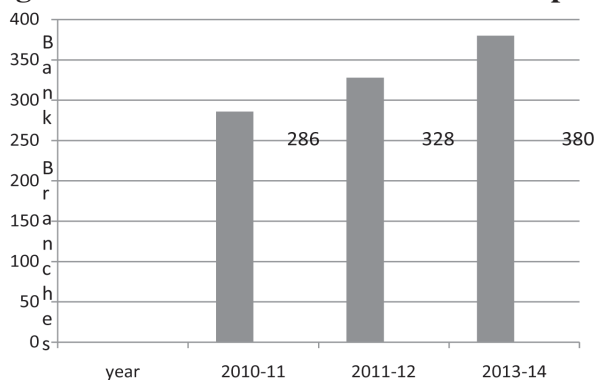


Table-9 : Progress of Banking Services on Financial Inclusion in Tripura

Name of District	Covered upto Dec'2011			Total	Covered upto March'2012			Total
	No of villages allotted >2000 population				No of villages allotted >1000 but <2000 population			
		Branch	BC			Branch	BC	
West	170	03	167	170	79	02	72	74
South	120	01	119	120	114	03	110	113
North	82	00	82	82	42	03	36	39
Dhalai	47	01	46	47	26	03	21	24
Total	419	05	414	419	261	11	239	250

Source : SLBC Report, Tripura

Table-9 deals with the performances of banking services on financial services in this state which depicts that instead of opening new branches banks are facilitating services through Business correspondent Model in 419 unbanked villages having more than 2000 populations within Dec'2011. This achievement was made before the target period of March'2012. The achievement on expansion of banking services in villages of having less than 2000 populations but more than 1000 populations is also encouraging.

Table-10 : Performances of TGB in Financial Inclusion

Particulars	2009-10	2010-11	2011-12	2012-13
District Covered	4	4	4	08
No of Branches	111	113	123	133
Rural	82	84	91	--
CD Ratio in %	39	44.09	42.38	44
Loan Issued	2714160	3574022	5404483	
Loan to ST/SC 14+	1245708	1935159	1767098	NA
Loan to SF/ MF/AL 14+	670301	1029209	1127246	
Loan to Minorities 14+	51282	114913	276931	

Source – Bank at a glance, TGB

The branches of TGB, the only RRB, in the state has increased to 133 in the year 2012-13 from 111 in 2009-10 with a increased rate of C-D Ratio. But share of loan disbursed to SC & ST is not up to the level as desired by RBI as the only RRB of the state. SC & ST constitute more than 48% of the total population of the state but loan disbursed to that under **privileged** section in 2009-10 was 45.89% and 32.69% in 2012-13 which clearly reveals that quantity of bank branches has increased but not quality.

Table-11 : Position of KCC in Tripura

Particulars	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2011	2012	2013
Card issued	12647	11924	14343	19198	27274	30416	50290	114896	91433
Amount Disbursed	1515.97	2017.64	1978.21	3304.61	5401.11	9414.95	6080.22	20815.61	19530

Source: Economic Review, Govt of Tripura, 2010-11 & SLBC Report, Tripura, and Dainik Sambad 12th June 2013

The performances in issuance of number of KCC is encouraging in this state but there is a gap in terms of amount disbursement. In the year 2011 loan issued per card was 1.32 but in 2012 it is 0.18 and 0.21 in 2013 which indicates that quantity has increased but proper care is not given in terms of amount disbursed.

Table-12 : District wise Distribution of Total SHG Formed under SGSY in Dec'2010

Name of District	Total SHG	SHG by ST people	% of Total
West	13833	4743	34.28
South	9926	3534	35.60
North	6098	1645	26.97
Dhalai	5265	2933	52.70
Total	35122	12915	45.31

Source: Rural Development Department, Govt. of Tripura, 2010

35122 SHG was formed in the state during Dec'2010 in which the share of Dhalai district is 14.99%. Out of this the share of STs is 36.77%. In Dhalai district SHG by STs appears 52.70%. The indication implies that rural STs are interested in getting the benefit of formal economic activities.

Table-13 : Credit Linkage to SHG

Name of District	2010-11				2009-2010			
	SHG Target	Achievement	ST	% of ST	SHG Target	Achievement	ST	% of ST
West	1000	--	---	--	1148	1126	362	32.14
South	750	277	66	23.82	615	619	161	26.0
North	500	02	---	--	569	569	123	21.61
Dhalai	250	280	97	34.60	200	230	89	38.69
Total	2500	559	163	29.15	2532	2544	735	28.89

Source: Economic Review, Govt of Tripura, 2010-11

SHG credit linkage to the STs is encouraging in Dhalai district but in terms of share of population it is very much low. 31.8% people belongs to ST category but share of credit linkage to SHG is recorded maximum 29.15% in 2010-11 and in case of Dhalai more than 50% are ST people but 34.60% STs are availing the formal financing benefit under the SHG Credit Linkage Model.

Table-14 : Annual Credit Plan for 2012-2013

Particulars	Dhalai Dist	Tripura	% of Dhalai Dist
Agriculture	8719.72	77782.45	11.21
MSME	6025.25	60289.09	9.99
OPS	770.00	39353.69	1.95
NPS	5500.00	34664	15.86

Source : SLBC Report, Tripura

Dhalai district as a backward district, largely depends on agriculture but share of that district in regard to Annual credit plan for agriculture appears very low only 11.21%. Low share of this priority sector makes an obstruction in the direction of financial inclusion of tribal livelihood. It is also observed that demand side barriers which includes low literacy levels lack of awareness in understanding of financial products; irregular income; frequent micro transactions; lack of trust in formal banking institutions; cultural obstacles (e.g. gender and cultural values) etc is the constraint in the path of financial inclusion. Financial literacy is the mechanism to remove these barriers. RBI in its Model scheme has stressed upon to open up Financial Literacy cum Credit counselling centres (FLCCs) in every block, district, town and city level. SLBC Tripura has taken initiative in this regard and UBI as a lead bank in this state has opened two FLCC one in Ambasa in Dhalai district another in Udaipur of South Tripura to impart the financial literacy programme in tribal dominated district of this state for bringing the STs under the umbrella of financial inclusion.

Conclusion

Tripura has performed well in fulfilling the target of opening the new branches/BC models to cover all the villages with above 2000 population within the specified period. TGB and TCSB have made a significant performance in opening of No frills Account in this State. These two Banks are giving an incentive of Rs. 100 per no frill A/C opened per job card under MGNREGA. Central Government initiative of DBT (direct benefit transfer) in respect of social benefit scheme is an instrument for bringing the financially excluded people under the umbrella of financial inclusion.

Dhalai district a most backward tribal dominated district in Tripura requires the benefit of financial inclusion for removing its backwardness in respect of poverty, ignorance etc. In this respect supply-side barriers are slightly removing by opening bank branches but demand side barriers are major constraints in the direction of financial inclusion. Lack of financial literacy, lack of trust in formal banking institutions, cultural obstacles should be removed for which financial literacy campaign is an urgent need. State Government agencies should take necessary steps to aware the people in understanding the financial product and the demerits of chit funds for enriching the economy of the tribal livelihood. In this regard focus of financial services is to be made to shift to the quality not in quantity in achieving the inclusive growth of the nation.

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Empowering Tribal People for their Sustainable Livelihood : A Structural Alteration

Chandan Kumar Panda

If we could free even one village from the shackles of helplessness and ignorance, an ideal for the whole of India would be established... Let a few villages be rebuilt in this way, and I shall say they are my India. That is the way to discover the true India.

Rabindranath Tagore, 1928

Introduction

Human beings are considered most intelligent species on earth with the responsibilities of management of all the remaining resources. Socioeconomic condition of all human being are not the same as there is struck down differences regarding way of living and availability of basic amenities between rural and urban area. Even within these areas there are also major differences. Divergence also conspicuous in relation to gender perspective. Though there is a positive change in standard of living and availability of facility, but is far from expectation of underprivileged segment of the cross section of the Indian society. Actually opportunities are less in contrast to facilities for these hands to mouth section of the society. When it was about socioeconomic condition of tribal communities especially the women then the condition is outlying from other deprive section of the society. Living in the far flung areas these tribal groups are the first to be hit by vagaries of nature, such as drought, heat stroke, infectious diseases, economic and cultural displacement, etc.

Till now there is no supportive evidence of less intelligence of these underprivileged sections of societies in general and tribal people in particular. There are so many instances of showing their merits in different sphere of life. The trajectory of their development is more hamper by external agencies as compare to internal causes or fallacy. Government agencies, political institutions, donor agencies are more concern about their own mandates, objectives and interest and whatever benefits reached to them by the different programmes, starting from Community Development Programme(1952) to today's nationwide MGNERAGA due to spillover effect with restricted participation of people for whom programmes were coined. We learnt from mistakes which lead to incorporation of two terms participation and empowerment

in the programmes undertaken from mid nineties. Fallacy is not over and another programme in pilot basis is in pipeline i.e. Direct Benefit Transfer. Development of tribal people in isolation without considering them with main stream is the instances of repeated failed assignments and creation of social conflicts. Even The constitution of India has given more than 20 articles on the redressed and upliftment of underprivileged with policies on positive discrimination and affirmative action with reference to Scheduled Tribe. Yet over 80% of tribals work in the primary sector against 53% of the general population. The literacy rate of tribal is 47.10 below the national rate of 64.84 (2001 census). The infant mortality rate is 84.2 and under five mortality rate is 126.6(2005, Ministry of Health and Family Welfare, GOI.

Characteristics Features of Tribes of India

The Commissioner of Scheduled Castes and Scheduled Tribes, in its reports (1952) has listed eight features of the tribal groups in India:

- ❖ They live always away from the civilized world and are found in the inaccessible parts lying in the forest and hills.
- ❖ They generally belong to three stocks such as Negritos, Australoids and Mangoloids.
- ❖ They speak the same tribal dialect.
- ❖ They prefer primitive occupations such as gleaning, hunting and gathering of forest produce.
- ❖ They are mostly carnivorous.
- ❖ They live and prefer to be naked and semi-naked.
- ❖ They have nomadic habit and are fond of drinking and dancing.
- ❖ They prefer primitive religion known as “Animist” in which they worship ghost and spirits as the most important elements.

Major Layouts for the Development of ST population through Various Five Year Plans (1951-2007)

On the basis of Report of the Steering Committee on Empowering The Scheduled Tribes For The Tenth Five Year Plan (2002-2007), Government Of India Planning Commission New Delhi October – 2001 and observations of Joseph(2003) and overview of the tenth five year plan are following-

The First Five Year Plan (1951-56) clearly laid down the principle that ‘the general development programmes should be so designed to cater adequately to the Backward Classes and special provisions should be used for securing additional and more intensified development’.

The Second Five Year Plan (1956-61) envisaged that the benefits of economic development should accrue more and more to the relatively less privileged classes of society in order to reduce inequalities. As for the STs, ‘Welfare Programmes have to be based on respect and understanding of their culture and traditions and an appreciation of the social, psychological and economic problems with which they are faced’. This was in tune with “PANCHSHEEL” - the Five Principles of Tribal Development - enunciated by the first Prime Minister, Pt. Jawaharlal Nehru. An important landmark during the Second Plan was the creation of 43 Special Multi-purpose Tribal Blocks (SMPTBs) later called Tribal Development Blocks (TDBs).

The Third Five Year Plan (1961-66) advocated the principle to establish greater equality of opportunity' and to bring about reduction in disparities in income and wealth and a more even distribution of economic power. While appraising the programmes of the Third Plan the Shilu Ao Study Team remarked that if progress is to be judged by what remains to be done to bring the tribals on par with the rest of the populations, the leeway is still considerable.

The Fourth Five Year Plan (1969-74) proclaimed that the 'basic goal was to realize rapid increase in the standard of living of the people through measures which also promote equality and social justice'. An important step was setting up of six pilot projects in Andhra Pradesh, Bihar, Madhya Pradesh and Orissa in 1971-72 as Central Sector Scheme with the primary objective of combating political unrest and Left Wing extremism. A separate Tribal Development Agency was established for each project. The Fourth Plan outlay for each was Rs.1.50 crore for the core programmes of economic development and Rs. 0.50 crore for arterial roads. These agencies were later merged with Integrated Tribal Development Projects during the Fifth Plan.

The Fifth Five Year Plan (1974-78) marked a shift in the approach as reflected in the launching of Tribal Sub- Plan (TSP) for the direct benefit of the development of Tribals. The TSP stipulated that funds of the State and Centre should be quantified on the population proportion basis, with budgetary mechanisms to ensure accountability, nondivertability and utilisation for the welfare and development of STs. With this thrust the concept of Tribal Sub-Plan came into action during the Fifth Plan.

The Sixth Five Year Plan (1980-85) was sought to ensure a higher degree of devolution of funds so that at least 50 per cent of tribal families were provided assistance to cross the poverty line. Emphasis was on family-oriented economic activities rather than infrastructure development schemes. A "Modified Area Development Approach" (MADA) was devised for pockets of tribal concentration with population of 10,000, at least half of them being STs, and 245 MADA pockets were delineated. Also, 20 more tribal communities were identified as "primitive", raising the total to 72.

In the Seventh Five Year Plan (1985-90), there was substantial increase in the flow of funds for the development of STs, resulting in the expansion of infrastructural facilities and enlargement of coverage. Emphasis was laid on the educational development of STs. For the economic development of SCs and STs, two national level institutions were set up viz., (i) Tribal Cooperative Marketing Development Federation (TRIFED) in 1987 as an apex body for State Tribal Development Cooperative Corporations; and (ii) National Scheduled Castes and Scheduled Tribes Finance and Development Corporation (NSFDC) in 1989. The former was envisaged to provide remunerative price for the Forest and Agriculture Produce of tribals while the latter was intended to provide credit support for employment generation.

In the Eighth Five Year Plan (1992-97), efforts were intensified to bridge the gap between the levels of development of the STs and those of other sections of the society so that by the turn of the century, these disadvantaged sections of the population could be brought on par with the rest of the society. The Plan not only emphasised elimination of exploitation but also paid attention to the special problems of suppression of rights, land alienation, non-payment of minimum wages and restrictions on right to collect minor forest produce etc. Attention, on

priority basis, continued to be paid for the socio-economic upliftment of STs. A review of tribal development in early Nineties revealed that 'Though the TSP Strategy has yielded results, yet were not in a position to commensurate with the efforts put in and investments made'.

In the Ninth Five year Plan(1997-2002) envisaged advancement of STs through a process of empowerment wherein efforts are to be made to create an enabling environment conducive for the exercise of their rights freely, enjoyment of the privileges and leading a life of self confidence and dignity at par with the other citizens of the country. This encompasses 3 vital components namely (1) Social Empowerment (2) Economic Empowerment (3) Social Justice.

From the Tenth Five Year Plan(2002-2007) period, the objective and scope of Special Central Assistance(SCA) to Tribal Sub-Plan (TSP), has been expanded to cover the employment-cum-income generation activities and infrastructure incidental thereto. Besides family-based activities, other activities run by the Self-Help Groups (SHGs)/ Community can also be taken up. The ultimate objective of extending SCA to TSP is to boost the demand-based income-generation programmes and thus raise the economic and social status of tribals. The revised guidelines for implementation by the States were issued in May, 2003, and this has been further modified in January 2008 indicating the following procedural changes:

Focus to be made on (a) watershed based income generation programmes, (b) specific income generation activities like skill/ technology training, storage, small scale trading inputs etc., (c) connectivity to markets, service delivery centres etc.;

- Every State to formulate and operate efficient monitoring of the programmes on their own, since Ministry cannot play such a large role in these;
- Ministry to do secondary level monitoring.

The SCA is released for economic development in the following areas and for the following population :-

1. ITDP/ITDA areas (192 Nos.), which are generally contiguous areas of the size of at least tehsil or block or more in which the ST population is 50% or more of the total population;
2. MADA pockets (259 Nos.), which are identified pockets having 50% or more ST population with a minimum population of 10,000;
3. Clusters (82 Nos.), which are identified pockets having 50% ST population with a minimum population of 5,000;
4. Particularly Vulnerable Tribal Groups (PTGs), characterized by a low rate of growth of population, pre-agricultural level of technology and extremely low level of literacy;
5. Dispersed tribal population - those tribals who fall outside the categories at S. No. 1 to 4 above.

Objectives of the Study

1. To study the socioeconomic condition of Scheduled Tribe (ST) through Meta-analysis.
2. To suggest workable model for sustainable livelihood for ST population in specific and poor people in general.

Result & Discussion

A. Socioeconomic Condition of Scheduled Tribe (ST)

1. Number of ST communities spread across the countries with maximum variation in tribe communities is noted in the Orissa state and North East India is predominance by tribal communities(See Appendix-I, Table No.-1)
 2. Percentage of ST population in relation to general population in the first census(1951) was 5.29 % and in the 2011 Census it is 8.60 % which is 0.40 % more than the sixth census in post independence era (See Appendix-I, Table No.-2).
 3. Literacy rate of ST population in the 2001 census was 47.10% and gap of literacy rate with total population is 17.74%(See appendix-I, Table No.- 3).
 4. While the percentage of total population as cultivators are in decline trend, whereas the ST population is reverse reflection. Similar observation was noted in case of Agricultural Labourers as livelihood for the ST population(See appendix-I, Table No.-4)
 5. Though after market liberalization the trend of changes in poverty scenario is not optimistic, rather negative gap is the indication of failures of numbers of developmental programmes for ST population(See Appendix-I, Table No.-5)
 6. Though there is plan outlay for ST population is increased in each five year plans, but poverty alleviation percentage is not satisfactory(see Appendix-I, Table No. 5 & Table No.6)
 7. In the rural context 37.60 % household of ST population is good condition, 55.84 % household are livable condition, but 6.54% in dilapidated condition according to 2011 census(See Appendix, Table No. 7).
 8. In relation to the location of source of drinking water for the ST population, it was noted that 19.72% household had source within their premises, 46.68% household had source near the premises and 33.59% household had away from home(See Appendix-I, Table No. 8).
 9. In the rural areas the main sources of lighting is kerosene(50.93%) for ST households(See Appendix-I, Table No. 9).
 10. Only 15.79% household had latrine facility within their premises in rural areas of ST population households (See Appendix-I, Table No. 10).
 10. It was noted that on an average 44.97% household of ST had availed banking facility and in rural areas it was 42.79% and it was 15.99% less than urban areas(58.78%)(See Appendix-I, Table No. 11).
 11. Human Development Index for ST population remained unchanged from 2000 to 2004-05(UNDP , HD Report-2000 & 2011).
 12. Major observations of Ministry of Tribal Affairs on ST population
- The majority of tribal constitute the labour work force though their participation in works is declining, but not steadily. More than half of the rural tribal population is found to be below poverty line as per latest survey available with Ministry of Rural Development (1993-94).

- The per capita income of tribals continues to be one of the lowest in the country and their alienation from their own land continues. As on January 1999, the tribals were alienated from 9,17,590 acres of tribal land and only 5,37,610 acres of such land was restored as per latest statistics published by the Ministry of Rural Development.
- Constraints in Tribal Development, there are innumerable constraints responsible for lower pace of tribal development process than desired. Some of the major constraints are:
 - (i) Destruction of forests: The forests are not only the source of livelihood for tribals but there exists an intricate relationship between tribals and forests in forest Eco-systems. The depleting forest resources are threatening imminent food security for a good portion of the tribal population.
 - (ii) Lack of awareness: There exists lack of awareness among tribal population about various developmental programmes launched by Government of India and States, resulting in their exploitation.
 - (iii) Protection of Tribal Rights & Concessions: The Tribals have been given numerous rights and concessions under various statutes of central as well as State Governments but they remain deprived of the benefits arising out of such statutory provisions due to their ignorance and apathy of enforcing agencies.

Indicative Workable Model for Sustainable Livelihood

Concept of Development

The concept of development, of 'human good' and 'social well-being' has always been there with varying understanding, emphasis, and implications. It is seen as a process, requiring constant response, and continuous solutions, and as a result of human action (Varma, 1989). Thus, the concept of development consists of (a) an aspect of change; (b) a plan or prediction; and (c) involvement of the government for the achievement of that planned or predicted goal (Basu, 1985). Development involves searching for the roots, giving due recognition to every people's dignity and existence, and evolving a genuine and collective participation of the people at the micro and macro level development planning and implementation. In short, there should be a right identification of what is the core and what is the periphery (Gregory, 2000) in the process of development. The development experience of India only proves that the development initiatives of the past decades, meant for the uplift of the deprived sections have miserably failed, with the result of increasing poverty, inequality and ecological imbalance. Every effort in bringing about a desirable development paradigm involving a relatively contended human existence with a fulfillment of basic human needs and protection of basic human rights has also proved to be still a far-flung reality. All these only underline the lopsided orientation and misplaced priorities of the past development paradigms and the need for alternative development paradigms. If there is economic progress due to technological advancement in the midst of horrendous poverty and unacceptable levels of inequality, the remedy lies not in more growth but in finding a way for everyone to share the fruits of growth in a civilized manner (Ambirajan, 2000). However, there is a realization

today, that any development model has relevance only to the extent that it contributes to improve human being in a sustainable way, as against the kind of homogenizing development paradigm, overshadowing the world and ignoring the rich and varied cultural domain of human existence (Oommen, 1999).

Participation and Empowerment

The British policy of isolating the tribal communities resulted in exploitation by zamindars, landlords and contractors. The British Government could not control the Zamindars and Jagirdars in the management of their private forests and this in turn intensified the tribal communities' suspicion. The desire for protection was good, but unfortunately the policy was entirely negative. The situation of tribal communities prior to independence goes to show that the "Policy of Isolation" and drift meant nothing more than upholding of the status quo. It resulted in reducing them to a state of destitution in most part of India. Except in few tribal the other tribal belt were at the lowest level of literacy. The agricultural lands were heavily encumbered and a good portion of these had already been taken away by the Non-tribal. Their traditional rights on forests were encroached upon. On many an occasion the tribal people rose in revolt and on many an occasion reforms were ordered but all proved futile. Law and rules are not enough to protect these tribal peoples and also the forest land and it make imperative for participation and empowerment of tribal people. Participatory decision making can take place along any realm of human social activity, including economic (i.e. participatory economics), political (i.e. participatory democracy or par polity), management (i.e. participatory management), cultural (i.e. polyculturalism) or familial (i.e. feminism). Empowerment refers broadly to the expansion of freedom of choice and action. For poor people, that freedom is severely curtailed by their voicelessness and powerlessness in relation particularly to the state and markets. Thus, empowerment is the expansion of assets and capabilities of poor people to participate in negotiate with, influence, control and hold accountable institutions that affect their lives (Narayan, 2002). Empowerment and gender equality recognized globally as a key element to achieve progress in all areas. It is one of the eight millennium goal to which world leaders agreed at the Millennium Summit held at New York in 2000 (Bhagyalakshmi, 2004). Empowerment goes beyond socio-economic or political attributes and essentially refers to a process of becoming psychologically empowered. Poverty inflicts deep-rooted wounds on the psyche of individuals. If they cease to be oppressed, their first task would be to psychologically empower themselves. In this context, empowerment would mean increasing one's capacity to define, analyse and act upon one's own problem (Sengupta, 1998). Thus, the process of empowerment is a process which enables one to gain power, authority and influence over themselves, institutions or society. Empowerment is probably the totality of the following or similar capabilities (Das, 2012):

- Having decision-making power of one's own.
- Having access to information and resources to make proper decisions.
- Having a range of options from which you can make choices (not just yes/no, either/or).
- Ability to exercise assertiveness in collective decision making.
- Having positive thinking on the ability to make change.

- Ability to learn skills for improving one's personal or group power.
- Ability to change others' perceptions by democratic means.
- Involving in the growth process and changes that is never ending and self-initiated.
- Increasing one's positive self-image and overcoming stigma.
- Increasing one's ability in discreet thinking to sort out right and wrong.

Special Attention for Tribal Women Empowerment

According to FAO, the most disadvantaged section of society is the women; they are the 'silent majority' of the world's poor. Seventy percent world poor are women and they face peculiar social, cultural, educational, political and allied problems (Sharma and Varma, 2008). Investing in women's 'capabilities' and empowering them to achieve their 'choices' and 'opportunities' is the surest way to contribute to economic growth and overall development (Pattnaik, 2000). Women's status is often described in terms of their level of income, employment, education, health and fertility as well as their roles within the family, the community and society. They constitute about half the total population but in tribal society women are most important than in other social groups, because they work harder and the family economy and management depends on them. Even after industrialization and the resultant commercialization swamped the tribal economy, women continued to play a significant role. Collection of minor forests produce is done mostly by women and children. Many also work as labourers in industries, households and construction, contributing to their family income. However, tribal women face problems and challenges in getting a sustainable livelihood and a decent life due to environmental degradation and the interference of outsiders (Awais et al., 2009). The major constraints for participation of tribal women in agriculture and allied activities, and in other sectors are wage discrimination, gender-based technology, lack of training and credit, low level of exposure etc. (Rath et al., 2007).

The researchers have listed here some of the major obstacles for empowerment of tribal women. They are (Puttaraja and Heggade, 2012)

1. Lack of basic education and skills as well as training particularly for self employment.
2. Malnutrition and infant mortality rate is high among selected tribes.
3. High rate of unemployment and under employment.
4. Lack of resource control, productive resource ownership and decision making.
5. Lack of financial support to self employment. Because, SHGs are not progressing very well, so it is an obstacle for savings and to the supply of micro finance.
6. Implementation of Wild Life Protection Act of 1972 and not properly implementation of Forest Right Act of 2006 and 2008 is hindering the collection of minor forest products, which is partially hindering the economic empowerment of tribal women.
7. Tribal women labourers are not getting any social security benefits because they are working in unorganised and informal sector.
8. Organization capacity and leadership quality is absent.
9. The food grains production on family farm and cash income derived from wage employment by the tribal women is used to feed the family members. Thus in general the women in tribal households provide a food security to the tribal families. A large portion of the male earnings is spent on buying alcohol and toddy.

Sources of Livelihood for Tribal People

Natural environment, surrounding the people, provides several goods, services and amenities to them, but using the environmental resources for one purpose always reduces its ability to supply them with other services. This limited natural resource base surroundings, the tribal societies being scarce and many conflicting demands placed on it from other sectors and other areas of society reduces their availability to the tribal communities and affects their livelihood (Mukherjee, et al., 2012). Majumdar and Madan (1970) made the six-fold economic classification which includes:

1. Food gathering tribes
2. Agricultural tribes
3. Tribes who practice shifting cultivation
4. Tribes who maintain their livelihood on the basis of their handicrafts
5. Tribes who practice pastoralism
6. Tribes who are industrial labour

The economic typology of the Indian tribes as proposed by Vidyarthi (1977) is given below.

1. The forest hunting tribe
2. The Hill cultivation type
3. The plain agriculture type
4. The simple Artisan type
5. The pastoral and cattle Herder type
6. The folk artist type
7. The agricultural and non-agricultural type (The tribe working in manufacturing industry)
8. The skilled white collar Job and Traders type (some individuals of the families of the tribal communities are working in the State and Central Government services owing the facilities of reservation for the tribes and so on).

Change Continuum

'Change continuum' of Colletta (1990) is expected to provide a useful theoretical framework in the study of development dynamics. In this continuum, 'At one end, there are situations where appropriate behavioural change can be instigated through structural transformation (by improving access to information, credit and other services, by changing such institutional arrangements as land tenure; and by providing incentives as wages or other reward systems) within the existing cultural framework.

At the other end are those situations, which require that social values be changed (through educational and training programmes, adult resocialisation activities and other means) before structural transformations can affect change in human behaviour toward internally defined development goals. In the middle of the continuum are those situations where interaction and complementarity between structural and culture change strategies exist. 'The middle range of the continuum is being assumed as important, if the development impact should have a sustained relevance. In this context, the indigenous factors assume importance, if sustainable development has to be achieved. Any intervention in this regard necessitates a 'holistic' framework. Such a

framework involves, according to Colletta (1990), an ‘understanding of the traditional values, indigenous roles and leadership patterns, local organisations and other informal associations and the flow of influence and information between these elements as well as the linkages between these sub-systems and other social systems.’

Framing Sustainable Livelihood Model

A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stress and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base (Chambers & Conway, 1991). It also implies a kind of security, which refers to the secured ownership of, or access to, resources and income-earning activities, including reserves and assets to offset risk, ease shocks and meet contingencies. Conceptually, livelihoods connote the activities, entitlements and assets by which people, especially those living in poverty, make a living (Gow, 1990). The sustainable livelihoods approach (SLA) is a way to improve understanding of the livelihoods of poor people. It draws on the main factors that affect poor people’s livelihoods and the typical relationships between these factors. It can be used in planning new development activities and in assessing the contribution that existing activities have made to sustaining livelihoods (International Fund for Agricultural Development, 2004). Closest to the people at the centre of the framework are the resources and livelihood assets that they have access to and use. These can include natural resources, technologies, their skills, knowledge and capacity, their health, access to education, sources of credit, or their networks of social support. In its conceptual frame, the asset dimension assumes significance and involves the following:

Natural/biological (land, water, common property resources, flora, and fauna)

- ✓ Social (community, family, social networks)
- ✓ Economic (jobs, savings, credit)
- ✓ Political (participation and empowerment)
- ✓ Human (education, labour, health and nutrition)
- ✓ Physical (roads, markets, clinics, schools, bridges)

Sustainability, as a concept, is also expected to address the concerns of environmental, financial, institutional, and economic factors (Gow, 1990). So the guiding principles for workable Sustainable Livelihood Approach (IFAD, 2004)

- **Be people-centred.** SLA begins by analysing people’s livelihoods and how they change over time. The people themselves actively participate throughout the project cycle.
- **Be holistic.** SLA acknowledges that people adopt many strategies to secure their livelihoods, and that many actors are involved; for example the private sector, ministries, community-based organizations and international organizations.
- **Be dynamic.** SLA seeks to understand the dynamic nature of livelihoods and what influences them.

- **Build on strengths.** SLA builds on people's perceived strengths and opportunities rather than focusing on their problems and needs. It supports existing livelihood strategies.
- **Promote micro-macro links.** SLA examines the influence of policies and institutions on livelihood options and highlights the need for policies to be informed by insights from the local level and by the priorities of the poor.
- **Encourage broad partnerships.** SLA counts on broad partnerships drawing on both the public and private sectors.
- **Aim for sustainability.** Sustainability is important if poverty reduction is to be lasting.

The SLA framework(See Appendix-II,Figure-1) of Department For International Development(2000) shows the main components of SLA and how they are linked. It does not work in a linear manner and does not attempt to provide an exact representation of reality. Rather, it seeks to provide a way of thinking about the livelihoods of poor people that will stimulate debate and reflection about the many factors that affect livelihoods, the way they interact and their relative importance within a particular setting. This should help in identifying more effective ways to support livelihoods and reduce poverty (IFAD, 2004). After the workshops at IFAD (2004) on Sustainable livelihood an Alternative Sustainable Livelihoods Framework (See Appendix-II, Figures 2 to 8) was developed and this was shift from initial SLA framework which was based on 'Hub Model' (Hobley and Shields 2000) with the "grey areas" of –

- Places the poor firmly at the centre – makes people visible
- Suggests the importance of clear definition of who is at the centre of the analysis
- Unpacks the PIP box – more specific regarding key institutions and processes – and provides a more practical approach to analysing institutional and policy issues
- Incorporates political dimension more explicitly
- Helps understand entry points – based on opportunities and aspirations, possible at different levels (identifying them still depends on good analysis)

Conclusion

Development involves searching for the roots, giving due recognition to every people's dignity and existence, and evolving a genuine and collective participation of the people at the micro and macro level development planning and implementation. As future of development remain with participation of tribal people in decision making as akin to majority group. Participation without empowerment is meaningless. In this quasi federal system of governance, democratic decentralization is the starting point of empowerment of people and shifting from bureaucratic system of administration to participatory nature of decision making. There is an impending need of structural change for bringing functional change for sustainable livelihood of tribal people as mainstream thinking. There is a huge scope for the development of tribals people in their realm of literacy rate, diversification of occupational opportunities, poverty mitigation, households condition improvement, providing safe drinking water and primary health, latrine facilities etc. Developmental outlook without considering the tribals women will be futile attempt as akin to lopsided orientation and misplaced priorities like the past development

paradigms. Somewhat investing in women's 'capabilities' and empowering them to achieve their 'choices' and 'opportunities' is the surest way to contribute to economic growth and overall development. Beyond doubt, it is empowerment goes beyond socio-economic or political attributes and essentially refers to a process of becoming psychologically empowered.

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Appendix-I

Table No.- 1: Distribution of ST population along with Tribes and number of Tribes and Percentage Representation

State	Status	Tribes	% of ST Population to the Total Population of the state	% of ST Population in States/UTs to the Total ST Population of the Country	Total Number of ST Communities
Chhattisgarh	Fifth Scheduled	Bhil, Birhor, Damar, Gond, Kharia, Majhi, Munda, Oraon, Parahi, etc.	31.76	7.85	42
Jharkhand		Asur, Banjara, Birhor, Korwa, Munda, Oraon, Santhal etc	26.30	8.40	32
Orissa		Birhor, Gond, Juang, Khond, Mundari, Oraon, Santhal, Tharua, etc.	22.13	9.66	62
Madhya Pradesh		Bhil, Birhor, Damar, Gond, Kharia, Majhi, Munda, Oraon, Parahi, etc.	20.27	14.51	46
Gujarat		Bhil, Dhodia, Gond, Siddi, Bordia, etc.	14.76	8.87	32
Rajasthan		Bhil, Damor, Garasta, Meena, Salariya etc.	12.56	8.42	12
Maharashtra		Bhil, Bhunjia, Chodhara, Dhodia, Gond, Kharia, Oraon, Pardhi, etc.	8.85	10.17	47
Andhra Pradesh		Bhil, Chenchu, Gond, Kondas, Lambadis, Sugalis etc.	6.59	5.96	35
Himachal Pradesh		Gaddi, Gujjar, Lahuala, Swangla, etc.	4.02	0.29	10
Mizoram		Sixth Scheduled	Lusai, Kuki, Garo, Khasi, Jayantia, Mikir etc.	94.46	1.00
Nagaland	Naga, Kuki, Mikir, Garo, etc.		89.15	2.10	5
Meghalaya	Garo, Khasi, Jayantia, etc.		85.94	2.36	17
Manipur	Anal, Tangkhul, Thadou, Poumai, Vaiphei		34.2	0.88	33
Tripura	Chakma, Garo, Khasi, Kuki, Lusai, Liang, Santhal etc.		31.05	1.18	19
Arunachal Pradesh	Dafla, Khampti, Singpho etc.		64.22	0.84	16
Assam	Boro, Kachari, Mikir (Karbi), Lalung, Dimasa, Hmar, Hajong etc.		12.41	3.92	15

Source: Annual Report 2007-08, Ministry of Tribal Affairs Government of India ; Annual Report, 2000-2001, Ministry of Tribal Affairs, Govt. of India & Census of India, 2001

Table No.- 2: Distribution ST Population from 1951 to 2011 (In Millions)

<i>Year</i>	<i>Scheduled Tribes</i>	<i>General Population</i>	<i>% of ST to Total Population</i>
1951	19.1	361.1	5.29
1961	30.1	439.2	6.85
1971	38.0	548.2	6.93
1981	51.6	685.2	7.53
1991	67.8	846.3	8.10
2001	84.3	1028.61	8.20
2011	104.3	1210.56	8.60

Source: Annual Report 2007-08, Ministry of Tribal Affairs, Government of India & Census of India, 2011.

Table No.- 3: Literacy Rate of STs and Total Population

<i>Year</i>	<i>Literacy Rate of Total Population</i>	<i>Literacy Rate of ST Population</i>	<i>Gap of Literacy Rate</i>
1961	28.30	8.53	19.77
1971	34.45	11.30	23.15
1981	43.57	16.35	27.22
1991	52.21	22.61	29.60
2001	64.84	47.10	17.74
2011	74.04		

Source: Estimated based on census data

Table No. -4 :Occupational Classification of Main Workers (%)

Main Workers	Total Population					ST				
	1961	1971	1981	1991	2001	1961	1971	1981	1991	2001
Cultivators	52.78	43.38	41.53	39.74	31.7	68.18	57.56	54.43	54.50	44.7
Agricultural Labourers	16.71	26.32	25.16	19.66	26.5	19.71	33.04	32.67	32.69	36.9
Household Industry	6.38	3.55	3.99	2.56	4.2	2.47	1.03	1.42	1.05	2.1
Other Workers	24.13	26.75	29.32	38.04	37.6	9.64	8.37	11.48	11.76	16.3

Source: Census of India, 2001

Table No. – 5: Changes in Poverty Scenario of Scheduled Tribes

	1993-94		1999-2000		2004-05		Percentage Change	
	Rural	Urban	Rural	Urban	Rural	Urban	(Col.2-6)	
							(Col.3-7)	
Total	37.27	32.36	27.11	23.65	28.3	25.7	(-) 8.97	(-) 6.66
STs	51.94	41.14	45.86	34.75	47.3	39.9	(-) 4.64	(-) 1.24
Gaps	14.67	8.78	18.75	11.1	19	14.2	(+) 4.33	(+) 5.42

Source: Planning Commission

Table No. – 6: Total Plan Outlay for Tribal Development:

Five Year Plan	Total Plan outlay	Tribal Development Programmes/ Flow to TSP	Percentage
First plan	1960	19.93	1
Second plan	4672	41.92	0.9
Third plan	8577	50.53	0.6
Fourth plan	15902	75	0.5
Fifth plan	39322	1102	3.01
Sixth plan	97500	5535	5
Seventh plan	1,80,000	10,500.00	5
Eighth plan	1,66,756.36	15,800.05	9.47
Ninth plan	2,89,147.14	23,375.08	8.08

Source: Annual Report of the Ministry of Tribal Affairs (2008-2009)

Table No.7 :Scheduled Tribe Households by the Condition of Census Houses Occupied by them

	Total	Good	Livable	Dilapidated
	2,33,29,105	94,76,857	1,23,93,598	14,58,650
Rural	2,01,42,434	75,74,837	1,12,48,715	13,18,882
Urban	31,86,671	19,02,020	11,44,883	1,39,768

Source : HH-Series Table-1 ST, Census of India 2011

Table No. 8: Scheduled Tribe Households by Main Source of Drinking Water and Location

Location of Source of Drinking Water	Total Number of Households
	2,33,29,105
Within the premises	46,00,610
Near the premises	1,08,91,804
Away	78,36,691

Source: HH-Series Table-6 ST, Census of India 2011

Table No. 9 : Scheduled Tribe Households by Main Source of Lighting

	Total number of households	Electricity	Kerosene	Solar energy	Other oil	Any other	No lighting
Total	2,33,29,105	1,20,61,513	1,06,37,895	2,52,737	69,711	73,251	2,33,998
Rural	2,01,42,434	93,06,073	1,02,58,993	2,43,471	61,842	65,236	2,06,819
Urban	31,86,671	27,55,440	3,78,902	9,266	7,869	8,015	27,179

Source: HH-Series Table-7 ST, Census of India 2011

Table No. 10 : Scheduled Tribe Households by availability of Type of Latrine Facility

	Total Number of Households	Number of Households having Latrine facility within the Premises	Number of Households not having Latrine Facility within the Premises	Public Latrine	Open
Total	2,33,29,105	52,82,533	1,80,46,572	6,26,285	1,74,20,287
Rural	2,01,42,434	31,80,726	1,69,61,708	3,73,114	1,65,88,594
Urban	31,86,671	21,01,807	10,84,864	2,53,171	8,31,693

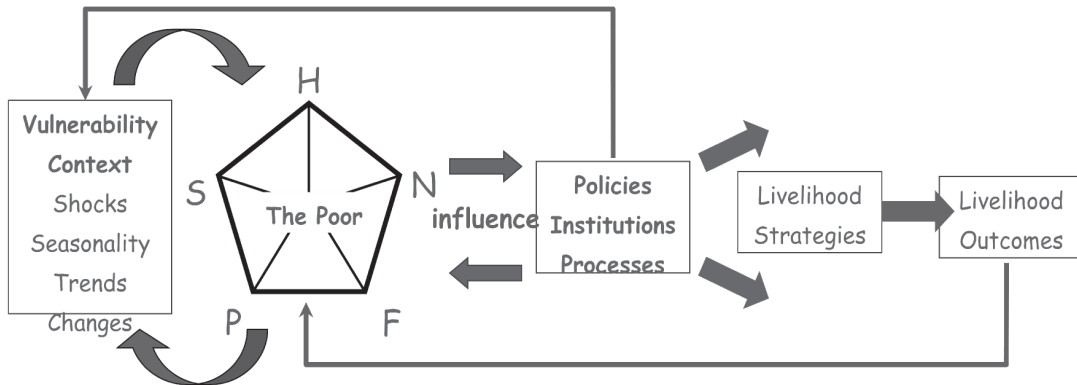
Source: HH-Series Table-8 ST, Census of India 2011

Table No. 11: Number of Scheduled Tribe Households availing Banking Services

	Total Number of Households	Total Number of Households availing Banking Services
Total	2,33,29,105	1,04,92,514
Rural	2,01,42,434	86,19,313
Urban	31,86,671	18,73,201

Source: HH-Series Table-12 ST, Census of India 2011

Appendix –II
Figure-1:DFID’s SL Framework



Sequential development of SLA Framework of IFAD is given below:

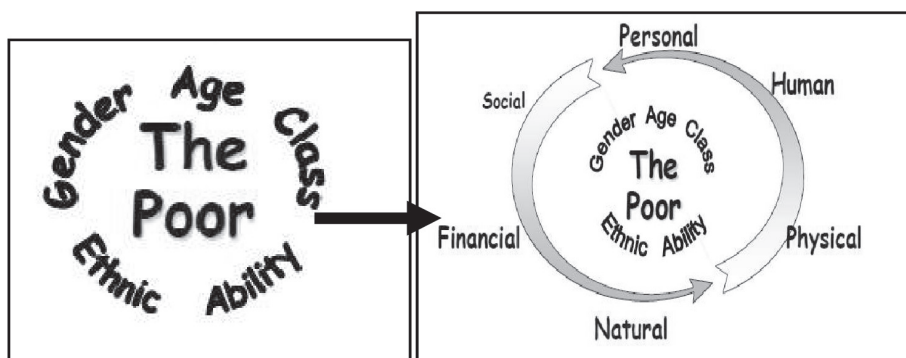


Figure-2

Figure-3

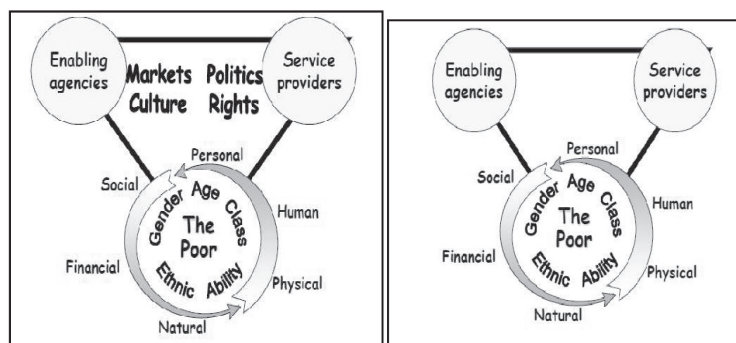


Figure-5

Figure-4



Figure-6



Figure-7

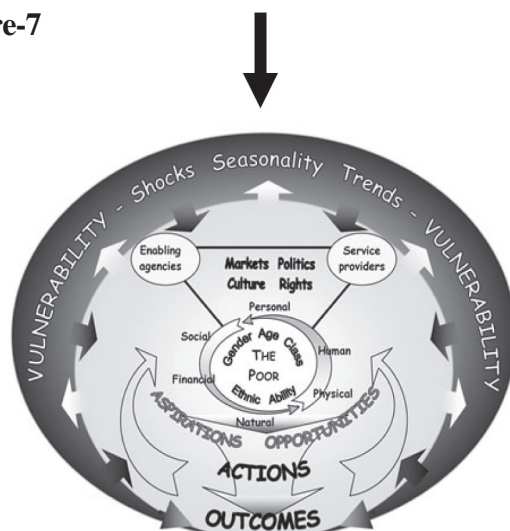


Figure - 8 (Final SLA Framework)

Figures 2 to 8: show the sequential development of IFAD Model of Sustainable Livelihood Framework

Sustainable Tribal Livelihood through Entrepreneurship Development

Sankha Pallab Chakrabarti

Introduction

For the last few decades, the debate around livelihood has dominated the minds of social & political thinkers, anthropologists, scholars, researchers and policy makers of the third world countries. The crux of the debate was not only to find out but also to secure the tribal population of the country a sustainable means of livelihood. Livelihood of an individual is a product of natural, social and economic environment which can ensure adequate stock and flow of food and cash to meet their basic needs. Chamber and Conway has coined the definition of livelihood as:

“a livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living; a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefit to other livelihoods at the local and global levels and in the long and short run” (Chamber and Conway, 1992; 7-8).

The traditional livelihood system of tribal people was based on shifting cultivation and collection of edible forest produce. The economy of tribal people mainly revolves around three livelihood spheres, viz. Forest, Agriculture and Migration. For most of the tribal groups in India, forest serves as a source of sustenance as well as employment. They sustain their livelihood through collection and consumption of fruits, tubers, roots, etc., while employment is generated through collection of non-timber forest produce (NTFP). The second sphere is that of agriculture, mainly shifting cultivation in uplands. They adopted a highly diversified pattern of cultivation of rain fed crops like paddy, minor cereals etc. though the physical yield from this method of cultivation was quite low in comparison with modern agricultural practices, but it somehow supported the livelihood of the shifting cultivators. This sphere also includes allied activities like dairying and livestock rearing. Though the tribes in Tripura have not taken to dairying in big way due to lack of infrastructure and marketing channels, they are largely dependent on rearing of smaller animals such as pigs and goats. Rearing of pigs is a widely practiced profession of tribal's in Tripura which fetches them a handsome earning.

As the traditional sphere of tribal livelihood declined due to the decline in forests, the alternative sphere of agriculture could not fill up the gap, partly due to the fact that their agricultural practices were not well developed and also because of the negligence of the state to this aspect of tribal life. As a consequence to this, the tribal people started migrating to urban areas in search of food and work.

Post independence, for the purpose of uplifting the livelihood conditions of the tribal people in India, different policies, plans and strategies were framed and implemented. The objective behind those initiatives was to assimilate the tribal people into the national mainstream and to augment their economic growth.

During the 5th Five Year Plan (1975-79), a special strategy called Tribal Sub-Plan was adopted for accelerating the development of Scheduled Tribes in India. In addition to this, under **Article 275 (1) of the Constitution of India** and under scheme of **Special Central Assistance to Tribal Sub-Plan (SCA to TSP)**, special financial grants are being given to concerned State Govt., for development of socio-economic conditions of scheduled tribes. The scheme states that 70% of the SCA is to be used for employment, income generation and development of entrepreneurship. It is against the above background that we can understand the initiatives being taken to motivate the tribal people of Tripura to take up entrepreneurship as a means of sustainable livelihood.

Objective of the Study

1. To study the policies and programmes for development of livelihood condition of the tribal's.
2. To study the initiatives being taken for development of entrepreneurship skills by EDIT among the tribal people of Tripura.
3. To study the major limitations of the process and to suggest policy measures.

Tribal Identity

The tribal people are recognized as the aboriginal inhabitants of our country. They are the weaker section of our society living in natural and unpolluted surrounding far away from the urban civilization with their traditional values, customs and beliefs. According to the Census Report of 2001, the total tribal population of India has been estimated as 8, 43, 26, 240 that constitutes about 8.2 per cent of the total population of the country. The issue of tribal identity has been a matter of much debate all over the world. There were several questions that evolved while addressing the issue, like, what is a tribe? How they are different from others? What is the difference between tribal people and indigenous people?

'The word 'tribe' is used for a "socially cohesive unit associated with a territory, the members of which regard themselves as politically autonomous" (Mitchell 1979)'. The term 'primitive tribes' was first used by western anthropologists to represent "a primitive aggregate of peoples living in a primitive or barbarous condition under a headman or chief" (Sills 1972)³. Some of these definitions were primarily coined during the British Raj and gives an idea that the 'tribes' are yet to develop and become civilized. Some recent scholars have argued that that those definitions are derogatory and have destroyed the national identity. During the British Raj, it was not the anthropologists but the colonial officers who played the role of advisor,

researcher and administrator in tribal affairs. 'In the Census Report of 1891, Baines arranged castes according to traditional occupations. Under the category of agricultural and pastoral castes, he introduced a sub-category called 'forest tribes'. Over the next two decades (1901 and 1911), Sir Herbert Risely and Sir E.A. Gait included the so-called 'animist'. Dr. Hutton, in the 1931 Census coined a new term 'primitive tribes' for 'forest tribes' (Joshi 1998)'.

After India got independence, the architects of the Constitution of India have decided to put the tribal people in a separate schedule. They were finally included in the schedule to the Presidential Order of 1950 which was amended from time to time. Today they are known as 'Scheduled Tribes'. Articles 342 of the Constitution of India define 'tribes' as:

“an endogamous group with an ethnic identity; who have retained their traditional cultural identity; they have a distinct language or dialect of their own; they are economically backward and live in seclusion, governed by their own social norms and largely having a self contained economy”.

Social scientists, today, have moved away from western anthropologists' notion of tribes an isolated, homogeneous and autonomous social unit. Tribal people are now viewed in the context of their relation to the non-tribal people in their proximity (Dube 1977).

Tribes of Tripura

Tripura, a hilly state in the North-eastern Region of India is the homeland of different tribes. Altogether, there are 19 (Nineteen) tribes in the state. They could be divided into two major groups as aboriginals and immigrants. All the aboriginal tribes have been migrated in this territory from a place in between Tibet, uphill of Burma (Myanmar) like Arakan Hills and Shan State adjacent to China. The aboriginal tribes of Tripura are, Tripuri, Reang, Jamatia, Noatia, Lusai, Uchai, Chaimal, Halam, Kukis, Garo, Mo and Chakma. The other tribe like Bhil, MUnda, Orang, Santal, Lepcha, Khasia and Bhutia are immigrant tribes came and settled here for economic reasons. Most of them are Central Indian Tribes and came from Madhya Pradesh, Bihar, Orissa and West Bengal. Some of these tribes are however, Northern-Frontier tribes coming from Bhutan, Meghalaya, Sikkim and North Bengal. Chakmas and Mogs are Arakan Tribes who entered Tripura through Chittagong Hill Tracts. Linguistically, the tribes of Tripura could be divided into Bodo Groups, Kuki-Chin Groups and Arakan Groups. By religion, most of the tribes in Tripura follow Hinduism, but Lusai and Kukis are mostly Christian. Chakmas and Mogs follow Buddhism.

Tribal Development Policies

In India, before independence, the British administration viewed tribal people mainly in the context of 'law and order' problems (Panigrahi 1989). This was after independence that provisions were incorporated in the Constitution of India for progressive assimilation of the tribal people into the national mainstream. The Constitution dictates the State to take special care to ensure that the STs are not taken advantage of by others, can enjoy equal rights as other citizens and have the same opportunities for uplifting their conditions as others, yet retaining their unique culture and identity.

‘The Constitution of India provides for a comprehensive framework for the socio-economic development of Scheduled Tribes and for preventing their exploitation by other groups of society. The state policies found initial direction from the ‘Panchsheel’ proposed by J.L. Nehru. He rejected the extreme view points of complete isolation and unchecked assimilation and propounded a cautious approach to tribal development by proposing that, “tribal people should develop along the lines of their own genius”. In line with this, the Dhebbhar Commission (1961) conceived the objectives of tribal development policies as “advancement and integration of tribal people without disturbing the harmony of tribal life”. This was clarified further by the P. Shilu Ao Committee (1969) which noted that tribal development should be seen as a “process of growth which has its roots in their traditions and by instilling in them a sense of pride in their heritage and a feeling of equality in place of the existing feeling of inferiority”. This was the philosophy during the first four, Five Year Plans (FYP) that guided the tribal development strategies in India. These philosophies, on the ground, got translated into programs focusing on preventive health, education and communication. However, it was noted that the achievement of the programmes during this period was not much satisfactory and there was a need for a re-look at the tribal development policies. On the eve of the 5th Five Year Plan, a detailed and comprehensive review of the tribal problems was taken into account and a new strategy called Tribal Sub-Plan (TSP) was introduced. ‘The basic objective of Tribal Sub-Plan is to channelize the flow of outlays and benefits from the general sector in the Central Ministries / Departments for the development of the Scheduled Castes and Scheduled Tribes at least in proportion to their population, both in physical and financial terms’. The TSP approach states that all programmes irrespective of source of funding should operate in unison to achieve the goal of bringing tribal areas at par with rest of the state and improve quality of life of the tribal people. The TSP programmes are financed from:

- a. TSP funds from State / U.T Plans and Central Ministries / Departments,
- b. Special Central Assistance (SCA) to TSP,
- c. Grants under Article 275 (1) of the Constitution to the State / U.Ts,
- d. Funds through Central Sector Schemes,
- e. Funds from sponsored schemes and
- f. Institutional Finance.

Entrepreneurship

Entrepreneurship is one of the four mainstream economic factors – land, labour, capital and entrepreneurship. During fourteenth century, references speak about tax contractors-individuals who paid a fixed sum of money to a government for the license to collect taxes in their region. Known as tax contractors, they used to take the risk of collecting taxes. If they collected more than the sum paid for their licenses, they made profits and kept the excess. The concept of entrepreneurship was existent in seventeenth century and was a common topic in economic essays for much of the eighteenth and nineteenth centuries.

Entrepreneurship is a process of action. An entrepreneur undertakes to establish his enterprise. Entrepreneurship plays a vital role in economic growth by means of concentrating

on major problems like unemployment, imbalance regional development, and concentration of economic power, improvement of per capita income, improvement of standard of living, formation of capital, national self reliance, etc. It is a process of action which considers risk, uncertainty, innovation, planning and decision-making for improving the productivity of enterprises in various sectors.

Recently economists have shifted the emphasis from the growth of capital to the growth of high level man-power, such as entrepreneurship as a major determinant of the rate of economic growth of a country. Entrepreneurship is a multi dimensional task defined differently by different authors. In the words of A.H. Gole, “Entrepreneurship is the purposeful activity of an individual or a group of associated individuals undertaken to initiate, maintain or organize a profit oriented business unit for the production or distribution of economic goods and services”. Thus, entrepreneurship is a practice by knowledge base and experience of an entrepreneur. It plays an important role in the development of a country in terms of industrial and overall economic growth.

Society for Entrepreneurship Development [SOFED]

Society for Entrepreneurship Development [SOFED] was set up in the year 2001 under the aegis of Department of Industries & Commerce, Government of Tripura as a registered society with the objective of promoting entrepreneurship in the state. For the said purpose the Society has set up “Entrepreneurship Development Institute of Tripura (EDIT) with financial assistance from Ministry of MSME, Government of India. With a vision for economic development of the state through promotion of entrepreneurship particularly among the vulnerable section, the society is working tirelessly since its inception. The main activities of the society includes-

- ✓ Self-employment generation and promotion of entrepreneurship through conduction of Awareness Generation Programmes, Entrepreneurship Development Programmes (EDPs), Skill Developments Programmes (SDPs), Management Development Programmes (MDPs), Vocational Training Programmes (VTPs), etc.
- ✓ Preparation of Business Plan / Project Reports.
- ✓ Conducting surveys on business and related activities.
The Department of I & C, Govt, of Tripura has assigned implementation of various Programmes to the Society from time to time. Some of these are as follows:
- ✓ Conducting training under various self-employment generation programmes like PMRY / PMEGP/ Swavalamban, SJSRY, etc.
- ✓ Promotion of Coir based Industries in the State. The Society runs a Common Facility Centre (CFC) at Indranagar and has also developed a Coir Cluster at Indranagar. Coir Board, Govt. of India has sanctioned fund for this purpose.
- ✓ Implementation of Rural Industrialization Programme (RIP) of SIDBI in West District under which SIDBI sanctions funds based on the number of projects actually grounded / set up by the Society.
- ✓ The Society has been selected as an “Udyami Mitra” under the Rajib Gandhi Udyami Mitra Yojana of Ministry of MSME.

Key Performance Indicators

SOFED has done an excellent job since inception. It has formally started conducting training programmes since April, 2003. The Society has conducted a large number of Entrepreneurship Development Programmes (EDPs), Business Opportunity Guidance (BOGs), Management Development Programmes (MDPs), Skill Training Programmes on Coir Products, Tailoring, Basics on Computer & MS Office, etc. The Programmes have been conducted for Industries & Commerce Department. It is also conducting programmes sponsored by ONGC, AMC, Coir Board, SIDBI, IL & FS, OBC Welfare, KVIC, Swavalamban Society, NABARD, District Administrations, Tribal Welfare Department, District Panchayat Office, etc (see **Table 1.1**). Apart from this the Society is giving continuous hand holding support to the 1st Generation Entrepreneurs' in establishing their ventures.

During the period from 2003-2004 to 2012-2013 (April 2003 to March 2013), the Society has conducted about 472 (Four Hundred Seventy Two) number of programmes and trained up to 24, 466 (Twenty Four Thousand Four Hundred Sixty Six) number of beneficiaries. Out of the total number, the numbers of beneficiaries trained in different category are (see Table 1.2):

1. Scheduled Tribe	:	7037 nos.
2. Scheduled Caste	:	4531 nos.
3. Religious Minority	:	1583 nos.
4. Unreserved Category	:	11315 nos.
Total	:	24466 nos.

It is evident from the above figure that every year the Society is imparting training in various trades approximately to 2447 nos. of beneficiaries. Out of the total, the numbers of beneficiaries trained in different categories are, STs: 29 percent, SCs: 19 percent, RMs: 6 percent and UR: 46 percent (see **Chart 1.1**). The figures clearly illustrates that the second highest category of beneficiaries trained so far are Scheduled Tribes. Still there is a gap of 17.48 percent between the first and the second highest. The Society with all its limitations and constrains is working hard to generate sustainable livelihood opportunities through promotion of entrepreneurship among rural, unemployed youth with special attention to the scheduled tribes in Tripura.

Livelihood Generation through Coir Industry

Apart from the numerous activities as mentioned earlier, the Society has also been playing a very important role in promotion of Coir sector in the State. The Society has been managing the Training Cum Production Centre (TCPC) set up in 2001 with the assistance from Coir Board, Govt. of India. The same has now been converted to a Common Facility Centre (CFC). Presently, about **40 (forty)** female workers including artisans belonging to **Scheduled Tribe (ST)** category are working in the CFC earning about Rs.2, 500/- (Rupees Two Thousand Five Hundred) only per month (average). The facility has been upgraded with assistance under

Scheme of Fund for Regeneration of Traditional Industries (SFURTI) programme from Coir Board. The Society has developed Indranagar Coir Cluster, by involving the artisan trained in the centre. The Cluster is producing Coir Mats and other products and marketing the same. The Society is now expanding the coir training activities to other parts of the State. A Common Facility Centre is proposed to be set up at Teliamura (Khowai District) & Dharmanagar (North District) with assistance from Coir Board.

Proposals under Process

1. SOFED has submitted a proposal to set up a Food Processing Training Centre at Agartala under the financial assistance of MoFPI, Govt. of India.
2. The Society is also keen to undertake EDP under HRD Schemes of NMFP, MoFPI, Govt. of India. Both the proposals are under process.
3. The Society will conduct few more EDPs for Returnees (Sponsored by Tribal Welfare Department, Govt. of Tripura) in the current financial year.

Major Breakthrough

1. The Society doesn't receive any grant from the State Govt. and runs all its administrative expenses from its own income.
2. The society has constructed a hostel with dinning room facility for the outstation beneficiaries/trainees through the R.D Dept with a cost of Rs. 30.00 Lakh.
3. The society has also set up a Library with modern facilities from its own fund.

Conclusion and Recommendation

'Sustainable livelihood' is by and large understood in material terms as the opportunity of access to and sustainable management of livelihood resources. Nevertheless, in a broader sense, sustainable livelihood mainly in the context of tribal people might be seen as the enhancement of capabilities. To ensure a sustainable income is not sufficient for their development. In real sense, sustainability is the ability of access to social and economic services and also access to institutional resources.

Though different policies and programmes like TSP, SCA to TSP, reservation of STs and many other were formulated from time to time but the fruits of those policies and programmes have not percolated to the bottom. Rather, few opportunists belonging to the creamy layer of the Scheduled Tribe category are enjoying the benefits. For a comprehensive development of the vulnerable group, the implementing machineries need to be strengthened. There is a need for uplifting their traditional industries with inclusion of modern technologies which in long run can emerge as a sustainable means of livelihood.

The State and the Society for Entrepreneurship Development (SOFED) in their modest approach to development of tribal livelihood may include more and more beneficiaries belonging to this particular category in their training programmes and may take some extensive initiatives in development of entrepreneurship among the tribal people.

Tables and Charts:
Table – 1.1 List of Programmes Conducted up to March 31, 2013

SI No.	Nature of Programme	No. of Programmes (up to 31/03/2013)	No. of Trainees Trained (up to 31/03/2013)
1	EDP under PMRY (Dept. of I & C)	184	14775
2	Skill Training under SJSRY (AMC)	16	892
3	Skill Training (ONGC)	18	380
4	EDP/BOG (Self financed)	12	140
5	Skill Training/ on coir products (Coir Board)	13	632
6	EDP for bamboo Artisans (IL & FS)	10	313
7	EDP under RIP (SIDBI)	1	36
8	Awareness Programme under RIP (SIDBI)	4	277
9	Awareness Programme under SFURTI (Coir Board)	7	550
10	EDP under PMEGP (KVIC)	144	3233
11	EDP under Swavalamban	28	2367
12	Motor Driving sponsored by OBC Corpn	1	16
13	EDP on Coir based Industries (Coir Board)	1	50
14	Quality Improvement Programme on Coir (Coir Board)	1	68
15	Computer & MS Office sponsored by DPO, Dhalai	12	207
16	Computer & MS Office sponsored by Office of the DM, North Tripura	3	80
17	EDP for Returnees (Sponsored by Tribal Welfare Department, Govt. of Tripura)	1	140
18	EDP for SJSRY Beneficiaries under Teliamura Nagar Panchayat	1	18
19	Urbanization in Tripura for elected members of Nagar Panchayat sponsored by Urban Dev. Dept.	3	100
20	Auto Technician Course for TSR Personnel sponsored by Police Dept	1	20
21	Accounts cum Administrative Training (18 th to 20 th Session)	3	76
22	Motor Driving for SC Beneficiaries	8	96
	Total	472	24466

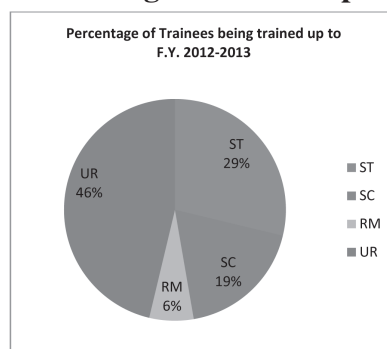
Source: Annual Report for the F.Y. 2012-2013, SOFED, Agartala

Table – 1.2 Category wise break up of the Beneficiaries Trained w.e.f. 2003-04 to 2012-13 (up to 31/03/ 2013)

SI No	Nature of Programme	ST	SC	RM	Others	Total
1	EDP under PMRY (Dept. of I & C)	5066	2044	903	6762	14775
2	Skill Training under SJSRY (AMC)	151	296	89	356	892
3	Skill Training (ONGC)	66	135	52	127	380
4	EDP/BOG (Self financed)	45	32	5	58	140
5	Skill Training/ on coir products (Coir Board)	90	250	07	285	632
6	EDP for bamboo Artisans (IL & FS)	27	133	22	131	313
7	EDP under RIP (SIDBI)	3	12	1	20	36
8	Awareness Programme under RIP (SIDBI)	22	54	8	193	277
9	Awareness Programme under SFURTI (Coir Board)	73	122	19	336	550
10	EDP under PMEGP (KVIC)	647	808	301	1477	3233
11	EDP under Swavalamban	489	405	156	1317	2367
12	Motor Driving sponsored by OBC Corpn	0	0	0	16	16
13	EDP on Coir based Industries (Coir Board)	5	18	0	27	50
14	Quality Improvement Programme on Coir (Coir Board)	8	22	0	38	68
15	Computer & MS Office sponsored by DPO, Dhalai	72	49	9	77	207
16	Computer & MS Office sponsored by Office of the DM, North Tripura	80	0	0	0	80
17	EDP for Returnees (Sponsored by Tribal Welfare Department, Govt. of Tripura)	140	0	0	0	140
18	EDP for SJSRY Beneficiaries under Teliamura Nagar Panchayat	2	7	0	9	18
19	Urbanization in Tripura for elected members of Nagar Panchayat sponsored by Urban Dev. Dept.	15	24	8	53	100
20	Auto Techician Course for TSR Personnel sponsored by Police Dept	5	5	3	7	20
21	Accounts cum Administrative Training (18 th to 20 th Session)	31	19	0	26	76
22	Motor Driving for SC Beneficiaries	0	96	0	0	96
	TOTAL	7037	4531	1583	11315	24466

Source: Annual Report for the F.Y. 2012-2013, SOFED, Agartala

Chart 1: Percentage wise breakup of Trainees.



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The Role of Education in Livelihoods of the Chittagong Hill Tribes in Bangladesh

Ala Uddin

Introduction

This paper is concerned with the indigenous people of the Chittagong Hill Tracts (CHT/Hills).¹ It is located in the southeastern part of Bangladesh bordering with northeast Indian states of Tripura and Mizoram, and eastern Myanmar (Burma) state of Rakhine (also known as Arakan). This is an extensive hilly region comprising 5,089 square miles²; however, it contains very limited cultivable land (3.2 percent), most of which are of low quality, in contrast to the fertile multi-cropped alluvial plains of rest part of Bangladesh. Other than the Bengali (Bangali) settlers, about 13 different indigenous/tribal communities live in the Hills, who are divided into many different sects. However, only 11 ethnic groups are recognized as “tribe” or “small ethnic group”³ by the local bodies as well as state authorities. Each group has their own history, culture, language and custom. Although internally diversified through cultural attributes (e.g. dress, language, religion, etc.) they are collectively called as Pahari (hill people).⁴

The local of the CHT are also known as jumma or jumia for their traditional hill cultivation, jum (slash & burn/shifting/swidden cultivation). Although each group has their own term for this cultivation (e.g. jum (Chakma); yah (Marma); hug (Tripura); lo (Pangkhoa); ua (Mro) a ‘nationalism’ was developed, namely, ‘jumma nationalism’, based on the collective livelihood⁵ means, hill cultivation (cf. Beames 2013). Since the pre-colonial period, jum has been the principle livelihood means of the Pahari which is ties with their lives, livelihoods and rituals. For the reason being, jum has become a symbol of collective identity where jumma nationalism has been considered as an umbrella identity of the Pahari—a common platform of all Paharis.⁶ However, due to its exclusiveness and counter-(jumma)nationalism measures of the successive governments this (ethnic)nationalism was short lived. It virtually died with the signing of the Accord 1997 (between the JSS and GoB)⁷.

However, the Pahari differ markedly from the mainstream Bangali population in terms of physical appearance, language, religion, economy and socio-cultural aspects. “There is a great affinity and kinship with the people of northern India, Nepal, Sikkim, Bhutan, Burma and Thailand” (Roy, T. 2003:16). Thus, the region became one of the Asia’s most unexplored

mountainous belts where “Southeast Asia meets South Asia” (van Schendel 2000:1), which forms a bridge between Bangladesh, Myanmar and India. While the language of the majority Bangali is Bangla (Bengali) related to Indo-Aryan languages, the each indigenous group speak in their own language belong to Tibeto-Burman language group. While most of the Pahari are Buddhist, Hindu or Christian, sometimes in conjunction with their traditional indigenous faiths, the religion of the majority is Islam (Roy 2003).

Unlike the rest part of Bangladesh which is largely composed of deltaic plains the CHT extensively is a hilly and mountainous belt. Most of plains Bangladesh had formed part of empires, kingdoms or other highly formalized state and quasi-state polities for many centuries, while the CHT was composed of decentralized and partly-formalized self-governing chiefdoms and chieftaincies that were independent of external political control until after Bengal itself was colonized by the British between the 18th and 19th centuries (Roy 2003; Brauns and Löffler 1990; Hutchinson 1978).

The region has been a site of much contention between the Pahari and the state since the colonial period (1757–1947) that continued even after the creation of postcolonial Pakistan (in 1947) and independence of Bangladesh (in 1971). It has witnessed ethnic conflict since the mid-1970s. The situation intensified with the government sponsored population transfer program toward the region (began in 1979), which not only changed the demographic profile in the Hills, it forcibly displaced many indigenous people—who less than two decades earlier had already been displaced by the Kaptai hydroelectric project (in 1960s). Consequently, the Pahari who were already in duress because of the land scarcity caused by the dam and transmigration faced further survival problem in competition with the settlers.

In this situation, the Pahari began resisting the influx of the Bangali settlers. In response to their resistance, the Bangladesh government deployed a huge number of military and other armed forces to foil the “insurgency”. In consequence, many incidents of massacre, attack and reprisal attack, indiscriminate arrest, judicial and extrajudicial torture, killing, rape, sexual violence, forced religious conversion, forced marriage, and abduction took place, often committed by the armed forces and settlers. However, a couple of initiatives led to a long-awaited agreement in 1997 (widely known as “peace accord”) which formally ended the two and half-decade-long bloody conflict in the Hills. Even though, 15 years have elapsed since the signing of the Accord, the region is neither a peaceful nor a secured region to its people.

Historically, the CHT is one of the most disadvantaged and vulnerable regions in Bangladesh in terms of major development indicators: livelihood; employment; poverty; freedom; security; health & sanitation; water & food; environment; education; women empowerment; access to land, infrastructure and national institutions; peace; Pahari-Bangali & inter-ethnic relationship, etc. Attitude toward the Pahari has been unchanged since the colonial period. As a result no governments did take measures for sustainable development of the region. Nationalist attitude toward the Pahari rather entangled the region and its people. As a result, the CHT has witnessed ethnic conflict since the mid-1970s between the Pahari and the Bangali settler (arriving since the late 1970s). Displacement, discrimination, ethnic conflict, militarization, and Accord of 1997 (ironically, “peace accord”), and post-conflict development (actually, new forms of conflict), etc. are crucial political and developmental discourses.

Given the circumstances, this paper explores two major concerns

- (i) Changing pattern of livelihoods of the Pahari, and,
- (ii) Potential role of education in livelihoods and peace-building.

Therefore, the focal issues of the present endeavor are

- (i) Changing pattern of livelihoods;
- (ii) Survival through education;
- (iii) Existence and coexistence; and
- (iv) Education, livelihood and peace-building.

The livelihood of the Pahari is the main theme of this paper but they cannot be wholly understood unless we comprehend the past-made present CHT— its past events and present day consequences. This (discuss below), eventually, manifests the changing pattern of livelihoods of the CHT tribes (Pahari).

Hill Economy and Livelihoods

Before we go into the details on the major livelihoods means of the Pahari it is essential to discern some major issues regarding the livelihoods of the Pahari such as monitorization, introduction of plough cultivation, construction of a hydroelectric dam (Kaptai dam), transmigration program and the Accord 1997. These eventually manifest the changing pattern of livelihoods and the reasons (both intrinsic & extrinsic) involved behind it.

Colonial Encounter

Until the Pahari had encountered with the intruders in their place, terra incognita to outside world, they used to practice an age-old traditional means of livelihood and economic system of their own in harmony with local ecology and social environment (Chakma, S.K. 1986; Tripura 1992; Mohsin 1997; Adnan 2004). The concept of profit, private property and savings was unfamiliar to them as there was a subsistence economy while communal ownership, sharing and exchange constituted the cores of their economic as well as cultural values (Mohsin 1997). As livelihood means, the principal way of life of the Pahari has been the hill cultivation (jum) since their settlement in the Hills. Until the mid-19th century, it was the main distinguishing criterion as Captain Lewin (1869) asserts, “hillmen were exclusively swidden cultivators, locally known as Jhumia [Jumma]”. He further state: “Throughout the whole of the Hill Tracts I know of no single instance of a Hillman cultivating the plough” (Lewin 1869:39; see also, Beames 2013).

In the early days, to the Pahari, agricultural production from the jum for a single year was more than that of conventional wet-rice cultivation on plain land. This is because outputs in addition to rice are obtained from the same plot, including oilseed, cotton, chili, cowpea, cucumber, gourd, paddy, melon, pumpkin, maize, yams, sweet potatoes, fruits, winter vegetables and the like without involving any extra effort or costs (Adnan 2004:96–97). Thus, jum has been the primary source of food, shelter and clothing of the Pahari. Moreover, jum was a way of life of all Paharis (Datta 1980) that encompassed their social and cultural values and went beyond the narrow economic values. The entire process of jum cultivation and its harvesting

was [is] based on the conceptions of communal ownership, exchange and sharing (Mohsin 1997). The jum-based life-ways has rapidly been changed with the arrival of successive intruders in the Hills.

Following the Sepoy Mutiny (Sipahi Biplab) in 1857, the British took over the power from East India Company in 1860 (one century later of their victory), and began direct rule and renamed the region as Chittagong Hill Tracts, and annexed it to the colonial empire (van Schendel et al. 2000). Although in the very beginning economic interest was not primary concern soon they paid attention how to increase revenue. In the beginning they used to collect tax in the form of cotton ('kapas').⁹ From 1789 they began collecting tax in cash (money) rather than kind (cotton). For obvious reasons, the monitorization went against the interests of the Pahari who had no experience of money, bazaar or market economy (see for details, Mohsin 1997; Lewin 1869; Mey 1984).

The traditional livelihood of the Pahari, jum cultivation, had encountered direct colonial encounter for the first time. To the colonial rulers the revenue from jum was not sufficient comparing to their expectation and expenditure for the expensive militarization and administration in this region to dominate its people (Mohsin 1997; van Schendel et al. 2000; Roy, C. 2000). In order to get more revenues, they introduced plough cultivation in place of jum cultivation and encouraged the former for it was more profitable than the jum cultivation while a fallow period (7–10 years) is required for the later one. To the British jum cultivation was a 'primitive' method that required a long fallow period. They considered this as waste of time and resources. Through the CHT Manual Act 1900 they restricted this 'primitive' practice. They also broke the notion of communal property while family-based land allotment system was introduced (Mohsin 1997; Lewin 1869). Thus the colonial rulers intently made planned efforts to evolve a market economy and induce people to give up jum cultivation (farming with fire) and their unsettled life and adopt plough cultivation (farming with water) that eventually simplified the presence of the Bangalis in the Hills.

Until the mid-18th century, the Pahari were living in the pre-bazaar period; there was no bazaar place, no roads and hardly any currency (Shelley 1992:80). Like the plough cultivation, bazaar has been an important induction in the Hills that brought significant transformation in traditional social system. Reasonably, the bazaar exchange was totally unknown to the Pahari until it was introduced by the British in the 19th century, still remains elusive and unmanageable. The bazaar was necessitated during the colonial period to supply the essentials the rulers need since necessary stuffs such as kerosene, salt, iron were not available in the Hills. Thusly the British created a historic grand opening for the Bangalis to begin formal trading through an Act, Bazaar Fund Administration 1937 in order to facilitate bazaar economy.¹⁰

As the Pahari had no experience about plough cultivation, the British rulers and Chakma raja hired some nearby Bangalis to teach the ways of plough cultivation in scarce plain lands in the Hills. Eventually some Bangalis settled in the river-valleys, who later engaged with plough cultivation, trade, and intermediaries of the colonial rulers. Influx of Bangalis have increased the increased of plough cultivation. As a consequence, by the 1890s more than half of the 3,000 hectares of reclaimed lands were occupied by the Bangalis (Mey 1984:22); and by 1960 most of the valley lands had been converted into plough cultivated wet-rice fields (Adnan 2004:117).

The plough cultivation has had effect on traditional livelihoods; it has created social and economic differentiation both between and among the ethnic groups as it established land ownership that eventually exposed the Pahari to exploitation and oppression for the first time from among their own elites (Jahangir 1979; Mohsin 1997).

Since the Pahari had no practical knowledge about the tactics of trade, the opening for Bangali immigration was unpleasant to them. In effect, many Pahari had to lose their lands and assets as a result of deceptive trading tactics of the Bangali through false documents, statements (see, Lewin 1869:65–71). Along with the establishment of bazaar, the British also introduced money economy as its essential element that replaced the traditional barter economy. Thus, nearby Bangalis started settling and trading in the Hills since the Pahari had no practical knowledge of business, agriculture and bazaar or market exchange. This justified Bangali intermediaries between the British and Pahari that led such a relationship where being the mainstream population the Bangali hold the dominant positions (van Schendel 1992).

We see some other forms of restrictions against the age-old livelihood means. The British took away the communal rights of the Pahari from the forests which were the vast source of Pahari livelihoods as the CHT has the biggest share of forest resources in Bangladesh and it has second largest reserve forests (322,331 hectare, about 24% of the region). In 1871, the colonial administration declared 5670 square miles out of 6882 as Government Reserve Forests (Cowan 1923:14). Pahari were allowed to use forest produce only for domestic purposes. Further restrictions were imposed creating two types of forests: (a) Reserve Forests (RF); (b) District Forests (DF, now known as Unclassed State Forest (USF) while the RF were put entirely under the management of the Forest Department. Jum cultivation and any kind of use of forest produce were totally prohibited in the RF. The DF were put under the direct control of the DC. In the DF, jum cultivation and the use of forest produce for domestic purposes were allowed with certain restrictions as the DC might impose from time to time (Selections 1929:202-204). As a consequence of this policy the areas suitable for jum cultivation were reduced to one third of the formally available areas for jum. Eventually the fallowing cycle was reduced from 15-20 years to 8-10 years. This led to soil degradation and the marginalization of the Pahari (Selections 1929:206; Dewan 1990:167; Mohsin 1997). The British also gave away high quality land to European entrepreneurs. Paharis saw various non-local fruits in the Hills as tea, coffee and orange plantations were established in the 1860s. Commercial teak plantations were established in the 1870s (van Schendel 1992:112). There were 3,000 acres of teak plantations in 1940 (Ahmed 1976:110). In the mid-1860s 50,000 cubic feet of timber was annually extracted from the hill forests (Lewin 1869:8).

Thus Paharis became marginalized through their exclusion from the forests which had resulted in scarcity of land available for jum cultivation. The state had not undertaken any measures to compensate the jum cultivators or provided them with any other means of livelihoods (Mohsin 1997). The economic policies in the Hills were thus guided by the economic interests of the British that did not consider the socio-cultural values of the Pahari life-ways. Significantly enough, Paharis consider this as one kind of displacement—displacement from their traditional cultivation to others that neither they admit nor do they keep away from them.

“National Development” in Post-Colonial Pakistan State

Following the end of colonial rule (1947 onward), the post-colonial Pakistan government was not satisfied with the inherited control over the forest resources, they planned to harness the river and water resources of the Hills to strengthen the industrialization of Pakistan ironically in the name of “national development” and “national integration” (Dewan 1991; van Schendel 2001; Tripura 2001; Mohsin 1997; Bertocci 1996). To this end, Pakistan government constructed a hydroelectric dam on the Karnaphuli river sans prior consultation with the local that occupied some 256 square miles in Rangamati district. Immediately the dam not only submerged nearly 54,000 acres (84.375 square miles)¹¹ of best cultivable land (40 percent); it displaced almost 100,000 Pahari (mostly Chakma) from their lands and hearths (Roy D. 2003:11; Shelley 1993; Mohsin 1997; Roy, C. 2000; Sopher 1963; 1964). Since the displaced Pahari had no formal titles to land (i.e. formal document of land registration), the rehabilitation program did not take them into account on grounds of their ‘nomadism’ (Mohsin 1997); they remained homeless. Consequently, about 40,000 Paharis had to drive out to India and another 20,000 to Burma (Sopher 1963:103); Pahari term this bara parang (great exodus).

The dam caused irreparable damage to jum cultivation. Due to scarcity of land jum cycle was reduced from 10-15 years to 3-5 years. This resulted in declining soil fertility, low yields from jum land and lack of interest among the farmers (Samad 1991:6). As a consequence of submergence of land by the dam, the land ownership for the Pahari (per family) was also reduced from an average of 25 to 10 acres (Mey 1984:112; Mohsin 1997:104). Trade and employment resulted from the construction of the dam were also monopolized by the Bangali (Mohsin 1997:105). According to some Paharis, the suffering and discrimination caused by the Kaptai dam eventually led them to search for alternative livelihood means for their survival. Some of them choose education as a key to development as well as survival strategy.

“National integration” in Bangladesh

The postcolonial governments considered that while the rest country is densely populated the CHT is empty. While the population density in plain lands was 1400 persons per square mile (in 1980s) in the Hills it was only 140 (Bichitra 1988; Mohsin 1997). But the reality that they did not consider that the lands in the Hills were neither suitable for cultivation nor was suitable for residence (see Table 1). As a result of limited cultivable lands, fallow period had been reduced to two-three years (Bichitra 1988; Mohsin 1997). Here it is noteworthy that, considering the life supporting capacity of lands, even as early as 1918, it was found necessary to restrict the migration of plains people into the Hills to protect the economy of the region (Mohsin 1997). At that time population of the Hills was about 200,000; consider, not 1500,000 (current population).

Although by the early 1970s most of the land was under occupation (Mohsin 1997); in the end of 1970s the Bangladesh government decided to send landless Bangali people into the Hills as by then the plain lands became over populated and the CHT was supposed “empty”. The military government wanted to solve the population problem of the plains evicting the Paharis from their lands. According to the decision of the government about 400,000 landless Bangalis were settled in the Hills by 1984 that immediately displaced about 100,000 Pahari

from their lands. Many Pahari were displaced from the lands where they used to practice jum and plough cultivation. Paharis who used to reside in the river-valleys moved into the steep high hills for living. Eventually the cultivable lands further decreased, so also decreased the fallow period for jum cultivation. As a result of low fertility now Pahari do not get sufficient crops as they used to get from it. Consequently, Paharis who were already in duress because of the land scarcity caused by the dam (in 1960s) faced further survival problem caused by the transmigration program of the government (began in 1979).

In this situation, the indigenous Pahari began resisting the influx of the Bangali settlers in the Hills. In response to the resistance, the Bangladesh government deployed a huge number of military and other armed forces to foil the “insurgency”. In consequence, many incidents of massacre, attack and reprisal attack, indiscriminate arrest, judicial and extrajudicial torture, killing, rape, sexual violence, forced religious conversion, forced marriage, and abduction took place, often committed by the armed forces and Bangali settlers. However, a couple of initiatives led to a long-awaited agreement in 1997 (widely known as “peace accord”) which formally ended the two and half-decade-long bloody conflict in the CHT. Even though, 15 years have elapsed since the signing of the agreement, the region is neither a peaceful nor a secured region to its people. However the Accord has opened many opportunities for the Pahari. Now they can choose various means of livelihoods such as business, jobs in NGOs (I will discuss this in shortly). Although the Accord did not restore peace in the Hills, it gives ways of survival that keep away them from indigenous realms (e.g. westernization, capitalism, profit maximization, individualism).

Table - 1 : Soil type and Land use Potential in the CHT

Types of Soil and Land Use	Class of Land	Area	
		Acres	Percent
All Purpose Agriculture	A	76,466	3.07
Terrace Agriculture	B	67,871	2.72
Mostly Horticulture & Partly Forestry	C	366,622	14.71
Only Forestry	D	1816,993	72.91
Horticulture & Forestry	CD	32,024	1.28
Settlement		653	0.03
Water Bodies		13,1637	5.28
Total		2,492,266	100.00

It should be borne in mind that the data of the Forestal study, prepared about a half century ago, are now quite out of date, given the critical changes taking place in the intervening decades. Significant chunks of the land area of the Hills have been taken up by expanding rural and urban settlements to accommodate the growing population, as well as for new roads and constructions. Moreover, much of cultivable lands have been acquired by the government offices in the name of plantation, afforestation, extension of military camps, and the like.

However, still jum cultivation remains the main means of Pahari livelihood. Silent famine or fasting among the Paharis caused periodic rat invasion (bamboo flowering) evident that many Pahari have nothing to do while they lost their jum crops caused if destroyed by any disaster.

Changing Pattern of Livelihood

The preceding discussions indicate the changing pattern of livelihoods in the Hills. Affected by intruders and circumstanced by both intrinsic and extrinsic factors, Pahari now practice a mixed economic activities and means of livelihoods. Structural and administrative changes as well as changes in management and utilization of sources have been taking place in Hills since the mid-19th century. These include shift of means of livelihood among the Pahari, the advent of new activities reflecting economic diversifications, as well as the advent of new products and services along with the disuse or disappearance of traditional ones (Adnan 2004).

In the contemporary economy, traditional production and trading activities of the Paharis, concerned with self-provisioning and subsistence, co-exist with profit-making activities mediated by the market which was introduced by the colonial administrators. The latter category includes cash crop farming, horticulture, commercial logging, timber and rubber plantations, business enterprises, etc. Significantly, sections of the Pahari have become involved in these non-traditional economic activities (Adnan 2004). Therefore, the major means of livelihoods that attribute the livelihoods of the Pahari are as follows :

- (i) Jum cultivation (farming with fire);
- (ii) Plough cultivation (farming with water);
- (iii) Extraction of forest resources;
- (iv) Gardening (fruit, tree, rubber);
- (v) Spinning and weaving;
- (vi) Livestock and poultry;
- (vii) Fishing;
- (viii) Craft works;
- (ix) Vocational sector;
- (x) Private and business sector;
- (xi) Government & NGO sector;
- (xii) Tobacco and coffee;
- (xiii) Wage labor.

The preceding discussions content that, population pressure on limited cultivable lands has begun to affect the viability of jum cultivation in the Hills. Furthermore, during the preceding decades of counterinsurgency, the area of jum cultivation available to the Pahari has been drastically reduced by a constellation of factors, invasion on their lands through illegal occupation, forced eviction, plantations, afforestation programs and other development interventions.

Table - 2: Mixed Livelihood Means in the CHT

Means of Livelihoods	Percentage
Jhum cultivation	20
Plough cultivation	20
Jum and forests	20
Jum and forest and others	20
Gardening, day labor, & others	10
Job (government, NGOs) and business	10

Table - 3: Major Livelihood Activities of the Pahari

On-Farm Activities	Percentage (mixed)	Off-Farm Activities	Percentage (mixed)
<i>Jhum</i> cultivation	93.1	Weaving 60.2	60.2
Fruit gardening	61.9	Small business 5.0	5.0
Livestock rearing	55.4	Govt. service 1.5	1.5
Poultry rearing	49.2	Private service 5.6	5.6
Farming in plain/ valley/fringe land	5.1	Wage earning 68.2	68.2
Source: Jamaluddin (2010:13).		Private service 5.6	5.6
		Selling fuel wood 44.7	44.7
<i>Note: As one respondent mentioned more than one activity, the summation of columns do not necessarily equals to 100.</i>			

These varied constraints reducing and restricting the areas available for jum cultivation have made it unavoidable for the Pahari to use the same plots with increased frequency. As a result, the fallow period between successive rounds of jum cultivation has declined from an average of 7-10 years to 3-5 years, leading to declining soil fertility and productivity (Roy 1997:33-34; Hume 1999:4). In such circumstances, jum could not form as a dominant mode; rather became a marginal means of livelihood within a complex peasant society closely circumscribed by state regulation (Jahangir 1979).

Despite the adverse circumstances, jum cultivation to be the preferred mode of cultivation of the majority Pahari most of whom are still non-literate, and have no other suitable options for livelihoods that fit well with local ecology, and social environment. According to an estimate, about 90 percent Pahari live in remote areas and about 60 percent of them depend on forest and natural resources for their livelihoods.

Increasingly the educated sections have shifted from traditional pursuits such as jum cultivation and extraction of forest resources to white-collar jobs and professional services (Adnan 2004:138). Although the educated Paharis are less interested in jum cultivation, they want it to be practiced by the ordinary Pahari. They prefer mainly government, and NGO jobs. Many educated Paharis are school teachers now. Once the school teachers organized the resistance movement against the settler influx in the Hills while nowadays educated Paharis are busy with their own development; community development has become a missionary job

to be done by the NGOs (Adnan 2004:137). Elite or educated Paharis prefer business, government jobs or jobs in international NGOs (UN, UNDP, UNICEF, WFP, etc.). The rich or elite Paharis prefer business while the educated graduate Paharis prefer prestigious jobs in international NGOs that offer handsome salaries that radically change their life-ways from traditional to modern; poor to rich; collective to individualistic; from rural to urban; egalitarian to capitalists, and the like.

Economic Transition in the Hills

- | | |
|---------------------------|---------------------------|
| ❖ Tradition – “modern” | ❖ Hill – city |
| ❖ Barter – money | ❖ Communal – capital |
| ❖ Home – market | ❖ Collective – individual |
| ❖ Independent – dependent | ❖ Local – global. |
| ❖ Rural – urban | |

Changing Economy and Livelihoods

From the preceding discussions it is evident that there have been profound changes in the economic activities and livelihoods of the Pahari that began in the colonial period. While the economic activities of pre-colonial Hills were geared to production for use, rather than for commodity exchange, restrictions on traditional economic activities and administrative changes occurred since the colonial period forced turned the Paharis into a complex society with mixed economy which is characterized by capitalism, commercialization, profit maximization and individualism.

Thus the constraint and the exploitation are caused by two interconnected factors, one is extrinsic and the other is intrinsic. The extrinsic factor is the policy of successive governments from the colonial to the post-colonial period. The intrinsic factor is the natural process of demographic growth within a hard pressed population, which further accelerated the deterioration of its social condition circumscribed by the successive state policies (Jahangir 1979). Once the existing traditional economic activities were forcibly dissolved and restructured in favor of the Bangali settlers and capitalist society, the dispossessed Paharis had no other feasible economic alternative, but to enter into the newly super-imposed relations in order to eke out their livelihood (Jahangir 1979).

The economically subordinate position of the majority of the Paharis can be attributed partly to their relative lack of capital, education, technical knowledge and other skills. These disadvantages have made it increasingly difficult for them to compete and survive in an economy progressively subject to market forces and capitalist rules of survival based on profit-making. Indeed, the latter are quite alien to the traditional economy, culture and ways of life of the Paharis (Adnan 2004:137)

However, the most critical factor underlying the economic subordination of the Paharis has been their lack of education and political power. It is because of this weakness that they have not been in a position to choose or control the nature of development interventions imposed upon them, as well as the pace and forms of integration with the national and world economies. Indeed, it is precisely because they have lacked influence over the decision-making

power of the state that the Paharis have been forced to become subordinate actors with marginal influence on the economy of their ancestral lands. These fundamental inequalities in economic position and political power have also provided the bases of ethnic conflict and stocked the resistance of the Paharis against economic exploitation and political domination (Adnan 2004:139).

Throughout the discussions it is evident that, both push and pull factors are also involved behind the changing economy and means of livelihood in the Hills (see Table 4).

Table - 4: Factors Involved behind the Means of Livelihood

Factors Involved	Economic Activity/Tendency	Introducer/Intruder
Push factors	Restriction on jhum cultivation	Colonial administration
	Introduction of money and bazaar	Colonial administration
	Introduction of plough cultivation	Colonial administration
	Construction of Kaptai dam	Pakistan government
	Population transfer program	Bangladesh government
Pull factors	Accord 1997	Bangladesh government
	Developmentalization, NGOization, and Internationalization	(i) Globalization, (ii) Education and (iii) Trans-ethnic orientation

Intrinsic and extrinsic factors are involved behind the economic transition. The intrinsic factors include among others monitorization, marketization private possession, capitalism, and resource allocation also introduced by the intruders while extrinsic factors are: militarization, transmigration, developmentalization, NGOization, and internationalization. However, both factors are involved together behind the transition in economic behavior as well as means of livelihoods.

Education and Livelihood

The focus of this study is to comprehend people’s perceptions as to how education can contribute to livelihoods—of the Pahari, of those still depend on jhum for livelihood, of those seeking to diversify their livelihoods to cope in the changed circumstances in the CHT.

The preceding discussion content that because of lack of education (both formal and non-formal) many changes have been occurred in the CHT economy most of that went against the interest of the Pahari. Because of lack of awareness among the traditional Paharis about what has been happening in their economy and livelihood they lost their rights from lands and resources. They are not even conscious about their future though they are passing a ‘hard’ time in their own land. Given the situation, education among other factors can help them to survive utilizing the remained resources and facilities. Formal education is not only for good jobs or non-formal education is not only for a vocational training, both can help to build their knowledge how to maximize their traditional economy scientifically (without destroying its

nature). For example, through education they will be able to be acquainted with the science of traditional cultivation (i.e. jum) or gardening and thusly they can get maximum benefit from their own economy. Education can also help them how best to deal with outsiders while trading or any other forms of bargaining.

Education (formal and non-formal) mainstreams the marginalized people for it acts as a “barometer” for the relationship between the state and its citizens. It provides opportunity to excel indigenous skills within and outside the hills and trains the Paharis to be self-reliant, resourceful and change agent for the communities. Education can provide choices of livelihood activities for them in the changed circumstances and help creating innovation within the Pahari by imparting education and livelihood activities. Here it is pertinent to note that education has been playing a significant role in the changed CHT economy that has been severally affected by the construction of Kaptai dam and subsequently transmigration. However, to a section of Pahari, Kaptai dam marks a watershed in the development of the political consciousness among them. The sufferings and loss of their land had forced them to take to education (Mohsin 1997:105).

In this regard, the story of Amit Chakma is noteworthy here. Amit Chakma was made the 10th President of the University of Western Ontario, Canada (from July 1, 2009). As Western News reports “Ironically it was the hydroelectric dam construction, flooding out thousands of Pahari villagers in the 1960s that first exposed Amit to education”. The report says :

“Chakma’s father was the only member of his family – he had 10 siblings – to attend school, rather than following the Chakma tribe’s tradition of living off the land. The foresight in this decision allowed the family to persevere when a hydroelectric dam built in their traditional area submerged the land. While a large segment of the tribe moved to remote areas for a fresh start, Chakma’s father took the family to work in a nearby town, where Chakma was able to enroll in school. [Amit Chakma says] As I was growing up, it became very clear life was going to be very difficult for us ... and the only way out of it was education. Early on my parents instilled in me the need to study.”

Education and Consciousness

As mentioned above, education helps creating consciousness among the people in many ways so that they can cope with the changed circumstances and how best to deal with others/outsideers.

- ❖ Educational, both formal and non-formal, provides opportunities for employment and income earning.
- ❖ It would be of particular use to those lacking access to the means of production such as land and forests.
- ❖ Education raises awareness among the people, enabling them to understand and challenge many of the mechanisms that have been used to exploit them, as well as to take over their lands.
- ❖ In this sense, education serves as a key mechanism of empowerment, enabling people to break the ‘monopoly of knowledge’ of exploiting groups and resist the processes resulting in their impoverishment.

- ❖ While education supports livelihood, consequently, it has consequent role to play to building peace among communities.

However, for linguistic barriers and nationalist academic curriculum, which causes high dropout rate in the Hills compared to the national level dropout. Other barriers to education identified by respondents in the study included: inability to cover the hidden costs involved in education; child labor; shortage of teachers (often resulting in courses being taught not in native language); poor teaching quality; lack of necessary equipment; priority given to buildings rather than books and teaching materials. There are some issues related to tribal education need to be addressed by the government and other concerned organization in order to ease education for the Pahari :

- ❖ Many unaware parents and their children have poor understanding regarding the value of education for both life and livelihood, for present and future.
- ❖ Still there are few schools with inadequate number of trained teachers.
- ❖ Distance of schools from remote hamlets retard their enthusiasm toward education.
- ❖ Most of the teachers unfamiliar with the local language and culture fail to build rapport with locals and students.
- ❖ Government funds for the development of education and training are limited to certain activities, also limited to the management of certain groups. As a result leads doubts of the community leads to poor cooperation in that direction.
- ❖ Neither the classrooms nor the teaching method are joyful to the students.
- ❖ The fear of punishment in schools, poor quantity and lack of sufficient subsidiaries and supports reduces the interest of the students.
- ❖ In most case children of a family are required to take-care of their siblings and home affairs while their parents work in jum or absent for other activities.
- ❖ The dropout scenario among the Pahari students is deplorable with 65 percent before completion of primary and 19 percent after primary while the average dropout rate is around 30 percent at primary schools at national level.
- ❖ Vocational activities are not local need-based and do not incorporate local language and culture.

Education, Livelihood and Sustainable Development

Education and training play an essential role in reducing poverty and in development. Education for sustainable development allows every human being to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future (UNESCO 2013). There are clear linkages between education, poverty reduction and sustainability. The poor and marginalized are disproportionately more affected by poor environmental and socio-economic conditions. Education and training can contribute to sustainable environmental management to improve livelihoods, increase economic security and income opportunities for the poor (Elanor 2011). Educational responses to poverty need to address the fact that many of the world's poor do not participate in the formal market economy but in non-formal economies, and many

are self-employed entrepreneurs. Education that is relevant and purposeful has the power to transform people's lives and has the potential to equip people with skills needed to improve their livelihoods.

The study shows that education is useful for considering the effectiveness of local and national strategies for livelihoods of the Paharis. Education has gradually emerged as a priority sector and is seen as central to both poverty reduction and development in the Hills. Thus we realize the role of education in livelihoods. We also comprehend ripple or dividend effect of education in peace-building through two major ways: basic education (formal education), and work-related training (informal education).

Basic education: primary education, opportunities toward free and compulsory primary education, gender-based policy, local context for the indigenous groups, protecting and restoring education in conflict and post-conflict periods; and increasing knowledge of education programs relevant to development; knowledge about country, people and culture.

Work-related training: opportunity to learn more technical skills through vocational training; introducing innovative approaches that go beyond the formal education sector, focusing on women in particular. These could include promoting self-employment and access to other forms of capital (land, loans, for example); introducing active policies to ensure a closer link between training and employment.

The Pahari people believe that education provides a pathway to economic independence and a route out of poverty; education is a key to a successful future. To them education is development. Some Paharis, who completed their graduation, emphasize the importance of widening work-related training and livelihood options in the changed circumstances while now Paharis are unable to depend merely on their traditional economic activities.

Increasing numbers of Paharis who had dropped out of traditional cultivation view the education as an important pathway to bringing about the future security of the family. Those who cannot afford education have limited income earning/livelihood options in the Hills, such as fishing, poultry, weaving, small business, setting up a tea stall, or daily labor. Despite the challenges, some have managed to develop viable businesses and have prioritized their savings to educate their children. According to them, employment guarantee is important. There is evidence that this issue has generated a backlash against education amongst parents in the Hills. Vocational training should incorporate work-related training ensuring jobs as well.

Although Bangladesh government yet to launch language-based education system in the Hills, it has been offering a certain quota for tribal students in education and job sectors. Today no Paharis remains unemployed; they are doing very good indeed. The educated Paharis avail many facilities (lucrative jobs in international NGOs: UNDP, UNFPA, WFP, UNICEF, etc.) created in the aftermath of the Accord comparing the educated Bangalis. They are doing jobs in the district councils, regional council, local and international NGOs including in government and private sectors. Thus they serve as role models for the new generations of Paharis accessing education in the Hills.

The quality of curriculum and distribution of teaching materials were considered more important than the construction of school buildings by education officials, students, and professionals. There has been a lack of qualified Paharis i.e. education, engineering, doctors,

construction, water and sanitation, police, and administration. However, this pattern is changing as new Pahari graduates are beginning to fill these positions.² Considering this a middle aged Chakma says, “I would prioritize education for a successful future”. However a Chakma also says, “It is important not to lose the connection with our traditional livelihoods. We want education but do not want it to destroy our traditions. Education should improve crop production and animal health. Good education enhances what you have; it does not leave what you have behind.”

They are trying to develop this and want to bring in education for youth so they can work more effectively in rural areas i.e., have clinics and other services in rural areas so people do not need to move from one place to another. “We want to improve poultry and fishing, combining our technical knowledge with indigenous knowledge, for example training on animal feeds, breeding, and how to milk in a more hygienic way and prevent diseases” (a Tripura says).

However, in order to meet local demands, a new curriculum should be introduced which links education with traditional livelihoods. “It is difficult for them to attend formal schools or training centers because they are not integrated—these youth need to be prioritized, for creation of job opportunities and vocational/skills training. Here the main problem is a lack of start-up capital, or loans or grants for start-up. Concerned bodies should consider this.

In a study in Tanzania data shows that primary graduates earn almost double the wages of those with no education; however, the increment between those with secondary and those with only primary is much greater (732 TSh per hour compared with 201 TSh). The study finds that a wage earner with complete primary earned 75 percent more than one with no schooling, whereas a secondary school graduate earned 163 percent more (World Bank 2004). It also finds that most graduates of post-primary formal education from the 90s have ended up in waged employment by 2001 (Mukyanuzi 2003). This data supports the claim that the labor market for those with post-primary education is far from saturated. There is also some evidence that entrepreneurs with post-primary education tend to establish more profitable enterprises (Wedgwood 2005).

Several studies argue (World Bank 2004; Mukyanuzi 2003; Wedgwood 2005), security and governance concerns— particularly with respect to the barometer idea whereby investment in youth training and livelihood creation could indicate a significant government commitment to a vulnerable, potentially unstable, marginalized and often quite large segment of the citizenry – ought to bring issues of vocational and livelihoods training into the agenda. A public university, medical college and some other vocational training centers need to be established in the Hills in order to create more educated and skilled Paharis to cope with the changed Hills.

Conclusion

A tribal economy is characterized by the collection of their social, institutional, technological and economic arrangements through which the community seeks to enhance their material and social well-being. There is always an interaction between the environment in which the community lives and their practices that led to sustain their livelihood. Thus a tribal economy is harmonized with the local ecology and social environment. In this paper I discussed three major issues: traditional means of livelihoods of the Pahari; changing pattern of livelihoods; and role of education in livelihoods that also has ripple/dividend effect in peace-building in the post-conflict CHT.

Throughout the study we understand the significant role of education in expansion and diversification of livelihood opportunities. Findings of this study confirm that the Pahari of CHT view education as the key that provides alternative livelihood opportunities to them, whose means of livelihood have become restricted. Almost all informants consider education as the entry point to being able to access alternative livelihoods. For this, a new curriculum is needed to be introduced which links education with traditional livelihoods.

Despite all restrictions and continuous pressure on jum cultivation, still jum remains the main means of livelihood of the Pahari. It is not only the main means of livelihood, but also the integral part of their lives, belongingness, and collectiveness. With the opening of money economy, bazaar system and plough cultivation, a virtual dominant Bangalis have been observed in the functions as boatmen, traders, shopkeepers, unskilled laborers, and porters as well as those of teachers, officials, and government employees in the Hills (Sopher 1964:108). These scenarios remained almost unchanged except that now some Paharis work in various local bodies (e.g. RC, HDCs and NGOs) in the aftermath of the Accord 1997. Some Paharis are involved with business and jobs (government and NGOs). There are some Paharis who work in the gardens or farms (tree or fruit), collect forest resources, cultivate coffee and tobacco and work as wage laborers. Therefore in the changed circumstances we observe a diverse means of livelihood in the Hills once where its people were predominantly jum cultivators.

Influenced severely by intruders and circumstanced by both intrinsic and extrinsic factors the Pahari now practice a mixed economic activities and means of livelihoods. Structural and administrative changes as well as changes in management and utilization of sources have been taking place in the Hills. These include shift of livelihood means among the Pahari, the advent of new activities reflecting economic diversifications, as well as the advent of new products and services along with the disuse or disappearance of traditional ones. Even though operating under a variety of different institutional frameworks, varied economic activities and processes interlink public enterprises, private businesses and NGOs operating in the Hills with multinational companies, donor agencies and private financial institutions around the world. All of these can be regarded as distinct strands of globalization that integrate the Hills with the capitalist world economy (Adnan 2004:137).

This trend has rapidly been driven by the displacement of Paharis from their lives and livelihoods caused by the construction of the Kaptai dam as well as forced eviction and movements caused by the counter-insurgency measures. Loss of access to lands and forest resources has compelled a growing section of Paharis to search for alternative means of livelihoods. While many choose to do gardening or plantations some Paharis preferred to get education as a key to future success as well as survival strategy. Education and training can help the Paharis in gardening as well. Education primarily endeavors to empower the marginalized Paharis socio-economically and, by extension, promotes peace and harmony among the contesting communities providing livelihoods and reducing poverty.

Education plays significant role as a “barometer” for the relationship between the state and its citizens. To get the best result from education there are some important areas that need to addressed comprehensively: (i) access to school (primary and secondary): distance, economic well-being, interest for education, reasons of out-of-school; (ii) textbook: curriculum,

socio-cultural context, peace education; (iii) schooling system: medium of instruction, interaction between instructors and students, local environment (school and outside), inter-ethnic relationship (among the indigenous groups, and between indigenous groups and Bangali); teachers and teacher education; (iv) financial support for schooling and employment support and, (v) community involvement: specially involvement of the youth is very important in education programs. Youth of a community are not only the future leaders but also the model of the children who together will transform the society toward peace and ensure peaceful-coexistence.

Education not only helpful for their livelihood and sustainable development by extend it can contribute peace-building process by promoting inclusion, socialization, livelihoods, and social benefits. It plays important role when integrated within other development programs. Education plays five main roles among others in supporting recovery in a conflict-affected region: protection, return to normality, psychosocial support, education for peace and economic recovery (James 2010). Local language, history, context and needs need to be addressed in curriculum properly so that education can play its role in livelihoods and local find education as their own means to change their society and choose peace for living.

Therefore the paper urges for an integrated education program (both basic and vocational) for sustainable livelihood, which primarily endeavors to empower socio-economically marginalized and vulnerable people and, by extension, their equally disadvantaged families and communities. Eventually the Pahari will experience peace as a ripple effect of education in the Hills where peace still is absence or illusive though 15 years have passed since the signing of the “peace accord”.

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A Pathway out of Poverty - MGNREGA as a Livelihood option for Rural Tribal People in Tripura, India

Soma Debnath and Paramita Saha

Introduction

India witnesses rapid changes at the macro level. Since the early nineties the livelihood systems of the poorer section of both rural and tribal households become instable. Scheduled Tribes (STs) people are indigenous. They have their own unique culture. They are geographically remote and have poor socio-economic conditions. For centuries, due to their habitation in forests and hilly tracts the tribal groups have remained outside the realm of the general development process. Across the country most of the tribal areas are hilly, inaccessible swelling upland lands in the forest areas of the country. They are lagging behind from the general developmental programmes such as infrastructure and development facilities in tribal areas for education, roads, healthcare, communication, drinking water, sanitation etc. lagged behind compared to other areas. For a long time this backwardness resulted the gaps of development between the tribal's and the general population further widening. They have also limited livelihood options. Now due to government policy to protect forest they lose the scope of traditional Jhume cultivation which was their main source of income. They also depended on forest for their livelihood. This dependency also reduces though forest right bill had passed. For the growing population forest resources is not sufficient to meet all the demands. The tribal people had not much opportunity to go out. Since independence Government of India and Government of various states have taken lots of developmental programme to improve their conditions and also provide new livelihood options. The social and economic conditions of the people belonging to the Scheduled Tribes have been the concern of Indian political and social movements in pre-independent India. According to Mahatma Gandhiji, freedom was not a mere political objective but also to uplift the mass of people from poverty and degradation. The mainstream political and social movements, which were deeply influenced by Gandhian approach, emphasised the essential need to change the condition of Scheduled Tribes people.

In the Central Indian States and North-Eastern Region States there are Constitutional provisions of 5th and 6th Schedule for the protection and administrative allowance for Tribal's. "Forest Rights Bill", "Land Rehabilitation & Resettlement Policy" these bills are enacted by

Indian government for the developments of these poor groups (tribals). Though various steps have been taken by Indian government to provide livelihood security for the tribes but till there condition is vulnerable. Under Article 342 of the Indian Constitution it is notified by the Central Government that there are 697 tribes with certain tribes being notified in more than one State. To provide livelihood security in the rural area in year 2005, Indian government has passed the Mahatma Gandhi National Rural Employment Guarantee Act. In this act 100 days employment security is provided to every rural household. The nature of this programme is inclusive. This is a demand driven programme. Through this scheme along with 100 days employment opportunity sustainable assets also created which may create further livelihood options in every rural area. The scheme is designed in such a manner that not only general people, tribals are also getting equal benefit from it.

Objective, Data and Methodology

The paper seeks to explore the extent of benefits or social security cover received by the tribal population. The role of the MGNREGA in providing income and livelihood security for the tribal population of the state is analysed on the basis of secondary and primary data.

Secondary data obtained from MGNREGA and census website offers the basis for finding how much work was received by the tribal population through MGNREGA in last few years all over the country and the state of Tripura particularly and their share in total population. But to understand how this scheme acts as a livelihood support for the rural tribal people, primary data is collected from 24 villages in West Tripura and South Tripura District. The primary data used for the paper is a part of a large project designed to assess Livelihood Security of Women through MGNREGA in Tripura. Till 2012 Tripura consisted of four districts - West Tripura, South Tripura, North Tripura and Dhalai. Of these four districts two most populated districts, West Tripura and South Tripura District are chosen for the study. Forty three tribal households constitute the sample.

The paper proceeds as follows. The paper is divided into five sections. It starts with a brief background of introduction of tribal livelihood in the 1st section, which also includes the methodology adopted and data sources. In Section II a review of literature about tribal livelihood is presented. Section III discusses how MGNREGA provide livelihood opportunity to the tribal's across the states in India and the state Tripura particularly. In Section IV, by Primary data analysis it is also try to show the Impact of MGNREGA on rural tribes in Tripura. Section V draws some conclusions and suggests some policies.

Review of Literature

Tribal people lived near to biodiversity rich landscapes from the very beginning and they have their indigenous knowledge for their novel livelihood strategies. They passed on this knowledge through generations. By and large, nature is their only source of livelihood options and they depend on it for their survivals. Thus, in the traditional societies there existed a natural harmony between humans and their surrounding environments. As a result, there existed a complicated relationship between their culture and nature. For the use of different natural resources and management of these resources social and cultural diversity, together with the environmental complexity, have generated various approaches and technologies (Mishra, 2007).

Traditionally villagers, specifically the tribal, manage their relation with resources on a sustainable basis (Roy Burman, 1993). For the sustainable use and management of natural resources tribal village councils ensured strict adherence of institutionalized rules and cultural practices and also regulated the use of natural resources more carefully. It is found from various studies that the tribal communities are well aware of the value of protect biological resources, and had developed efficient processes to preserve them (Gadgil and Berkes, cited from Singh et al., 1996).

Tribal economy and culture are closely related with nature. Each indigenous community has their unique life style and tradition based on the utilization of particular natural resource and particular type of work. There always exist a symbiotic relationship between tribal livelihood options and the surrounding natural resource like the forest, land, water bodies, mineral resource and other flora and fauna. Like maximum rural people in India for tribal people land is an important source of livelihood. For their survival, around 90% of tribe's populations in India were depending on land directly or indirectly (Verma 1995 cited from Oraon 2012).

They have agro based economy. Apart from that they also depend on forest for their livelihood. Forest provides them several goods, services and amenities. But forests are now shrinking and unable to serve all the purpose that it could have done before. This limited natural resource base surroundings, the tribal societies being scarce and many conflicting demands placed on it from other sectors and other areas of society reduces their availability to the tribal communities and affects their livelihood (Mukherjee, et. all, 2012 cited from Oraon 2012).

MGNREGA as a Livelihood options for Schedule Tribes in Tripura

Agriculture is the mainstay of economic activities among the STs in Tripura. Among all STs, 45.9 per cent of the total main workers have been recorded as cultivators and 29.7 per cent agricultural labourers (Census 2001, Office of the Registrar General).

In 2001 Census, 37 per cent has been recorded as workers among total workers, which is lower than the other worker among total workers (63.4 per cent) in Tripura. Of the total workers, 25 per cent have been recorded as main workers and 11 per cent as marginal workers among STs. Among STs, WPR of 16 per cent among females is slightly lower than that of males (21 per cent). Gender wise disparity, however, is dominant in case of both ST and other main workers; 18 per cent and 46 percent among males and only 8 per cent and 7 percent among females have been recorded as main workers. But in case of ST marginal worker percentage of female participation in total worker is higher than the percentage of male participation in total worker. From the following table it is observed that status of ST worker in Tripura is lower than other worker which means tribal have lesser opportunity to get work. In such a situation an inclusive programme like MGNREGA played a great role in tribal people's life by providing employment.

Table -1: Distribution of Total, Main & Marginal Workers among STs and others in Tripura

T/M/F	Workers			Percentage of ST Workers in Total Worker			Percentage of Other Worker in Total Worker		
	Total Workers	Main Worker	Marginal Workers	Total Workers	Main Workers	Marginal Workers	Total Workers	Main Workers	Marginal Workers
Total	1,159,561	912,292	247,269	423,851 (37%)	294,980 (25%)	128,871 (11%)	735710 (63.4)	617312 (53)	118398 (10)
Male	831,346	742,054	89,292	240,239 (21%)	207,708 (18%)	32,531 (3%)	591107 (51)	534346 (46)	56761 (5)
Female	328,215	170,238	157,977	183,612 (16%)	87,272 (8%)	96,340 (8%)	144603 (12)	82966 (7)	61637 (5)

Source: Office of the Registrar General, Tripura DATA HIGHLIGHTS: THE SCHEDULED TRIBES, Census of India 2001 downloaded on 12th June 2013

At present rural peoples lose their opportunity of work due to globalization. Their livelihood options become limited as their livelihood strategy is unstable since beginning. Government has taken initiatives and implements such a programme MGNREGA, which can ensure 100 days employment security for every rural mass who are willing to do work. Through employment generation it tries to generate income in the rural area, as other livelihood options in the rural areas are not sufficient to ensure livelihood security. People find it as a livelihood option. People work under this programme and earn a minimum wage in every year which helps their livelihood. In India Schedule Castes and Schedule Tribes people tend to be economically marginalized. Proper utilization of fund in any government scheme requires that its implementation is inclusive. This scheme is designed in such a way that it can incorporate all section people who are willing to work. ST participation in NREGS work is higher than their share in total population for all the year in all India level (in 2001 proportion of ST in total population is 8.2). It is also observed that the trend is similar for all the states for all the years except Andaman & Nicobar Islands (For STs) (Table 2). It proves that MGNREGA is able to ensure livelihood security to this marginalize people.

Table 3 shows that, employment generation in terms of average person days generated per ST household in the state as a whole in different years fluctuates. In the year 2008-09 Maharashtra was very near to its goal of given 100 days employment. In the year 2010-11 and 2011-12 Nagaland got highest position in employment generation among all the states

Table - 2: Share of STs in MGNREGS Work

States	Share of STs In total population	2008-09		2009-10		2010-11		2011-12	
		In NREGA	Dif. *	In NREGA	Dif. *	In NREGA	Dif. *	In NREGA	Dif. *
A. & N. Islands	8.3	9.85	-1.6	6.86	1.4	13.68	-5.4	3.69	4.6
Andhra Pradesh	6.6	12.95	-6.4	14.71	-8.1	16.02	-9.4	18.36	-11.8
Arunachal P.	64.2	81.06	-16.8	97.75	-33.5	90.26	-26	100	-35.8
Assam	12.4	34.45	-22	31.02	-18.6	27.26	-14.8	22.82	-10.4
Bihar	0.9	2.65	-1.7	2.16	-1.2	2.14	-1.2	1.77	-0.9
Chandigarh	NN	0	NN	0	NN	0	NN	0	NN
Chhattisgarh	31.8	41.32	-9.6	38.2	-6.4	36.51	-4.8	37.56	-5.8
D. & N. Haveli	62.2	100	-37.8	100	-37.8	100	-37.8	0	62.2
Daman & Diu	8.8	0	8.8	0	8.8	0	8.8	0	8.8
Goa	0	0	0	26.89	-26.8	24.26	-24.2	21.22	-21.2
Gujarat	14.8	50.56	-35.8	39.46	-24.7	41.18	-26.4	40.26	-25.5
Haryana	NN	0	NN	0.01	NN	0	NN	0.02	NN
Himachal P.	4	7.79	-3.8	8.7	-4.7	8.19	-4.2	6.11	-2.1
J & Kashmir	10.9	27.43	-16.5	26.13	-15.2	25.07	-14.2	14.98	-4.1
Jharkhand	26.3	39.97	-13.7	42.99	-16.7	42.08	-15.8	39.1	-12.8
Karnataka	6.6	13.87	-7.3	8.57	-2	9.36	-2.8	8.3	-1.7
Kerala	1.1	9.26	-8.1	5.33	-4.2	3.1	-2	2.37	-1.2
Lakshadweep	94.5	99.56	-5	99.87	-5.4	100	-5.5	98.64	-4.1
Madhya P.	20.3	46.81	-26.5	45.34	-25.1	43.45	-23.2	27.42	-7.1
Maharashtra	8.9	44.17	-35.3	33.16	-24.3	25.57	-16.7	17.11	-8.3
Manipur	32.3	72.91	-40.6	42.85	-10.5	70.64	-38.3	70.7	-38.4
Meghalaya	85.9	94.72	-8.8	94.09	-8.1	94.51	-8.6	93.97	-8
Mizoram	94.5	99.95	-5.5	99.86	-5.4	99.84	-5.4	99.52	-5.1
Nagaland	89.1	100	-10.9	100	-10.9	100	-10.9	92.48	-3.3
Orissa	22.1	35.81	-13.7	36.26	-14.1	35.55	-13.4	38.17	-16
Pondicherry	NN	0	NN	0	NN	0.06	NN	0.09	NN
Punjab	NN	0	NN	0	NN	0.02	NN	0	NN
Rajasthan	12.6	23.24	-10.7	22.5	-9.9	23.28	-10.7	24.54	-12
Sikkim	20.6	44.14	-23.5	42.53	-21.9	39.89	-19.3	35.94	-15.3
Tamil Nadu	1	1.74	-0.7	2.5	-1.5	2.19	-1.1	1.28	-0.2
Tripura	31.1	45.19	-14.1	40.98	-9.9	43.45	-12.4	42.03	-11
Uttar Pradesh	0.1	1.96	-1.9	1.48	-1.4	2.1	-2	1.25	-1.2
Uttaranchal	3	5.15	-2.1	4.04	-1	4.24	-1.2	2.89	0.1
West Bengal	5.5	14.81	-9.3	14.38	-8.9	13.41	-7.9	10.24	-4.7
India	8.2	25.43	-17.2	20.71	-12.5	20.85	-12.7	18.24	-10

Source: www.nrega.nic.in, Census 2001 * Difference

In case of districts of Tripura proportion of ST person days in total person days is higher than others in all the year in the state as a whole (Table 3, Table 4). ST participation in NREGS work is higher than their share in total population (in 2001 proportion of ST in total population is 31 percent respectively). Therefore, it is definitely a well appreciated trend. It is mandated that every rural household who are willing to work under NREGS get job irrespective of their socio economic status. However, the objective of reaching the economically, socially backward class are also fulfilled.

Table - 3: Percentage of ST Persondays in Total Persondays (2008-2011)

District	2008-09	2009-10	2010-11	2011-12	Proportion of ST in total Population(2001)
Dhalai	61	68	67	66	54
South Tripura	43	45	46	31	26
West Tripura	40	38	38	45	38
North Tripura	39	28	32	37	25
Total	45	41	43	42	31

Source: www.nrega.nic.in

Table - 4: Percentage of Others Persondays in Total Persondays (2008-2011)

District	2006-07			2007-08			2008-09			2009-10			2010-11		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
West	1224	1087	2311	1245	1282	2527	1982	1795	3777	1375	1327	2702	1914	1287	3201
South	379	142	521	371	182	553	643	252	895	580	250	830	741	396	1137
North	97	44	141	205	92	297	325	166	491	279	159	438	277	171	448
Dhalai	102	59	161	107	71	178	125	100	225	132	96	228	131	122	253
Total	1802	1332	3134	1928	1627	3555	3075	2313	5388	2366	1832	4198	3063	1976	5039

Source: www.nrega.nic.in

It is also observed that participation rate is higher (Participation rate = actual work/job card holding) in case of ST population than others. This is because may be there are limited livelihood options in tribal areas other than MGNREGS work. So, tribal people find MGNREGA as a livelihood options and they are participated in MGNREGA in a higher number.

Table - 5: Participation Rate

Districts	2008-09		2010-11		2011-12	
	STs	Others	STs	Others	STs	Others
Dhalai	103	109	94	86	96	94
North	97	84	95	88	95	92
South	94	86	92	84	95	88
West	92	87	91	86	96	94
Total	95	87	92	86	96	92

Source: www.nrega.nic, MIS report: Note: 2009-10 data is not available in MIS report

From the table 6 it is observed that in case of ST average person days Tripura is higher than the national ST average person days for all the year 2008-9, 2010-10 and 2011-12. It means MGNREGA act as a good livelihood options for this vulnerable group of people in Tripura providing direct income. Through this scheme a minimum income is generated in every

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rural MGNREGA workers household. This extra income enhances their purchasing power which pumped rural market also. As average working days per ST household are not sufficient for direct income earning from this scheme but there is another aspect of this scheme. It helps to generate additional income through creation of income generating assets such as fishery, plantation and land leveling for agriculture etc, though they are now in their initial stage. It is predicted that in future people will be able to earn from that.

Table - 6: Average ST Persondays

States	2008-09	2010-11	2011-12	States	2008-09	2010-11	2011-12
Andhra Pradesh	NIL	63	80	Meghalaya	31	50	50
Arunachal Pradesh	15	NIL	16	Mizoram	43	71	77
Assam	25	33	30	Nagaland	43	88	80
Bihar	23	41	36	Odisha	35	52	34
Chhattisgarh	36	45	47	Punjab	13	26	28
Goa	43	30	26	Rajasthan	63	52	53
Gujarat	26	40	36	Sikkim	28	61	59
Haryana	39	25	34	Tamil Nadu	25	39	42
Himachal Pradesh	48	50	51	Tripura	58	74	92
Jammu and Kashmir	37	33	48	Uttar Pradesh	30	44	39
Jharkhand	42	46	38	Uttarakhand	21	43	39
Karnataka	41	53	43	West Bengal	15	32	30
Kerala	39	NIL	46	A. & N. Island	NIL	37	40
Madhya Pradesh	36	46	43	Lakshadweep	30	35	43
Maharashtra	88	32	56	Puducherry	NIL	24	24
Manipur	43	22	78	Total	44	50	51

Source: www.nrega.nic.in MIS report, Note: MIS data is not available for 2009-10

Impact of MGNREGA on Rural Tribes in Tripura

In the previous chapter only the coverage of the programme and its income generation has explained. Primary data analysis is needed to explain how this programme supports tribal people's life. In this chapter a small sample data is analyzed to explain how MGNREGA act as a livelihood options and effecting common people's life specially schedule tribe's people. For the primary survey 157 households have been studied. Among these 157 households 43 households are ST and remaining 114 are Non-ST households.

Socio-economic profile of the survey household and the impact of MGNREGA on them:

Maximum number of households is male headed in case of both ST and Non-ST. male dominance is found in case of both ST and Non-ST.

Table - 7: Head of the Household

Category	ST (%)	Non-ST (%)	Total
Male	38(88%)	93 (82%)	131
Female	5(12%)	21(18%)	26

Source: Survey

It is also observed that maximum number of the household's size is 4 in case of ST and 3 in case of Non-ST household.

Table - 8: Household Size

Family Size	ST (%)	Non-ST (%)
1	1 (2)	2(2)
2	1(2)	20(18)
3	7(16)	31(27)
4	18(42)	30(26)
5	7(16)	17(15)
> 5	9(21)	14(12)
Total	43	114

Source: Survey

In relation with both ST and Non-ST household, it is found that all APL and BPL families work under MGNREGA. Among the workers in both ST and Non-ST maximum number of workers belongs to APL category. It means all economic groups of people find it as a livelihood options.

Table - 9: Poverty Level

Category	ST (%)	Non-ST (%)	Total
APL	33(77)	72(63)	105
BPL	10(23)	42(37)	52

Source: Survey

Maximum numbers of worker have their own land. Number of ST's having own land is higher than Non-ST.

Table - 10: Ownership of the land

Own land	ST (%)	Non-ST (%)
Yes	42(98)	103(90)
No	1(2)	11(10)
Total	43	114

Source: Survey

From the following table it is observed that a less percentage of ST household compare to Non-ST household have agricultural land. It is also noticeable that among ST agricultural land owner maximum numbers of worker have between 31 to 60 ganda lands. However, in case of Non-ST agricultural land owner maximum number of workers has between 10 to 30 ganda lands (Table 11).

Table - 11: Ownership of Agricultural Land

Amount of the Land (Ganda)	Agricultural land (%)		Non-Agricultural land (%)	
	ST	Non-ST	ST	Non-ST
<10	0	5(18)	17(40)	70(68)
10-30	5(50)	15(54)	20(48)	22(21)
31-60	3(60)	6(21)	0	6(6)
61-100	1(50)	0	3(7)	4(4)
>100	1(10)	2(7)	2(5)	1(1)
Total	10	28	42	103

Source: Survey (*1 Ganda=864Sq ft)

In 43 ST household, 57 members are involved in different income earning activities; similarly 92 members are involved from 141 Non-ST household. It is noticeable that in case of ST households maximum are engaged in agriculture related activities and in case of Non-ST maximum number of households members are involved in non-agricultural activities (Table 12).

Table - 12: Occupational Pattern of the Worker Household

Occupation	ST (%)	Non-ST (%)
Regular salaried	17(30)	8(9)
Agricultural activity	23(40)	28(30)
Non-agricultural activity	17(30)	56(61)
Total	57	92

Source: Survey

It means agriculture is the main source of tribal livelihood options in Tripura which is also supported by secondary data. Among 50 ST workers and 148 Non-ST workers only 2 percent ST workers and 9 percent Non-ST workers had studied beyond the 10th year of schooling (Table 13). It is also observed that a higher number of ST workers are illiterate than Non-ST workers. This shows that MGNRES beneficiaries are mostly unskilled and semi-literate people who need this scheme the most. In many cases it is also found that MGNREGA influence workers to learn to write their name. As it is difficult for the workers to withdraw money from bank without signing, so eventually they learnt to write their name. This is reported by the workers and panchayat functionaries.

Table - 13: Education Level of the MGNREGA Worker

Education Level of the MGNREGA Worker	ST			NON-ST		
	Male	Female	Total (%)	Male	Female	Total (%)
ILT	0	7	7(14)	1	4	5(3)
Just LIT	0	8	8(16)	9	16	25(17)
I-V	4	11	15(30)	14	31	45(30)
VI-VIII	3	7	10(20)	18	15	33(22)
IX-X	4	5	9(18)	16	10	26(18)
XI-XII	1	0	1(2)	12	1	13(9)
>XII	0	0	0	1	0	1(1)
Total	12	38	50	71	77	148

Source: Survey

It is found that a higher percentage of female worker among ST households work under MGNREGA than that of Non-ST household. It is also observable that among Non-ST female workers are more (Table 14).

Table - 14: Job Card Use

Workers	ST (%)	Non-ST (%)
Male	8(19)	45(39)
Female	30(70)	50(44)
Both	5(12)	19(17)
Total	43	114

Source: Survey

MGNREGA is an employment generating scheme to improve the condition of poor people. While comparing ST households with Non-ST households in relation their annual income, it is observed that among ST household highest percentage of household belong to 50001-65000 annual income groups but in case of Non-ST highest percentage of household belong to 35001-50000 annual income groups. It is also noticeable that ST households are belonging to higher income group work under MGNREGA more than Non-ST households (Table 15).

Table - 15: Annual Income Group

Annual Income Group	ST (%)	Non-ST (%)
5000-20000	0	6(5)
20001-35000	4(9)	10(9)
35001-50000	7(16)	33(29)
50001-65000	11(26)	27(24)
65001-80000	6(14)	15(13)
80001-95000	4(9)	10(9)
95001-115000	3(7)	4(4)
>115001	8(19)	9(8)
Total	43	114

Source: Survey

Paid work under MGNREGA has helped rural ST's to find a livelihood options. While ST worker's earnings from the MGNREGA constituted 11.14 percent of the total annual income of the household there Non-ST worker's contributes 14.47 percent in their total annual income through MNREGS (Table 16).

Table - 16: Average Annual Income and Share of MNREGS Income in Total Income

Income through NREGS	ST	Non-ST
Average Income of Households from NREGS (Rs)	8830.79	9722.81
Share of NREGS in the Total Annual Income of Households (%)	11.14	14.47

Source: Survey

It is observed that though the share of MNREGS income is very less in total annual income but a higher percentage of ST households now have better meal than pre- MNREGS compare to Non-ST (Table 17).

Table - 17: Change in Food Basket

Improvement in Food Basket	ST (%)	Non-ST (%)
Yes	29(67)	61(54)
No	6(14)	38(33)
Not bed before	7(16)	16(14)
Total	43	114

Source: Survey

Among the 43 ST and 114 Non-ST maximum numbers of both households uses the MGNREGA income in consumption purpose. It is also noticeable that among ST households 51 percent save a portion of their MNREGS income where as only 37 percent Non-ST households save money from their MNREGS income. Though a very few ST households (5 percent) use MNREGS income as a new livelihood options (purchase pig) but the percentage (3 percent) is higher than Non-ST households (Table 18).

Table - 18: Uses of the MGNREGA Income in different Purpose

Different Purpose	ST (%)	Non-ST (%)
Save	22(51)	42(37)
Not save	21(49)	72(63)
Household consumption	41(95)	102(89)
Educational expense	15(35)	29(25)
Medical expense	8(19)	11(10)
House repair	1(2)	6(5)
Asset purchase	5(12)	12(11)
Debt repayment	3(7)	6(5)
Others	1(2)	5(4)
New livelihood options	2(5)	3(3)
Household Total	43	114

Source: Survey

Moreover, pre-MGNREGA there is a lesser percentage of households having bank accounts. Since the government has given a direction for account payment of MGNREGA wages, it is likely to be universalised in other places as well. Before MGNREGA only a few households have access to Bank/Post Office account (Table 19). MGNREGA provide not only livelihood options it provides batter access of government institutions like PRI and Banks

Table - 19: Bank Account

Having Bank Account	ST (%)		Non-ST (%)	
	Before MGNREGA	After MGNREGA	Before MGNREGA	After MGNREGA
Yes	12(28)	43(100)	28(25)	114(100)
No	31(72)	0(0)	86(75)	0(0)

Source: Survey

Account payment of wages has some other effects also. It increases the chance of greater control over earnings and also leads to the development of a saving habit. Initially, when bank payment system was not available most of these workers used to withdraw their entire wage at one go. Now some workers have started withdrawing as per their needs. This has an added advantage as workers are now able to save money. Workers were also found to invest in fixed deposit schemes in the same bank.

Conclusion

MGNREGA was enacted in a manner to provide employment in the rural area where such programme was utmost and urgently needed. Moreover this is an inclusive programmes where socially backward groups (ST, SC) peoples are equally given emphasize like others. Tribal participation in MGNREGA is glorious (Roy, S. 20110). Higher ST participation in MGNREGA leads to more economic empowerment to them. STs are benefited from getting job at their locality. Nevertheless, access to banks and post offices are new developments. Now, if more than 100 days work is made available to the worker are ready to work. Though average ST person days is less than 100 in a year yet, the tribal beneficiaries of the State argue that it has brought a new dawn for them and they predict an improvement in their livelihood. Before the implementation of MGNREGA most of them had to go to forest to collect firewood and bamboo. They sell the firewood and bamboo in distant rural markets to manage their daily meal. Now they got work at their door step under MGNREGA.

Moreover, MGNREGA provide through government and people work there in group which attracts young boys too. It was also found that few boys work there to meet their educational expenses, some work there as they are unemployed and even few work there to meet their pocket expenses.

Policy Prescriptions

It is found from the primary data analysis that ST female are work in this scheme more. It is to needed to consider some issues that helps new mother to work under this programme. Such as, children are not comfortable with unknown women in crèche, which is made available in MGNREGA worksite. There is no playing kit which can make children stay there happily or willingly. Due to this, mothers are not able to work under MGNREGA. This issue needs to be considered and demand immediate attention. One more need that has to be taken care of is to provide women work in women friendly projects. Keeping in mind the situation of a mother having small kids, they should be provided work in such projects where these mothers can work keeping their kids with them. There is a strong demand from women for individual beneficiary schemes and income generation activities like horticulture, sericulture, food processing, especially in the rainy months (INDIAN SCHOOL OF WOMEN'S STUDIES DEVELOPMENT, Oct 2006). It is also needed to provide work generally lean season. Not only that as tribal people are mostly dependent on agriculture so such project should be take that improved agricultural productivity.

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Opportunity of Tribal Livelihood: Role of Higher Education in Tripura

Sanjoy Das and N.B.Dey

Introduction

Tribal people over the years have become the most disadvantaged, exploited and the neglected lot in our society. The Indian Tribal Communities are the primitive segment of Indian society living in forests, hills and desert areas having least contact with civilization, carrying customs and traditions of Indian culture. They are facing a lot of problems. The problems arising out of their isolation. It can be removed to a great extent through education. Consequently gradual absorption into the mainstream will become smooth. The constitution of India had promised the tribal of India protection against exploitation, respect for their tradition and heritage, assistance for the improvement of their socio-economic and educational status. Despite constitutional grantee the tribal have been the most adversely affected by the development projects.

Scheduled tribes form one of the most backward classes of our country. Though there has been gradual increase in their education rate since independence, the present position is far from satisfaction. According to constitution of India, everyone has fundamental right to be educated. But even now in our society, the creamy layer of people enjoys all educational facilities. So there is a need to provide special care and educational opportunities to this weaker section. At the time of independence the size of higher education system in terms of educational institutions and number of teachers was very small but since that time onwards there has been exponential increase in higher education. The system of education in India is divided into five broad parts primary, secondary, higher secondary, graduate and post graduate. In the higher education, it is the general perception that it begins from higher secondary with three faculties- Arts, Science and commerce. After that the students move forward to graduation level. But the tribal people are lag behind in the regional and national life. If they are taught every stage in education they would be better position to compete with others.

The total population of Tripura in 2001 Census has been 3,199,203. Of these 993,426 are Scheduled Tribes (STs) constitute 31.1 per cent of the total population. The state has registered 16.4 per cent decadal growth of ST population in 1991-2001. There are nineteen (19) notified STs in the state. The Tripura, Jamatia, Reang, Uchui, Garo, Chakma, Mog, Lusai, Kuki, Halam etc. belong to the tribal community of Tripura.

TRIBAL LIVELIHOOD

Tribal population in Tripura is 31.13% of total population. Tripura(Tribe), the main ST in the state from which the state has earned its name 'Tripura', alone accounts for more than half of the total ST population of the state (54.7 per cent). Riang (16.6 per cent), Jamatia (7.5 per cent), Chakma (6.5 per cent), Halam(4.8 per cent), Mag (3.1 per cent), Munda (1.2 per cent), Any Kuki Tribe (1.2 per cent),and Garoo (1.1 per cent) are the other major STs in terms of population. Along with Tripura they constitute about 97 per cent ST population of the state. Therest of the STs are small in population size.The STs in the state are predominantly rural (97.4 per cent). One third of thetotal ST population of the state is living in West Tripura district (39 per cent), followed bySouth Tripura (29.1 per cent), Dhalai (16.7 per cent), and North Tripura (15.1 per cent).Dhalai district, however, has recorded the highest proportion (54 per cent) of STpopulation.The constitution of India promised several protective measures for the well-being of the tribal.

Table-1: Population and Proportion of Major STs, 2001 Census

Name of the Scheduled Tribe	Total Population	(%) of ST Population
All Scheduled Tribes	993,426	100%
Tripura	543848	54.7
Reang	165103	16.6
Jamatia	74949	7.5
Chakma	64293	6.5
Halam	47245	4.8
Mog	30385	3.1
Munda	12416	1.2
Kuki	11674	1.2
Garoo	11180	1.1
Noatia	6655	0.67
Chaimal	226	0.02
Santhal	2151	0.22
Bhil	2336	0.24
Orang	6223	0.63
Bhutia	29	0.00
Lepcha	105	0.01
Khasia	630	0.06
Uchoi	2103	0.21
Lushai	4777	0.48

Source: Census India 2001

Objectives

Objectives of the paper are to study higher education of tribal students and examine issues concerning access to higher education and equity for Scheduled Tribe communities and also highlight their unique problems, which may require different policy responses. The paper aims at examining the opportunity extended by the higher education system of the state to maintain a meaningful livelihood of the tribal population of Tripura. Different aspects of livelihood are examined through different aspects of higher educational facility extended to the tribal population. People learn about their rights and shortcomings through education and awareness. The main objective of the paper is to establish a linkage between opportunities of livelihood and indicators of higher education development as found among the tribal population of the state.

Methodology

To deal with the issues, the paper relied upon appropriate secondary sources in collecting data. Basic statistics of Higher Education (Govt. Degree colleges) have been taken into consideration. The secondary data was collected from the departments of Higher education, Statistics and Census.

Livelihood

A person's livelihood refers to their "means of securing the necessities of life". Livelihood is defined as a set of economic activities, involving self-employment, and or wage employment by using one's endowments (both human and material) to generate adequate resources for meeting the requirements of the self and household on a sustainable basis with dignity. In modern parlance, livelihood refers to the way people make a living. We speak of "livelihood systems", because the livelihood provided for is an emergent property of a coherent and interrelated set of activities that are implemented within a broader environment.

Livelihoods of the tribal community should be perceived as various and multi-faceted rationally chosen activities that a tribe's people undertake to support themselves and not in urban or modern terms of employment, jobs, work-place or cash-income. "Making a living" is largely about generating income. But this is really a means to an end, which also includes aspects of: Food security (the ability to feed oneself and one's family); Providing a home; Health; Security (reduced vulnerability to climatic, economic or political shocks, etc); Sustainability (the ability to continue to make a satisfactory living); Power (the ability to control one's own destiny), etc.

In other words, improving rural livelihoods involves more than just maximizing the production of crops or livestock. Sustainable livelihood is a job that gives a decent income, gives some status in society and some dignity and meaning in life. It also conserves and, if possible, regenerates the environment. It provides opportunities for people to work right in their own community instead of having to migrate to a big city. And the purchasing power and lifestyle provided by such a livelihood would be at least comparable to that of a factory worker in an urban area, where the wages have to be much higher than in the village to compensate workers for higher costs of living.

Types of Livelihood

Traditional occupation of indigenous peoples of Tripura for supporting their livelihood: Swidden, Hunting Trapping & Gathering, fishing, Weaving, Wine making, Animal Rearing, Non Traditional occupation of indigenous peoples of Tripura for supporting their livelihood: Plough agriculture, Horticulture, Tree farming, Trade and commerce, Service and wage labour.

The Chakma are traditionally good cultivators. Animal husbandry, basketry, horticulture, foraging, fishing and weaving are the subsidiary occupation of this tribe. The Reang is a scheduled tribe and the second most populous tribe in Tripura. They practice the Jum or shifting cultivation. Tripuri Tribes depends on agriculture for its subsistence. They practice the Jum or shifting cultivation. Mog tribes are depending largely on agriculture for their subsistence. The main occupation of Santal is to work in Tea garden. The Jamatia is the third largest sub-tribe among the indigenous Tripuris. They are agriculturist in occupation. The Murasingh tribe inhabits in Tripura. They are mostly agriculturists. In old days they practiced the shifting cultivation. Mog tribe resides in southern part of Tripura. Agriculture is the main occupation among the tribe. The Darlong community is settled in the Kailashahar sub division in North Tripura. The means of livelihood is cultivation of pineapple, orange and cotton. Traditionally all the indigenous peoples engaged in hunting. Trapping was also a common practice.

But hunting pattern has changed significantly with the diminishing area of the forest, leading to a huge decrease in the number of animal species. All these changes have made hunting and trapping a very marginal occupation today. Fishing has always been important as a major source of food and as a secondary or tertiary occupation of the indigenous people of Tripura. Now hunting, Trapping and fishing practice have changed significantly due to change in the fish stocks caused by environmental changes and the introduction of non-local species by the fisheries department.

Rearing of pigs and poultry has been a secondary occupation of all the indigenous people of Tripura. These practices have almost disappeared today due to deforestation. Traditionally they made basketry items i.e. modern storage container and marketed for their livelihood. Weaving has always been an important traditional occupation of the indigenous people, especially women. In the urban and semi urban areas, many indigenous women weave cloth to sell in the market. There is still a good local market for rugs blankets and traditional costumes which are used locally or purchased by visitors.

Brewing beer and spirit has been a traditional occupation among most indigenous communities. Nowadays liquor making is done both for home consumption and for sale. Thus the land of Tripura is widely inhabited by a number of tribes whose prime occupation is agriculture for the purpose of their livelihood.

The large number of tribal population was traditionally dependent on jum cultivation for their livelihood. Majority of the indigenous people still live in rural areas are dependent directly or indirectly on agriculture for their living. Various occupation and livelihood vary from community to community and from region to region, depending upon factors such as topological differences, soil variations, proximity to markets, and social cultural traditions among others. Today, with

the growing urban population, many indigenous people are becoming dependent on nontraditional occupations although a very significant number remain dependent upon Jum cultivation for their livelihoods. Jum cultivation closely related to other traditional occupations such as forestry, hunting and gathering, weaving and indigenous medicine. Employment in public and private service has risen greatly specially with the spread of formal education. A large section of the indigenous population is nowadays dependent on jobs especially in the public sector.

Status of Higher Education of Tribal Population

Higher education as the production of qualified human resources and seen as a process in which the students are counted as ‘products’ absorbed in the labour market. Thus higher education becomes input to the growth and development of the society. Higher education is seen as an opportunity to participate in the development process of the individual through a flexible, continuing education mode and as a matter of extending life chances. It strives to promote quality and social justice and to reduce social and cultural differences through diffusion of education. Higher education imparts in-depth knowledge and understanding so as to advance the students to new frontiers of knowledge in different walks of life. This paper highlights the status of higher education in Tripura.

Table-2: ST Population in Tripura (18-24) year’s age group & Enrolment in Graduate Level

Year	Male	Enrolment	Female	Enrolment
2006-07	53000	1802	59000	1332
2007-08	63971	1928	67319	1627
2008-09	65053	3075	68289	2313
2009-10	66138	2366	69580	1832
2010-11	67110*	3063	70603*	1976

Source: Statistics of Higher & Technical Education 2007-08, 2008-09 &2009-10, Govt. of India, MHRD, New Delhi.&Statistical abstract of Tripura

*=>Denote approximate population calculate on the basis of growth rate of census 2011 of Tripura.

We can clearly come to the conclusion from the above stated table that female tribal population in the age group 18-24years is higher than the male tribal population in the same age group but they are not capable to keep pace with their male counterpart in respect of enrolment in higher education.

Table-3: District wise number of ST Students in Graduate Level

District	2006-07			2007-08			2008-09			2009-10			2010-11		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
West	1224	1087	2311	1245	1282	2527	1982	1795	3777	1375	1327	2702	1914	1287	3201
South	379	142	521	371	182	553	643	252	895	580	250	830	741	396	1137
North	97	44	141	205	92	297	325	166	491	279	159	438	277	171	448
Dhalai	102	59	161	107	71	178	125	100	225	132	96	228	131	122	253
Total	1802	1332	3134	1928	1627	3555	3075	2313	5388	2366	1832	4198	3063	1976	5039

Source: Economic review of Tripura & Statistical Abstract (Relevant years)

This table shows the district wise STs' students in graduate level. From the table it is seen that more than 60% got admission in the west district because of sufficient facilities. Rest 40 % students enrolled in other districts. So it may be concluded that where there is available facilities there they are interested to get admission for their better performance. Since west district mainly state capital based there is every facilities that can students can avail their opportunities.

Table-4: Percentage (%) of ST Student Enrolment in GDCs' of Tripura

Year	Total Enrolment	ST Enrolment	(%)
2006-07	20698	3134	15.14
2007-08	20844	3555	17.05
2008-09	25763	5388	20.91
2009-10	24294	4198	17.28
2010-11	27069	5039	18.62

Source: Economic Review of Tripura & Statistical Abstract (Relevant years)

The percentage (%) of ST enrolment in higher education (general degree colleges) of Tripura varies from 15% to 21%. In 2006-07 ST enrolment in degree colleges was 3134 which is 15 % of total enrolment in degree colleges and in the year the figure was 5388 which is maximum enrolment from 2006 to 2011. So it may be concluded that ST population are very much conscious about their higher education and status also.

Table-5: GER of ST Student in Higher Education (GDC) of Tripura

Year	Boys	Girls	Total
2006-07	4.72	2.75	3.73
2007-08	7.9	5.3	6.6
2008-09	10.2	8.6	9.4
2009-10	10.0	6.5	8.2
2010-11	NA	NA	NA

Sources: Statistics of Higher & Technical Education 2007-08, 2008-09 & 2009-10, Govt. of India, MHRD, New Delhi.

GER calculated as No. of Students admitted in Colleges during a particular year divided by total population of that particular year at the age group of 18-23 years multiplied by 100. This table indicates the GER of ST student in higher education (GDC) of Tripura during the period 2006-07 to 2009-10.

Here we have found that GER of ST category is lower than that of SC and all other category. So there is disparity of GER among SC, ST and all other category. To maintain parity in GER ST Students should be encouraged to enroll them in higher number in higher education sector (GDC).

Table-6: Gender Parity Index (GPI) in Higher Education (GDC) (18-23 Years)

Year	GPI
	ST
2006-07	0.58
2007-08	0.67
2008-09	0.62
2009-10	0.65
2010-11	NA

Source: Statistics of Higher & Technical Education 2007-08,2008-09 &2009-10 , Govt. of India,MHRD,New Delhi.

The Gender Parity Index (GPI) given in the above table reflects females' level of access to education compared to that of males. A GPI of less than 1 indicates that there are fewer females than males in the formal education system in proportion to the appropriate age population. A GPI of more than 1 means that there are proportionately more girls than boys. A score of 1 reflects equal enrolment rates for boys and girls. In case of ST students gender parity indexes in higher education hasbeen fluctuating from 0.58 to 0.67. Unless and until we fail to improve the value of gender parity index of higher education in Tripura, we cannot ignore the disparity among the male and female students of Tripura.

Role of Higher Education in the Tribal Society

The role of higher education is not just limited for giving young people access to jobs and a decent living wage. It is the source or feeder system in all walks of life and therefore supplies the much-needed human resources in management, planning and research. Development of indigenous technology and capabilities in agriculture, food security and other industrial areas are possible through higher education. Higher education also provides opportunities for lifelong learning, allowing people to upgrade their knowledge and skills from to time based on societal needs.

Higher education imparts in-depth knowledge and understanding so as to advance the students to new frontiers of knowledge in different walks of life. It develops the student's ability to question and seek truth and make him /her competent to critique on contemporary issues. It broadens the intellectual powers of the individual within narrow specialization, but

also gives him/her a wider perspective of the world around. Higher education as the production of qualified human resources. In view of this, higher education is seen as a process in which the students are counted as 'products' absorbed in the labour market. Thus higher education becomes input to the growth and development of business and industry. In this view, higher education is seen as an opportunity to participate in the development process of the individual through a flexible, continuing education mode.

Higher education provides the society with complement men and women trained in agriculture, arts medicine, science and technology and various other professions who will also be cultivated individuals imbued with a sense of social purpose. It also strives to promote quality and social justice and to reduce social and cultural differences through diffusion of education.

Linkage between Livelihood and Higher Education

The present study has been undertaken to find out the relationship between Education and Livelihood. People learn about their rights and challenge through education and awareness. The development of any nation will not be complete and fruitful without the development of the weaker and deprived section especially STs' of the society. Hence it is very important for any country to produce an educated mass who will contribute effectively to the development of a country.

In analyzing the opportunity of higher education in the tribal belt of Tripura one can go through the forms of livelihood and the influence of higher education in making probable changes in it. It has already been mentioned that the livelihood of tribal population of the state can be broadly categorized into: a) Traditional b) Non-Traditional. Higher education or for that matter education itself plays an important role in the acceptance or rejection of a particular form of livelihood.

With a rise in enrolment of ST students at the graduate level as is evident in the form of a rising Gross Enrolment Ratio in general degree colleges of Tripura it may not be unwise to assume that the traditional livelihood pattern of tribal population is on the wane. With a rise in the educational level of Tribal population the scope of attaining non-traditional livelihood increases as it helps to understand and accept different avenues of nontraditional livelihood.

Further more if we take the case of nontraditional livelihood through participation in activities under agriculture, horticulture, plantation, fishery and services rise in participation in higher education by tribal population means a shift of such population from a) traditional to nontraditional livelihood and b) Nontraditional to more developed nontraditional livelihood. This may be evident if the rise in participation in higher education is associated with a rise in employment pattern of tribal population in different areas of nontraditional livelihood. However rise in the participation of tribal people in higher education can also have an impact in the development of different forms of rearing animals or manufacturing Basketry items as items of traditional livelihood one can earn more from such occupation if the process of such activity is enhanced with a dose of higher education in particular and general education in general.

Tribal people live in isolation in remote areas like forests, hills, & lowland areas distant from civilization. The problems arising out of their isolation can be removed to a great extent through education. Consequently gradual absorption into the mainstream will become

smooth. Hence education and motivation is very necessary for the development and welfare of the tribal. There are in total 19 tribal dialects in Tripura which are under developed, and can be enhanced through government initiatives. Here higher education can play a revolutionary role in the development of the above stated cause. There is huge research opportunity which can be explored and the hidden tribal linguistic treasures can be brought to the notice of people in this highly globalized world.

Conclusion

Education can include knowledge of all dimensions, skills of various vocations like carpentry, crafts, wood etc. to enable a child to become independent in their own environment. Education, apart from increasing the awareness levels should also focus on imparting values, skills and the ability to think independently. Strengthening of basic literacy and educational services (formal and non-formal) for the tribal girl child as well as orientation towards education through outreach activities is important. Good education endows people with better coping capabilities to fight with crises. There are multiple linkages between education and human security: (a) education provides greater employment security; (b) education enables people to exercise their rights; (c) education empowers the underdog, especially women; and finally, (d) education can socialize children towards tolerance and respect among diverse communities of people. Hence, education and training is intricately linked with any discussion on livelihoods.

Besides traditional occupation of the indigenous people of Tripura they are now maintaining their livelihood through non-traditional occupations also. They need training and skill development programme for improving their work efficiency in carrying out various production activities. They need effective training specifically on insect and disease control, soil and fertilizer management, and other important aspects of the vegetable production for getting desired output from homestead vegetable production. It is also imperative for respective authorities to offer training opportunities on jum cultivation with a scientific approach, livestock and poultry rising for the tribal people to augment their income levels. Training on disease control of livestock and poultry is also a major thrust sector for getting attention of authority. It might also be said that if arrangements are made for training of the tribal people on cottage industry, it would have a positive impact on the livelihood of the tribal people.

Schedule tribes have been significantly lower educational status as compared to others both in rural and urban areas. It has been found that the rate of female education is quite lower than that of male in spite of greater female population (18-24 Age group) (Table-1). There has been vast uneducation in respect of STs' as compared to non STs'. Unequal distribution of education among social groups and between male and females has adverse impact on accessibility to good quality of employment, poverty reduction and health status. So a greater emphasis should be accorded to provide proper education to the weaker section (especially for STs') of the society for accelerating their socio-economic wellbeing and better livelihood and to advance new frontiers of knowledge in different walks of life. Appropriate measures should also be chalked out to bridge the educational gap between rural and urban areas to ensure equal accessibility to good quality of employment for their overall socio-economic development.

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Promotion of Tribal Livelihood through MGNREGS : an Assessment in Tripura

Solanki Debnath and Pran Krishna Banik

Introduction

After many decades of planning, investment and effort, the Indian economy has moved into a higher growth path, where GDP growth of 8 percentages per annum or more has become possible. This puts India among the fastest growing economies of the world. But this growth can be retarded if it does not simultaneously generate stable and adequate livelihoods for everyone. (Datta S. & Sharma V.,2008). A livelihood comprises the abilities, assets (stores, resources, claim and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities to the next generation; and contribute net benefits to other livelihoods at the local and global levels in the long and in the short term (Chambers and Conway, 1991).

In India, even during the absence of a financial and economic crisis and with a fast growing economy, the challenge of employment as well as poverty and vulnerability of a large section of population has been a major area of concern (UNDP, 2011). In this perspectives of poverty and unemployment, workfare programmes have been important programme interventions in developed as well as developing countries for many years. (Thomas B & Bhatia R, 2012). The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is a milestone in the history of rural development in India and is the largest government intervention of this kind globally. It is a powerful instrument for ensuring inclusive growth in rural India through its impact on social protection for the most vulnerable population living in the rural areas, livelihood security for the poor through creation of durable assets, improved water security, soil conservation and higher land productivity and democratic empowerment of socially disadvantaged groups especially women, SCs and STs through right based legislations (Rao R.K.M., 2013). 'Livelihoods' encompass all those activities by which a family earns income, in monetary or non monetary terms, to feed and clothe its members, provide shelter, and take care of its needs such as health and nutrition, education and skills, and soon. It includes actions to build or increase value of assets such as land, water, and

forest, the use of which gives income. Livelihood security for the poor is one of the most important goals of MGNREGA. In a study entitled “Impact of MGNREGA in the Lives of Tribal People : A Study of Rayagada Block in Gajapati District” Prabeena Kumar Bebartha (2013) observed that MGNREGA had benefitted the tribal households by increasing their income which subsequently have positive impact in their social and economic life. L.M Nayak & P.K. Barla (2012) study that in the Kushalgarh block of Banswara district of Rajasthan disadvantaged people had experienced significant changes in their lives through MGNREGA.

Tripura is a small hilly state inhabited by more than 36 lakh population comprising of 18 lakh males (50.99%) and 17 lakhs (49.01%) females (as per Census of India, 2011, RGI). In terms of areas Tripura is the third smallest state (excluding Delhi) and around 83 percentage of the population resides in rural area. The population of Tripura is characterized by social diversity. According to 2001 Census Scheduled Castes (SCs) population comprises of 17.04 percent whereas the people of the Scheduled Tribes (STs) comprise about one-third of the population (31.01%). There are 19- sub tribes among the ST population of the State with their own cultural identity, namely i) Tripuri, ii) Reang, iii) Jamatia, iv) Chakma, v) Lusai, vi) Mog, vii) Garo, viii) Kuki, ix) Chaimal, x) Uchai, xi) Halam, xii) Khasia, xiii) Bhutia, xiv) Munda, xv) Orang, xvi) Lepcha, xvii) Santal, xviii) Bhil and xix) Noatia..The Human Development Index (HDI) for Tripura for the year 2001 was 0.59. The achievements in human development as measured by the HDI in Tripura correspond to the .medium level of achievement at the international level. The district-level Human Development Indices for Tripura indicate that West Tripura District ranks first, followed by North, South and Dhalai (THDR, 2007).The economy of the state is agrarian and is characterised by high rate of poverty, low per -capita income, low capital formation, in-adequate infrastructure facilities, geographical isolation and communication bottleneck, inadequate exploitation and use of forest and mineral resources, low progress in industrial field and high unemployment problem. (Economic Review of Tripura, 2008-09).

According to tribal beneficiaries of the State, it has brought a new dawn for them and they foresee an improvement in their livelihood. Earlier most of them had to go to forest to collect firewood and bamboo and sell the same in distant rural markets for earning their bread (S. Roy, 2010). Given the circumstances, NREGS has been introduced in the state with an expectation that it will give a new lease of life to the rural poor by bringing dynamism in rural livelihood and energizing the state’s economy in particular. Its implementation has given a reason to the people in Tripura to smile, especially the poor tribes in its rural areas.

Objectives

The broad goal of the study is to assess the performance of MGNREGS in Tripura and its impact on the on the livelihood of the tribal people in Tripura.

- To know about the extent of implementation of MGNREGS on ST people in Tripura.
- To comprehend the nature of awareness of the beneficiaries regarding the related acts and roles of line departments.
- To study the socio- economic condition of the ST beneficiaries working under the MGNREGS schemes.
- To assess the kind of impact of the scheme on the tribal beneficiaries.

Methodology

To attain this objectives a field survey has been conducted in Hezamara and Rupaichari block of West and South Tripura district respectively on the basis of purposive random sampling covering a total 100 sample households (50 from each block/district). Information was gathered from secondary as well as primary sources. Secondary data was collected from Government documents, internets, newspapers, books, journals whereas primary data was gathered from the field through well structured schedule. The obtained data has been analysed using the tabular and cross tabular method. Simple graphical presentations have been made for relevant data through MS-Excel.

Result and Discussion

MGNREGS for Scheduled Tribes (STs) in Tripura among North -Eastern States : A quick View

In Tripura the first phase of implementation of MGNREGA was started on 2nd February 2006. Subsequently it has been introduced in West and South Tripura district w.e.f. 1st April 2007 and in North Tripura since 1st April 2008. Data revealed that Tripura has been ranked first in implementing the MGNREGA by providing 86 days of work on an average to rural households during the financial year 2011-12.¹² Considering the state wise person days of employment generated for Scheduled Tribes (STs), it was observed that Tripura ranked second next to Nagaland in providing total person days to STs during 2011-12 as shown in Table 1.

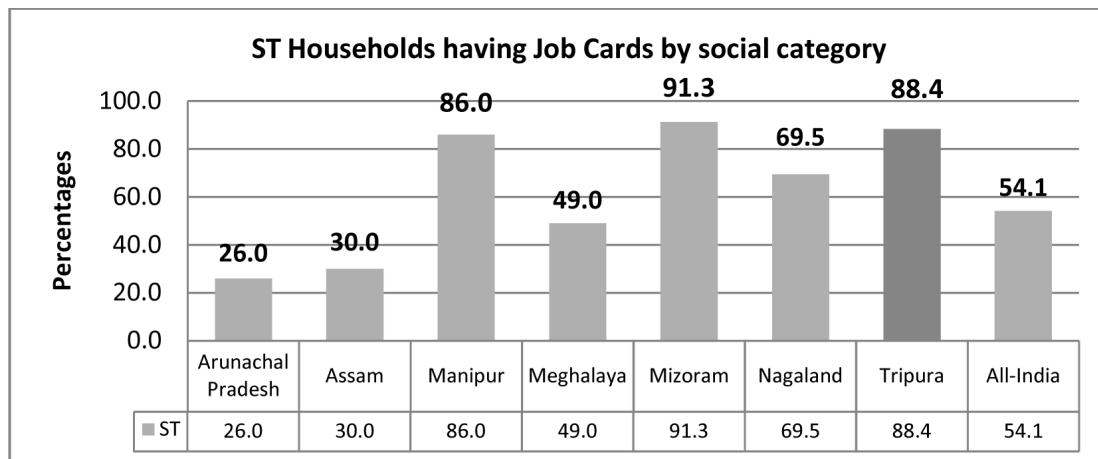
Table - 1: State-wise Persondays (in Lakh) of Employment generated for Scheduled Tribes from 2006–07 to 2011–12

States	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
Arunachal Pradesh	5	2	28	17	28	1
Manipur	19	48	208	131	209	145
Meghalaya	20	36	82	140	189	152
Mizoram	8	32	126	170	166	122
Nagaland	13	24	203	284	334	212
Tripura	31	76	159	189	163	206
All-India	3,299	4,206	5,502	5,874	5,362	3,838

Source: MIS data from MGNREGA website (http://nrega.nic.in/netnrega/mpr_ht/nregampr.aspx, accessed on 7 February 2013).

Table 1 also depicts that the total person days of employment generated for STs in Tripura gradually increased from 31 person days to 189 person days (2006-07 to 2009-10) and then suddenly decreased to 163 during 2011-12 which again increased in the subsequent financial year.

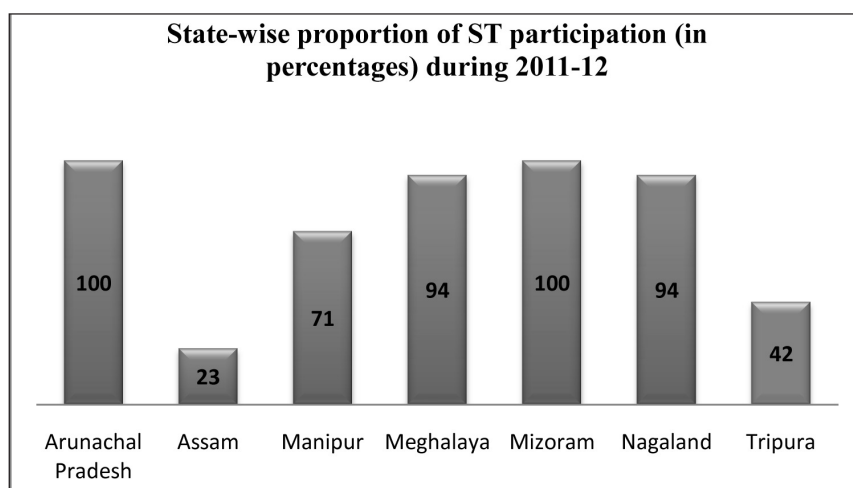
Figure 1- State-wise Proportion (in Percentage) of Households having MGNREGS Job Card by Social Category (2009–10)



Source: MIS data from MGNREGA website (http://nrega.nic.in/netnrega/mpr_ht/nregampr.aspx, accessed on 7 February 2013).

The above figure shows that 88.4 percentages of ST population in Tripura acquired MGNREGS job card by social category on the basis of right based legislation which was more than the national average (54.1%). It clearly depicts that the agony of income uncertainty of the ST category has been reduced.

Figure 2- State-wise proportion of ST Participation in Tripura among North-Eastern States during 2011-12



Source: MIS data from MGNREGA website (http://nrega.nic.in/netnrega/mpr_ht/nregampr.aspx, accessed on 7 February 2013).

The ST participation was measured by the ratio of person days of ST employment to total persondays of employment generated (www.nrega,nic.in)¹³. Comparing with the other North-eastern states it was seen that although Tripura ranked second in providing total person days of employment and job cards by social category to STs yet the proportion of ST participation in the MGNREGS works was only 42 percentages as shown in the above figure.

MGNREGS for Scheduled Tribes (sts) in the four districts of tripura among north-eastern states: a quick view

Table -2:MGNREGS for Scheduled Tribes (STs) in Tripura: At a Glance

Particulars	Tripura	Districts			
		West	South	North	Dhalai
Employment provided to Households (in lakhs)	5.91344	1.02777	0.79672	0.62997	0.73966
Average Person days	86	80	87	78	93
Person days (in Lakh)					
Total	379.06	82.48	69.14	49.02	68.61
Scheduled Castes (SCs)	64.09 (16.91)	17.65 [21.4]	10.53 [15.22]	8.26 [16.85]	10.28 [14.98]
Scheduled Tribes (STs)	170.75 (45.04)	30.95 [37.52]	26.23 [37.94]	17.93 [36.57]	45.58 [66.44]
Women	180.35 (47.58)	31.83 [38.6]	27.78 [40.17]	17.73 [36.17]	28.02 [40.85]
Others	144.23 (38.05)	33.88 [41.08]	32.39 [46.84]	22.83 [46.58]	12.75 [18.59]
Work details					
Total works taken up	93229	21179	14407	8345	13050
Works completed	15630	3242	5489	4193	5925
Works in progress	77599	17937	8918	4152	7125

Source: Ministry of Rural Development, Govt of Tripura

Figures in parenthesis indicated percentages

Considering the implementation of NREGS on the people belonging to ST category, it was observed that the total person days generated for STs was around 45 percentages which was more than the person days created for non-STs as it was seen that the total person days created for SCs was only 16.91 percentage and it was 38.05 percentages for others (Unreserved category and Other Backward Class). This clearly indicates that MGNREGS work provided employment opportunity and an alternate source of income for the people belonging to the ST category throughout the year. Considering the district-wise classification of NREGS implementation it was observed that Dhalai, which has been ranked last in Tripura Human Development Report (THDR, 2007)¹⁴, holds the top position in providing average

person days of employment per households. The total person days generated for STs was highest in Dhalai followed by South and lowest in West Tripura district, which ranked highest in THDR (THDR, 2007).

Performance of MGNREGS and its impact on sts: a worm view

Before analysing the information gathered from the field, a concise discussion about the overall performance of MGNREGS in the sample area, viz. Hezamara and Rupaichari block of West and South Tripura district is portrayed in the following tables.

Table - 3 : Performance of MGNREGS in Hezamara Block of West Tripura District

Panchayat	No. of Registered Household	Job Card Issued	Household demanded Employment	Household offered Employment	Employment Provided Household	Persondays	No. of filled Muster Roll	No. of Families Completed 100 days	On Going works
Baikunthapur	515	515	495	495	495	36200	472	13	64
Balurbandh	431	431	424	424	424	30657	410	68	52
Barkathal	840	840	837	837	837	74513	1129	149	138
Bharat Chowdhury	412	412	407	407	407	27494	374	1	59
Chandpur	652	652	614	614	614	40360	623	3	125
Dumrakaridak	459	459	457	457	456	39552	486	68	60
Kamukcharra	344	344	de	339	339	28062	325	73	100
Meghlibandh	303	303	284	284	283	19618	242	44	31
Paschim Chandpur	513	513	513	513	509	30377	447	1	94
Paschim Tamakari	506	506	503	503	503	34520	439	9	69
Purba Chandpur	422	422	415	415	414	32312	431	22	82
Purba Noagaon	577	577	575	575	575	42526	549	1	68
Purba Simna	425	425	419	419	400	29267	459	18	59
Purba Tamakari	519	519	509	509	503	31577	515	2	70
Ramsankar	450	450	437	437	437	33788	504	27	121
Sankhola	443	443	443	443	442	41404	564	151	66
Sarat Chowdhury Para	668	668	607	607	607	37002	463	4	132
Sonaram	448	448	442	442	442	34522	500	2	86
Surendranagar	497	497	491	491	491	32060	352	22	71
Tuichamongharai	462	462	458	458	447	35539	423	16	75
Total	9886	9886 (100)	9669	9669 (100)	9625	711350	9707	694	1622

Source: Office of Block Development Officer, Hezamara, West Tripura District, 2014

Figure in Parenthesis indicates percentages

The above table depicts a satisfactory picture regarding the implementation of the scheme in Hezamara block as it was observed that among 9886 registered households job cards were provide to all (100%). Among them around 9669 households have demanded employment and had also been offered works under the scheme. But except 45 households the employment was provided to all. In addition to these the total person days of employment provided was 7.11 lakhs.

Table - 4: Performance of MGNREGS in Rupaicharri Block of South Tripura District

Panchayat	No. of Registered Household	Job Card Issued	Household demanded Employment	Household offered Employment	Employment Provided Household	Persondays	No. of filled Muster Roll	No. of Families Completed 100 days	On Going works
Bagmara	369	369	352	352	352	32099	532	7	24
Baishnabpur	333	333	331	331	329	29485	589	37	18
Bankul Mahamoni	318	318	313	313	312	28414	426	7	18
Bishnupur	552	552	552	552	552	52041	824	56	21
Chalita Bankul	620	620	604	604	604	51894	702	47	120
Chatakchari	471	471	461	461	461	38041	609	0	113
Dakshin Manu Bankul	385	385	355	355	353	30832	408	19	61
Garifa	236	236	236	236	236	19386	310	1	42
Kathalchari	319	319	315	315	315	25826	467	0	48
Magroom	328	328	328	328	328	26437	412	0	61
Paschchim Ludhua	406	406	392	392	392	34033	547	25	75
Purba Ludhua	343	343	340	340	340	31081	446	75	79
Purba Manubankul	398	398	398	398	398	36038	547	11	82
Purba Sabroom	343	343	343	343	343	28692	409	3	91
Rupichari	540	540	503	503	490	41920	704	79	105
Sonichari	276	276	265	265	265	22639	400	9	43
Uttar Bijoypur	369	369	365	365	365	32522	516	0	70
Uttar Manubankul	452	452	405	405	404	35763	484	27	19
Total	7058	7058	6858	6858	6839	597143	9332	403	1090

Source: Office of Block Development Officer, Rupaicharri, South Tripura District, 2014

Figure in Parenthesis indicates percentages

In Rupaicharri block the total number of registered households was 7058 and all of them were provided with job cards. Among them 6858 households have demanded employment and had also been offered with works under the scheme. Except few (19 households) those who demanded employment were provided with works under the scheme. The table also depicts that the total person days of employment provided was 5.97 lakhs.

MGNREGS: From Field to File

Details about the Socio- economic Background of the Respondents

There was preponderance of women on NREGS work site in the sample area as around one-third of the workers were women while proportion of male workers were only 67 percentages. All were Hindus belonging to the ST category. A large section (51%) of them was in the age-group of 30-39 years and it was also noted that NREGS provided scope for earning for around 20 percentages of the people above 50 years of age. The level of education of the respondents was low, around 19 percentages of them were uneducated and more than 48 percentages of them have completed only primary level of education. A substantial portion of the workers were unskilled labourers with meagre monthly income of less than Rs.3000 on an average.

Majority of the respondents (64 %) around resides in either kuchcha houses with temporary sanitary facilities availing water from public water post. Very of them use LPG for cooking purpose and around 70 percentages of them depend on natural fuel such as wood, forest leaves, kerosene, etc. All these indicate the poor socio- economic condition of the surveyed workers.

Awareness about NREGS Scheme

Almost all the respondents were aware about the NREGS scheme, its registration process, and how to secure the job cards, mode of payment, role of Panchayats, etc. Among the sample beneficiaries, 55 percentages of them were aware about the accidental benefits under the scheme. The main source of information was identified by all respondents was Gram Panchayat.

NREGS Implementation in the Sample Blocks

Findings of the study revealed that around 72 percentages of workers got employment after 15-30 days of verbal/ written application while rest of them did not submit any such documents. Almost all of the respondents claimed uniformly that those who applied for the job cards had got it. The job cards was provided free of cost excluding the cost of photographs. Around 64 percentages of them reported that they got job within 15-30 days of application whereas 12 percentages of them had to wait for more than one month.

It was evident from the field survey that sufficient amount of MGNREGS works was available within the radius of 5 km of their place and the beneficiaries particularly the women can easily participate in the work. The works undertaken in the sample area were land development through levelling of tilla land, water conservation through digging pond, channel, construction and repairing of roads, rubber cultivation, and other irrigational facilities. Here it is to be mentioned that in the sample block South Tripura district emphasis was given on rubber cultivation as a source of assets creation. Working details of the respondent during three consecutive financial years can be evident from the following table.

Table - 5: Information regarding the Number of Persondays in a Financial Year

Person Days	No. of Respondents					
	Hezamara Block (West)			Rupaichari Block (South)		
	2009-10	2010-11	2011-12	2009-10	2010-11	2011-12
Less than 20	4 (8)	3 (6)	5 (10)	0	0	0
21-40	6 (12)	5 (10)	5 (10)	0	0	0
41-60	19 (38)	9 (18)	17 (34)	0	0	0
61-80	11 (22)	27 (54)	13 (26)	14 (28)	14 (28)	13 (26)
81-100	10 (20)	6 (12)	10 (20)	36 (72)	36 (28)	37 (74)
Total	50 (100)	50 (100)	50 (100)	50 (100)	50 (100)	50 (100)

Source: Field Survey, 2014

The above table depicts that Rupaichari block of South Tripura district performed well in providing person days more than 60 to 100 days. During the financial year 2011-12, 74 percentages of the beneficiaries had reported to work for more than 80 days. On contrary around 20 percentages of the beneficiary households claimed that they worked around 100 days.

Wage Disbursement

Though the education level of the respondents belonging to the ST category was low yet it was seen that majority of the respondents were aware about their work as well as wage details. It was observed that 55 percentages of the respondents claimed that within a month of work done the wages has been disbursed to the workers while 45 percentages of them claimed that wages has been disbursed within a week. Majority of them (63%) have identified panchayat as the source of wage disbursement while rest of them identified that the wages has been disbursed through banks. Provisions of drinking water facilities and shed for rest were the facilities provided to the workers during the NREGS work.

The payment was made on the basis of measurement and most of the respondent, i.e. around 67 percentages of them were satisfied with process of measurement and claimed that they were getting adequate amount for their work. Data from an authentic source depicted that the wage rate for NREGS was notified Rs 118 per day as on April 1, 2011 which was increases to Rs 124 per day on 1st April 2012 (www.mgnrega.nic.in)¹⁶ and recent data shows that the wage rate increased to Rs.135. Almost all the respondents claimed to get the notified wage rate that indicates the proper implementation of the scheme.

Impact of MGNREGS on Economic Condition

The most important economic criterion in a country, state, region, city and village is income. Basically the economic status of an area is often understood by the income level of its people. Income as an economic indicator assumes much significance owing to its over bearing rule in economic activities. Income is also the precursor to other economic activities like consumption and saving. However, in the present section we would confine ourselves in analyzing the income scenario of the sample households.

Respondents depict the positive change brought out by the scheme in the economic condition of the beneficiaries as around 88 percentages of the workers claimed about the upward movement of the income curve from less than Rs. 2000 per month to Rs. 3000-5000 per month. Propensity of labour work as a means of livelihood for the STs can be evident in this study. A noticeable shift was reported by the samples from agricultural labour to labour work as prime mean of occupation as it was available throughout the year. In spite of increase in monthly income a considerable proportion of respondents felt that the wage rate is low under NREGS in comparison to construction work, monthly income from shifting cultivation, etc. As a consequences although there was substantial increases in the consumption of food items, yet the expenditure pattern of beneficiaries on non-food items have made no significant differences. Around 78 percentages of them have reported to have the same clothing. There were no increasing demand for luxury items like electronic devices for cooking and other purposes.

Impact on Food and Nutrition

It has been reported by around 90 percentages of the respondents that they were able to have three meals after NREGS works which were not possible prior to the work under the scheme. Currently they could now include fish and meat in their menu of meal at least once or twice a week which were considered as a luxury item before. In addition to this they could even manage milk for their children. All these factors have positive impact on the health and nutritional status of the beneficiaries and their family after the work under the scheme.

Impact on Education of their Children

A notable changes in expenditure on the education of the children of the beneficiaries can be noted during the field survey as 65 percentage of them depict that prior to the work under the scheme the beneficiaries were not able to sent their children in the school as they could not afford the cost of travelling while going to school, copies, pen, pencils, etc along with this the sent their children for earning to supplement the family income. But now these situations come to an end with the blessings of NREGS, which provide a source of income throughout the year, now they could send their children to school. However, very few beneficiaries admit that NREGS wages enabled them to provide their children with special care in education like tuition, extra learning materials, story books, etc.

Impact on Rural Connectivity

A perceptible proportion of the sample beneficiaries respond that MGNREGS scheme had improved the rural connectivity through construction of new roads especially to connect the remote areas to the mainstream. According to the tribal beneficiaries it was difficult for them to sell their agricultural goods to the market because of poor condition of the roads. The transportation cost was so high, as the drivers hesitate to drive on the broken roads, which lessen up the profit margin. But now due to the improved road they could easily sell their goods. This in turn has positive impact on their livelihood. On contrary they also gloomily depicted that the works under the scheme only focuses on road construction in spite of other sustainable assets creation such as fishery along with digging of ponds, agriculture, bamboo cultivation, etc.

Conclusion

The study revealed that MGNREGS is a supplementary source of income of the tribal people in the two blocks. Through the scheme the disadvantaged group, especially the Scheduled Tribes (STs) of Hezamara and Rupaichari blocks have experienced a significant change in the lives and livelihood. Though the scheme increases the monthly income of STs and helps in slight shift in their social status through, three times meals, sufficient clothing, enrolment of their children in schools, etc yet it has not change their expenditure pattern on non- food or luxury items such as buying clothes monthly, having meat in their daily lunch menu, electronic cooking devices, tuition for their children, vehicles, etc. So to conclude it can also be said that MGNREGS is not just an employment scheme; it is a tool for economic and social change in rural areas. It can't be disputed that if the scheme is implemented properly can have ever lasting impact on the lives of the tribals in particular and all the rural households in general those who are willing to do unskilled manual works. MGNREGS provided a steady source of income and livelihood security of the Scheduled Tribes in Tripura.

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Bamboo Value Chain Development – A Doable Tribal Livelihood Promotion in Tripura, North East India

Md.Arshad and Md. Selim Reza

Introduction

The reduction of chronic poverty, to improve the socio-economic conditions of the tribal in particular is a daunting task through local economic development programs. The poorest people are marginalized, and are excluded from the benefits of growth, as a result they become poorer, not only relatively, but often in absolute terms as well (Harper Malcolm, 2009). It requires the inclusion of millions of very small independent producers in value chains which enable them to increase or at least to maintain their incomes, or at the minimum it demands measures to protect them from the worst effects or exclusion (Ibid.). Therefore, an amalgamation of poor with markets through value chain development in bamboo sub- sector may be better policy prescriptions to alleviate poverty and socio-economic development for sustainable livelihood among tribal community in Tripura.

Bamboo in Sanskrit called as 'venu'. According to a legend, Agni, the fire of God, once got annoyed with other Gods and hid himself in the hollow culm of the bamboo. It is ordained that when a 'brahmachari' undergoes the consecration rites called 'samavartana', he should be holding a bamboo stick while reciting the incantations.

Moreover, bamboo reaches dizzy heights when it found itself on the lips of the beloved 'Srikrishna' in the form of a 'bansi' as flute. Bamboo is one of the most important non-wood forest resource used extensively by Tribal and rural poor in Tripura and it plays important role in the socio-economic development of the state and in subsistence activities, employment generation and house hold income. It is estimated that 6.1 million mandays per annum of employment is generated on account of utilization and extraction of bamboos around 1.49 lakhs artisans are engaged in bamboo value addition. This abundance of bamboo natural resource and the traditional of its varied use, coupled with presence of a large number of socio-economically marginalized indigenous community in Tripura. The smallest State of Tripura has a larger diversity of tribal peoples. There are around nineteen tribal communities: Tripuri, Reang, Jamatia, Chakma, Halam, Mog, Kuki, Noatia, Garo, Munda, Lusai, Oraon, Santhal, Uchai, Khasi, Bhil, Chaimal, Lepcha and Bhutia. Tripura is the largest tribe in Tripura. The Reangs comprise the second largest tribe in Tripura. Jamatias, the third largest tribal group in Tripura. Mogs are said to have smallest community in Tripura.

The present paper is an effort to examine social capital; skill; livelihoods, knowledge management; partnership and institutional aspects in bamboo value chain context for tribal livelihood promotion in Tripura.

Concepts of Value Chain

The value chain is a concept which can be simply described as the entire range of activities required to bring a product from the initial input-supply stage, through various phases of production, to its final market destination and service.

The concept of value chain has popularized in 1990's among the researchers, policy makers, politicians, economists, social scientists, sociologists, development professionals, business houses and grass-root programme implementers of how firm or farms in developing countries are integrated in global markets. Value chain refers to full range of activities that are required to bring a product or service from conception, through the different phases of production, to delivery to final consumption and disposal after use. Connecting the rural producers with markets on a sustainable basis is a very challenging task (Kaplinsky and Morris.2001). The Value chain development helps to build sustainable links between rural tribal bamboo producers and urban markets.

Existing Value Chain

The bamboo value chain in hilly areas predominantly tribal is not much conducive and a fragile livelihood on bamboo based activities exists. Generally, poor tribal particularly Jamatia, Reang and Halam are harvesting bamboo from the deep forest in Dhalai and North Tripura District. The primary resources are coming through small streamlets and collecting at river bank wherein ample water available e.g. Ganganagar, Durgacherra in Dhalai District. The small bundles of bamboo make raft and through water transport, it comes to Chakmaghat, Manu and Kumarghat. The rafters are reang and jamatia. The Tripuri community is involved as middlemen, they have good business partnership with Bengali based in Chakmaghat, Manu and Kumarghat. The grading, quality management and added value are missing in the entire value chain. Developing value chain in different nodes may generate additional income to the tribal producers in hilly areas in Tripura. A strong institutional system is a major gap in the current value chain.

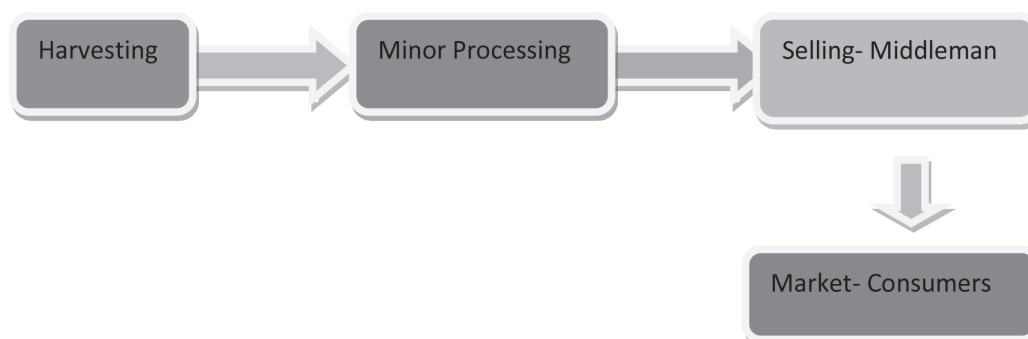
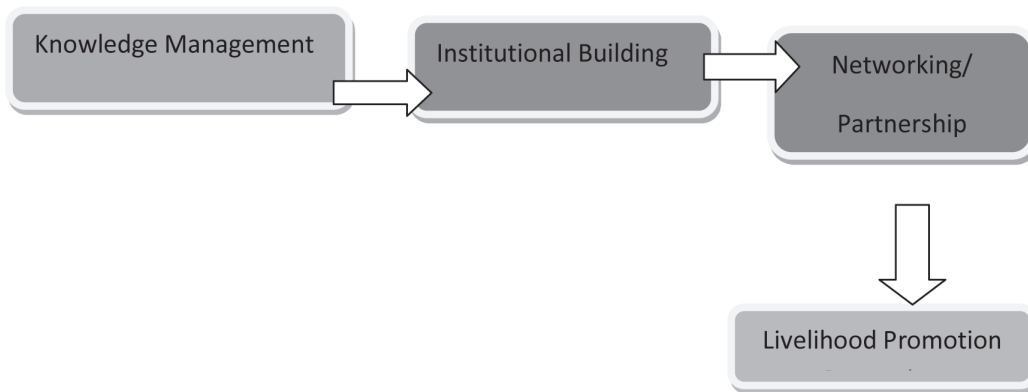


Fig.1 (Arshad and Selim,2010)

Design Value Chain

Value chain design for a specific sector may give an opportunity to the small producers to develop market chain and enhance livelihood. In Tripura bamboo promotion of value chain exists in four major levels. It will help to grow the sector in sustainable way and small producers in particularly tribal may get an opportunity to participate domestic and local market. The present value chain focuses on knowledge management- it is very much important to develop the value chain, institutional building, networking and partnership building with outside agencies for technology, financial inclusion, product up-gradation and market linkages and finally livelihood promotion in terms of primary and secondary added value for increment.

Fig.2 (Arshad and Selim,2010)



Knowledge Management

Before 1962, Tripura was predominantly inhabited by tribal people. The tribal people were involved in bamboo harvesting, semi-processing activities and took it as a major economic activity. Apart from the jhum activity (slash and burn), the tribal community had taken bamboo based activities another major livelihood option. Moreover, the tribal communities in Tripura are culturally linked with bamboo in almost every sphere of their life. They have been using bamboo for building houses commonly known as 'Tong Ghar' in rural hill areas, bamboo shoots as food item such as 'godhak and muai' . Bamboo is an integral ingredient in Garia Puja, a major socio religious annual celebration cum worship among tribal people in Tripura.

The traditional knowledge and skill on bamboo harvesting and value added product proved to be a useful tool for those who live in a joint family. Perhaps this is the reason why people belonging to "Reang" community always prefer a groom from joint family background while settling the marriage of their daughter. The caste system among tribal community does not have much influence in social spheres. The reason may be attributed to the progressive policies of communist party in Tripura does not put much thrust on caste centric issues.

Developing value chain the thrust should be given on quality supply of bamboo planting materials, developing community based nursery on village bamboo to meet the requirement of enterprises and industries. The quality harvesting of bamboo is a major issue, value chain up-gradation strategy at policy level will help. It will give an opportunity to the tribal harvesters to

harvest quality bamboo and its management for getting shoots and better price. Moreover it will help to produce quality bamboo products.

Institutional Building

Community level bamboo producers cooperative will be an alternative institution arrangement in the value chain for improving tribal livelihood. It will help to the small tribal producers to build a commune for collective bargaining and direct market linkages.

The promotion of public – private partnership is yet to take a workable and meaningful shape in Tripura in spite of many of the efforts such as “New Industrial Policy of 2007” already initiated by the Tripura government in that direction. The slow pace of development in this direction can be attributed to the following facts:

- Geographical isolation and other related disadvantages.
- Microscopic existence of medium and large scale Industries.
- Lack of right kind of growth orientation among administrative & political leadership.

Proactive adoption of better initiatives and offering of attractive incentives by other states to private players by making appropriate use of central government in this sector. The Public Social Private Partnership (PSPP) can be a more useful / workable strategy to do justice to the need for cooperating and joining hands to achieve an improved level of benefits through coordinated and sustainable effort in bamboo sector.

Networking and Partnership

A strong networking and partnership is a major area in value chain up-gradation, the poor rural producers could not able to healthy partnership and networking with various actors, like market partners, middlemen, raw material suppliers, technology providers, machine tools suppliers, designers and financiers. In Tripura the poor rural bamboo producers have been facing the problems in fruitful partnership and networking.

The rural bamboo producers are facing a lot of problems in market linkages, due to poor production/design, lack of quality enhancement. The buyers do not take interest at times over productions also pose a lot of problems in the normal distribution channel. In value chain development, these barriers can be successfully negotiated by upgrading chain actors through identification of the actors’ relevant activities in the chains. It can be clearly understood through value chain fact sheet analysis. A road map for the identified market driven products and their improved version of linkages in the chain along with the active contribution of cross sector service providers and introduction of cluster initiative in bamboo sector has already paved the way clear for bringing into centre stage a mechanism which is capable to offset many of the marketing related barriers for small producers.

Livelihood Promotion

Bamboo is the most important Non-Timber Forest Produce (NTFP) used extensively by tribal and rural poor in Tripura and plays an important role in socio-economic domain of the

state through employment generation and development of rural economy of Tripura. About, 1.45 lakhs artisans are producing craft of sale value of Rs. 35.34 crore and 20000 artisans are engaged in bamboo handicrafts. Majority of small tribal producers category people, small producers belonging to self help groups consider bamboo based activity as one of the best livelihood option in Tripura. It is easily available as raw materials and community has good level of knowledge and skills. The enterprise could be promoted e.g. bamboo nursery, raw incense sticks, primary processing, bamboo charcoal, mats and community bamboo flooring and furniture. The rich tribals are participating in bamboo value chain up-gradation in Tripura. Basically, the above poverty line (APL) category people are the champions in the sector and provides impetus for the small producers to participate in the value chain.

The poor tribal family of small producers in bamboo value chain development sector in Tripura spends their income on food procurement, it proved that bamboo value chain has positively impacted the food security. It reduces their poverty and brings improvement in their social life and health. on self-enhancement, it means that small producers investing a part of their income on recreation or other related activities such as purchase of mobile phone, television, good cloth or ornaments etc. It positioned their social status in the community.

In Tripura cultivable land is very less, in low land area Bengali population dominated the agricultural activities whereas in hills the tribals doing jhum (slash and burnt) cultivation and dominated forests areas. Recently, Restoration of Forests Rights Act, 2006 implemented in the state in wider scale. Under the Act, Patta rights of the land conferred to around 1.5 lakh tribal families and thereby enabling them to have on an average 12-15 Kanis of land (2 hac. App.) in reserve forest area. As a post land distribution support government is helping patta land holders to undertake bamboo plantation in those lands through various schemes and planned to promote it as a livelihood means.

Most of the bamboo utilization comprises of pandal construction, making of idol and other allied implements. Bamboo seedlings, leaves, culm tip are integral part of Garia Puja, a major festival being celebrated by tribal communities. During Buddha Purnima (a major festival among Buddhist communities like Chakma and Mog), a special bamboo built structure (Gulgulia) is erected near the monastery where a number of religious rites are performed. The bamboo used for fishery activities in Tripura. Bamboo culm halves it and put into the fish pond. It helped the fish growth. Moreover, a number fishing traps made out of bamboo. Usually bamboo culm is cut into two halves and put in the fish pond in such a way so that it stands erect with one end remained firmly dug at the bottom of the pond. Traditional wisdom speaks, the fish make use of the sharp edge of the culm halves to get rid of the dirt and other algae and fungi those get accumulated on it's body surface. The growth of the fish is enhanced when the outer surface of the fish body remains clean.

Conclusion

Capitalization of bamboo resource: Dhalai District has sufficient bamboo resources and very limited value addition; the rural poor producers are selling the raw bamboo to the local traders. The rural poor producers are harvesting immature bamboo and getting lower prices in the market. The middlemen, traders do not pay much heed to the quality of harvesting and

protection of resources. Up-grading value chain will remove bottleneck for the benefits of bamboo sector in Tripura.

Existing value chain: There are four major value chain functions under bamboo. The sector is lacking specific service providers. Existing value chain is not pro-poor. It happened due to poor capabilities of the primary level poor rural producers.

Primary level low value addition: The small poor producers at the community level are the primary actors in value addition in bamboo sector. Due to limited scope in value chain up gradation, they are lagging behind in the chains. The unlimited scope could crash in better way in local level.

Accessibility of market: The rural small producers are selling their product to the local haat or market in Dhalai and North Tripura District. Wherein, West Tripura the small producers are linked with the community enterprise clusters and Government supported 'Purbasha'. The small producers especially craft products are selling their product through participation in Khadi and Village Industries sponsored mela and exhibitions at various places both within the state and outside the state. There is a high scope to promote bamboo product in distant market through use of e-marketing opportunity or B2B (business to business) approach. The current market is non-transparent for which many a times small rural producers are often taken for a ride by unscrupulous traders.

Value chain governance and linkage: It found a huge gap, both horizontally and vertically linkage, networking and partnership among chain actors. Non availability of proper information has been found at every level. It creates misunderstanding and de-motivation among the producers. Even, there is high scope to remove all these barriers among chain actors and chain supporters to create a healthy business enabling environment.

Coaching and anchoring: It found that existing Government agencies have maximum coaching and anchoring influence on bamboo sector. The study concludes poor level of partnership among existing and potential partners of chain supports, no business plan for further support and inadequate extension of required technologies. Therefore, there is a high scope for overall interventions at all levels of value chain up-gradation for better performance and market shares e.g partnership building, capacity building and making stable policy for bamboo sector of Tripura.

Banking and financial linkages: The existing value chain actors are poor, living in remote rural areas with inadequate banking and financial institutions. Moreover, investment level of private sector in bamboo business is very poor. Sometimes middlemen exploit the poor rural producers through providing advance in cash or kind. Bringing the poor rural producers on main stream of banking and financial linkages, financial literacy may lead them to diversify into other income opportunity which offers healthy and conducive banking and financial linkages.

Encourage the private sectors: The private sector involvement is limited to bamboo furniture, waste bamboo charcoal and plantation. A limited number of private bamboo growers found in Katlamara in West Tripura District in Tripura. The interest has been found among the bamboo growers in Kanchanpur Sub-Division in North Tripura District. The growers in this area can easily supply to Catchar Paper Mills, Assam through suitable value chain up-gradation. But the interested growers are facing problems for insufficient availability of quality planting materials. The bamboo nursery is set up mostly under the forest department and the department

itself need a huge quantity of planting materials to cover targeted plantation with the growing stock of planting materials. The best options for small producers to tide over this difficulty will be to venture into setting up of decentralized community nurseries.

On top of everything, medium and big size industrial houses need to be roped in, with appropriate incentives to undertake production of high end value added products like bamboo door, roofing sheets etc.

Finally, the eight United Nations Millennium Development Goals (MDGs) set targets for reducing poverty and improving the lives of the world's most disadvantaged people, bamboo is significantly fulfilling the Millennium Development Goals e.g. eradicate extreme poverty and hunger, ensure environmental sustainability; and develop a global partnership for development.

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End Notes

¹ “Indigenous” have a number of different meanings; even within anthropology the concept of “indigenous people” is still more complex (Barnard and Spencer 2010:377). Here, it applied to the people who have been inhabited in the CHT for a long time, earlier than the mainstream Bengali as ‘first people’. Sidel Saugestad (2001:43) maintains, first come is one of several characteristics of the definition of indigenous peoples (cf. Barnard 2010:77). Here in the relation of dominance of one group over another, and especially the relation of different groups to the state, the Pahari are indigenous, local or natives in this sense that, they are not only the first people of the region, they have been engaged struggle for political rights, for land, for a place and space against the state authorities. The Regulation 1900, which is the principal legal instrument for the region, refers to these people as “indigenous hillman” and “indigenous tribesman” interchangeably (cf. Roy, C. 2000:22). The state is perceived as protecting the values of non-indigenous over indigenous peoples, and it is the non-indigenous group, which, by definition, is dominant over the indigenous one (Barnard and Spencer 2010: 377). Notwithstanding, the Pahari define their needs and identities as “indigenous people” (van Schendel 1992; Roy, D. 1992; Mey 2006), Bangladesh state does not accept it, rather terms them upajati (“tribes”) or very recently government offices maintain them as “small ethnic group”. In common usage the word “tribe” has various meaning and connotations. A tribal society is generally understood to be one in which social, political, and economic relations are organized around kinship (Sahlins 1968). By definition, tribal societies do not live under state organization, and this is the primary feature that distinguishes them “peasants” (Wolf 1966). The conceptualization forms part of the accepted view of human social evolution (Tripura 1992:4). Morton Fried (1975) critiques such notion of tribe. According to him, most societies that are reported as tribal societies in the ethnographic literature are not really representative of a pre-state mode of social organization, but rather, reflect adaptation to state societies (Tripura 1992:10). However here I refer to the Pahari as indigenous or tribe interchangeably.

² Ten percent of the total land area of Bangladesh, but population is about one percent (1.5 million out of 150 million). The region comprises three hill districts: Rangamati, Bandarban and Khagrachhari.

³ Although eleven ethnic groups (Mongoloid) are recognized as ethnic group or “tribe” (according to estimated size): Chakma, Marma, Tripura, Mro, Tanchangya, Bawm, Pangkhua, Chak, Kheyang, Khumi, and Lushai, there are two unrecognized groups: Gurkha and Ahomian who have been living in the hills since the British period. The mainstream population—Bangalis have joined by transmigrations arriving since the late 1970s; together they now form the largest ethnic group in the region (Mohsin 2003; Roy 2000; Roy 2003).

⁴ Since the British period, nearby Bangali have been calling the indigenous people as Pahari (residents of hill [pahar]), and thus all ethnic groups have usually been referred to as Pahari.

⁵ Here livelihood does not just mean the activities that people carry out to earn a living. It is more than that that means all the different elements that contribute to, or affect, their ability to ensure a living for themselves and their household (Messer & Townsley 2003).

⁶ About 60 percent Pahari call this cultivation as jum (e.g. Chakma, Tanchayngya).

⁷ Putting an end of the two-and half-decade-long bloody conflict, an agreement (popularly known as “peace accord” was signed on December 02, 1997 between the GoB and JSS. JSS is the abbreviated form for Parbatya Chattagram Jana Samhati Samiti (PCJSS) [The Chittagong Hill Tracts United Peoples’ Party], locally known as JSS (Jana Samhati Samiti)—the champion of the Pahari.

⁸ According to John Beames (2013:115), ‘development’ plan of the colonial government to make the jum cultivators for plough cultivation was originated since the late 1870s.

⁹ Then the region (CHT) was known as Kapas Mahal or Cotton Territory (Roy, T. 2003).

¹⁰ If one still looks at an old bazaar in Rangamati Sadar, she or he would see shopkeepers’ residence behind the shops.

¹¹ Almost every adult Paharis know this figure, 54,000 acres, that were submerged by the Kaptai dam.

¹² Remember, two decades earlier another 100,000 Paharis were uprooted by the construction of a hydroelectric dam.

¹³ According to the Forestal Study of 1964-66. Forestal Forestry and Engineering International Limited, entitled CHT: Soil and Land Use Survey (1964-66), Vancouver (1966), Vol. 2, Appendix 1.

¹⁴ Based on field survey (own) and baseline survey (2009).

¹⁵ In 1998, Dr. Chakma was recognized with Canada’s Top 40 Under 40 Award, given annually to honor Canada’s best and brightest in their fields younger than 40. He is a fellow of the Canadian Academy of Engineering. See, <http://www.president.uwo.ca/bio.html>. Electronic document, http://communications.uwo.ca/com/western_news/stories/only_way_out_was_education/_20090108443454/, accessed April 15, 2010. ¹⁶ Most graduates are destined for jobs in government, which is the main employer such as primary school, college, civil service, etc.

¹⁷ Wedgwood, Ruth. 2005. Post-Basic Education and Poverty in Tanzania. Centre of African Studies, University of Edinburgh.

¹⁸ In this regard it is pertinent to mention that, though the Bangladesh government time and again have been trying to establish a public university in Rangamati, the JSS leaders, especially its chairman, who is also chairman of the CHT Regional Council, Santu Larma, have been ironically protesting saying that establishment of an university will require more displacement of the Paharis from their lands.

Livelihood Security and Sustainable Development: A Study of Protected Areas in Uttar Pradesh

A K Singh and Abhishek Singh

Introduction

In recent years, economic development, globalization and information revolution have created several opportunities for those who are already well endowed with information, capital and the ability to capitalize upon them. This had led to the widening gap between the rich and poor while creating disparities in development (Saxena and Sen, 1999). Therefore, made by a few privileged has raised concerns about communities that are enhanced the vulnerability and marginalization of the poor and has become a threats to lives and livelihoods of individuals in the communities. Thus, human security, that encompasses security and well being of an individual from critical and pervasive threats and situations, focuses on protection of people from serve wide spread threats and situations to their lives, livelihoods and the way of life (Singh,2005).

The sustainable livelihoods approach is well recognized as an integrated mechanism for poverty reduction and natural resources management. A successful implementation of strategies to create sustainable livelihoods for human security requires (Singh,2005):

- A strong thrust on sustainable livelihoods in policies and programmes for poverty reduction, social development, and community-based natural resources management;
- Increased collaboration between government agencies, non-government organizations, the community and the private sector to identify the means to create sustainable livelihoods for local economic development, social equity, and cultural preservation;
- Change in local governance to include participatory planning and inclusion of the weakest groups;
- Empowerment of the weakest groups to enable them to express their needs, protect their rights, and demand accountability from the agencies providing services to them; and
- Greater access to information in the community with appropriate use of information and communication technologies and e-governance.

The environmental crisis is most serious problem in India. The biosphere, which provided conducive conditions for gradual development of human life on earth, started losing its rejuvenating potency on account of man's impudence acts of omission and commissions. The

resultant impact bordering on a sort of crisis posed for middle challenge. The crux of this crisis has been exploitation of natural resources by the human being only to fulfill their needless needs. Importantly, forests play a vital role in the economy of the state. A large segment of India's population depends on forestry for energy, housing, fodder and small timber. The demand for forest products and services is increasing with the growth in population and economy where as the forest cover in the country is deteriorating (Singh, and Dixit, 1999).

In recent years, economic development, globalization and information revolution have created several opportunities for those who are already well endowed with information, capital and the ability to capitalize upon them (Singh, 2001). This has created gaps between rich and poor class. In this context, the sustainable livelihoods approach is well recognized as an integrated mechanism for poverty reduction and natural resources management that is crisis scrotal and one that encompasses all the assets of a community (Singh, 2005). Successful implementation of strategies to create sustainable livelihoods for human security requires:

1. A strong thrust on sustainable livelihoods in policies and programmes for poverty reduction, social development, and community based natural resources management;
2. Increased collaboration between government agencies, non-governmental organizations, the community, and private sector to identify the means to create sustainable livelihoods for local economic development, natural resources management, social equity, and cultural preservation;
3. Changes in local governance to include participatory planning and inclusion of weaker groups;
4. Empowerment of weakest groups to enable them to express their needs, protect their rights, and demand accountability from the agencies providing them services; and
5. Greater access to information in the community with the use of information and communication technologies and e-government.

Significant efforts are required for Greening India to address food security and environmental challenge. Deforestation has resulted in environment crisis, economic decline and unbalanced development of the country. The successful implementation of the programme will help the country achieving ecological security, environmental and economic balance, and hold the country in pride position amongst developed nations of the world. It will ensure sustainable management of land, water forest and bio-diversity. Integrated development of these natural resources will bring about desirable peace, prosperity, happiness, livelihood security and sustainable development (Singh, et al. 2008) Dudhwa National Park is the only Tiger Reserve Park of Uttar Pradesh. It is situated in *Tarai* region of U.P. The total area of the park is 49029.19 hectares. There are two villages with the population of 1837 persons within the protected areas boundaries (Singh, 1982). The total village outside protected areas (within 5 km. from boundary of protected area) has been reported to be 125 with total population of 180163 while livestock population of villages has been recorded to be 78241. There are 50085 wild animals in the park while 102 Tigers were reported. It is said that tiger population is under serve stress and in most of the protected areas, the number of tigers is decreasing due to illegal hunting, pouching and unsafe practices of management of protected areas. The tigers

are also facing problems in terms of quality shelter, food and care. Thus, man-animal conflict is increasing. The park authority regularly compensates community for loss of animal, human life and property damage. Therefore, the Tiger Task Force has recommended involvement of the local communities in the protection of tigers. The exclusion of the communities in the forest management and wild life resources affects the intelligence gathering critical to preventing poaching. Indian tiger faces huge challenges, extensive, highly organized international poaching network, and lack of professional law of enforcement to check international aims and abysmally low conviction rate for poachers. Increasing hospitality of local communities, who share the tiger's habitat, excludes people from protected areas. The loss of sources of livelihoods in the fringes of protected areas also creates major challenges to the local community on one hand and enhances community hostility on the hand. The frequent interface and entry of community in protected areas also enhances the change of man animal conflict and community tension (Singh and Singh, 1999). Against this viewpoint, present study in proposed to review the status of livelihood security and sustainable development, and management of forest resources.

The presented study is empirical in nature and is based on mainly primary data collected through field survey. Besides collection and analysis of primary data, secondary data and pertinent literature has been compiled from published and documented sources. The field survey has been conducted in Dudhwa National Park, Lakhimpur- Khiri, U.P. Overall, 275 households preferably poor, marginalized and landless farmers were randomly selected for interview. The households are representing of those villages which falls within five km. distance from the co-region of the park. The field survey has been conducted with the help of structured interview schedule for households. The policy measures and recommendations are based on analysis of research finding and critical appreciation of pertinent literature.

Livelihood Security

Natural resources which are vital for food, livelihood and environmental security are under intense pressure. The challenges of their conservation and sustainable use remain enormous. Circumstances warrant integration of environmental issues with strategies of poverty alleviation. It is now widely accepted that future of food, livelihood and environmental security depend upon the attention paid to the management of natural resources viz., land, water, forest and biodiversity. In this context, natural resources involve concurrent attention to conservation, sustainable use and equitable sharing of benefits. In fact, development activities must not be allowed to result in severe depletion of natural resources and degradation of environment. One of the top priorities of the third world countries especially developing ones is to create sustainable livelihoods on a large scale. Even in the poorest countries, the capacity of agriculture to absorb additional labour is rapidly diminishing, with the modernization, unplanned development, colonization and accelerated economic growth, which have adversely affected the natural resources and consequently massive destruction in India. This loss of natural assets now acts as a major brake on the ability of economies to respond to the ever increasing needs of their population and its sustenance. Sustainable livelihood approach is well-recognized as an integrated mechanism for poverty reduction and natural resource management. In this part

of the dissertation, an attempt has been made to examine the status of livelihood development of the dwellers living in and around a national park; participation of inhabitants in conservation and protection of natural resources particularly conservation of tiger; and prospective areas for livelihood development.

The respondents were asked that whether they are using organic manure to enhance the productivity of agricultural crops. It was reported by the majority of the respondents that they are widely using organic manure and bio fertilizer for increasing the agricultural productivity and soil fertility. However, about 2/3rd respondents also reported that they are also using chemical fertilizers. Thus, there is wider scope for promoting organic farming which is based on mainly organic composting. The respondents were further asked regarding plantation of trees on non-agricultural land. About 3/4th respondents reported that they are planting poplar and bamboo on non-agricultural land. Both the plant species are related to industrial forestry which has potential to provide substantial source of revenue and employment. *Jatropha* is also becoming popular among the non-tribal communities in the area. Interestingly, about 3/4th respondents revealed that they are using organic materials for increasing the nutritional value of the soil. It was reported high in case of tribals as against non-tribals. Tribals mainly use crop residues; biomass and organic manure to increase the soil fertility (Table 1). Most of the respondents reported that they have domesticated the mulching animals (60 per cent).

Table - 1 : Use of Nutrition for Enhancing Productivity of Plants

No. of Items	Tribal	%	Non-Tribal	%	Total	%
Crops Residues	90	78.26	112	70.00	202	73.45
Organic Manures	34	29.57	76	47.50	110	40.00
Biomass	85	73.91	110	68.75	195	70.91
Bio Compost	21	18.26	40	25.00	61	22.18
Recycled Wastes	12	10.43	36	22.50	48	17.45
Total	115		160		275	

Source: Field Survey

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This was reported high in case of tribals. About 40 per cent respondents also said that they are domesticating the non-mulching animals for agricultural operations and other purposes. It is to be noted here that most of the mulching animals were reported to be non-productive and of indigenous breed which may be allowed to graze open into the forest. This enhances the chances of man-animal conflict due to the adjoining area of National Park. The domestic animals, while grazing in the nearby or into the forest land, come across the wild animals and thus the wild animals are exposed to the new varieties of food, causing man-animal conflict. Even this has caused tension among the tribals that they raise the issue of proper compensation of the killed and wounded domestic animals by the wild animals. The forest authority is always in suspicious position that whether they should be compensated since the hamlets located within the 3 km. radius of core zone of forest are illegal.

The respondents were further asked that whether they are getting benefits of dairy development from their mulching animals. Only 27 per cent respondents reported that they are getting benefits from their mulching animals for dairy development. This was reported high in case of non-tribals as against tribals. The respondents were asked that whether they are engaged in cottage industry. About 38 per cent respondents reported that they are engaged in cottage industries for their sustenance. It was reported high in case of non-tribals (42.5 per cent) as against tribals (31.3 per cent). Those who are found engaged in cottage industries were reported belonging to the higher income group i.e. above Rs. 35000 per year. Thus, it is proved that development of cottage industries is requiring substantial investment for its development.

Table - 2 :Types of Cottage Industry

No. of Items	Tribal	%	Non-Tribal	%	Total	%
Poultry Farm	5	13.89	9	13.24	17	13.46
Sericulture	-	-	8	11.76	8	7.69
Bee Keeping	4	11.11	9	13.24	13	12.50
Fishery	-	-	11	16.18	11	10.58
Sheep Rearing	8	22.22	10	14.71	18	17.31
Piggery	19	52.78	5	7.35	24	23.08
Mushroom Cultivation	-	-	16	23.53	16	15.38
Total	36		68		104	

Source: Field Survey.

Nature of cottage industries is shown in Table 2. Most of the tribals were found engaged in piggery (52.78 per cent) and sheep rearing (22.22 per cent) and poultry (13.89 per cent) while the non-tribals were found engaged in mainly mushroom cultivation (23.53 per cent), fisheries (16.18 per cent) and sheep rearing (14.71 per cent).

Table - 3 : Measures for Protecting Crops from Wild Animals

No. of Items	Tribal	%	Non-Tribal	%	Total	%
Plantation	77	66.96	100	62.50	177	64.36
Grass Barricading	68	59.13	112	70.00	180	65.45
Bunding	100	86.96	160	100.00	260	94.55
Fencing	112	97.39	145	90.63	257	93.45
Total	115		160		275	

Source: Field Survey

Due to the proximity of national park and higher chances for interaction with wild animals, the inhabitants make ensure proper arrangements for the protection from the wild animals to their crops. Most of the respondents reported that they are ensuring it through bunding, fencing and plantation (Table 3).

Table - 4 : Measures Adopted in National Parks for Tiger Conservation

No. of Items	Tribal	%	Non-Tribal	%	Total	%
Watch Group	93	80.87	151	94.38	244	88.73
Watch Tower	100	86.96	95	59.38	195	70.91
Fencing	95	82.61	145	90.63	240	87.27
Volunteers	45	39.13	115	71.88	150	54.55
Others	30	68.09	75	46.88	105	38.18
Total	115		160		275	

Source: Field Survey

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Dudhwa National Park is the only tiger reserves in the state of Uttar Pradesh. The population of tigers in the park has decreased over the period which has caused a serious concern to the policy makers. This has also raised the question of involving community in conservation of tigers. The respondents were asked regarding the measures adopted so far for the conservation of tigers. Most of the respondents reported that watch group has been established, fencing of sharpen wires has been created while watch tower has been established. Even a majority of the respondents from the non-tribal communities reported that the groups of volunteers have been formed to conserve the tigers (Table 4). The respondents were further asked that whether they are participating in tiger conservation. About 45 per cent respondents said that they are participating in the measures adopted for tiger conservation. It was reported significantly high in case of non-tribals (53.75 per cent) as against tribals (33.04 per cent).

Table - 5 : Do Wild Animals Create Loss

No. of Items	Tribal	%	Non-Tribal	%	Total	%
Regularly	88	76.52	111	69.38	199	72.36
Occasionally	25	21.74	38	23.74	63	22.91
Never	2	1.74	11	6.88	13	4.73
Total	115		160		275	

Source: Field Survey

The respondents were asked that whether wild animals create loss to their crops. Most of the respondents accepted that the wild animals create loss to their agricultural crops on regular basis. This was reported high in case of tribals (76.52 per cent) as against non-tribals (69.38 per cent) (Table 5). Nature of loss due to man-animal conflict is shown in Table 6.17. The man-animal conflict results in mainly loss of agricultural crops and lost to domestic animals. It was reported high in case of tribals as against non-tribals. This is because of the fact that tribals are living nearby the forest land while the non-tribals are residing slightly away from the forest land.

Table - 6 : Reasons for Man-Animal Conflict

No. of Items	Tribal	%	Non-Tribal	%	Total	%
Cutting of Wild Grasses	90	78.26	126	78.75	216	78.55
Loss of Natural Habitat of Tigers	52	45.22	90	56.25	142	51.64
Frequent Entry of Domestic Animals into Forest	100	86.96	112	70.00	212	77.09
Others	48	41.74	56	35.00	104	37.82
Total	115		160		275	

Source: Field Survey

The factors for man-animal conflicts are shown in Table 6. The cutting of wild grasses, frequent entry of domestic animals into forest land and loss to natural habitat of tigers are the main factors which affect the man-animal conflict. The respondents were enquired that whether government provides them compensation for man-animal conflict or loss created by wild animals. Only 16 per cent respondents revealed that government is providing compensation to them for the loss made by the wild animals.

Table - 7 : Dependency on Forest Resources

No. of Items	Tribal	%	Non-Tribal	%	Total	%
Herbal medicine	33	28.70	10	6.25	43	15.64
Fuel wood	88	76.52	145	90.63	233	84.73
Timber wood	94	81.74	120	75.00	214	77.82
Grass/ Fodder	115	100.00	100	62.50	215	78.18
Employment	46	40.00	95	59.38	141	51.27
Others	20	17.39	47	29.38	67	24.36
Total	115		160		275	

Source: Field Survey

Dependency on forest resources is shown in Table 7. Most of the inhabitants were found depend on forest resources for their varied needs. The major needs were reported to be related with fuel wood, timber wood, grass and fodder. The dependency of tribals was found comparatively higher as against non-tribal population. The respondents were further asked that whether they visit forest land regularly. The majority of the respondents accepted that they daily visit forest land for their various purposes. It was found more pronouncing in case of tribals as compared to non-tribals.

Table - 8 : Role of Forest Department in Economic & Environmental Stability

No. of Items	Tribal	%	Non-Tribal	%	Total	%
Conservation of forest resources by judicious use and development	36	31.30	30	18.75	66	24.00
Increasing in forest productivity	26	22.61	47	29.38	73	26.55
Meeting out timber need through production of bamboo	85	73.91	95	59.38	180	65.45
Selling of handicrafts in domestic market	82	71.30	100	62.50	182	66.18
Extending financial and technical support to local farmers for agro-forestry development	75	65.22	90	56.25	165	60.00
Total	115		160		275	

Source: Field Survey

Role of forest department in establishing economic and ecological balance is shown in Table 8. Most of the respondents said that forest department is engaged in promotion and development of bamboo, handicrafts, forest conservation for meeting out the emergent needs of the local people and extending them economic and technical assistance for their livelihood development. Most of the respondents were of the view that government should make efforts for

ROLE OF INSTITUTIONS ON TRIBAL LIVELIHOOD

soil conservation, availability of good quality planting materials, extending economic and technical assistance and increasing forest productivity. Most of the respondents raised the issues pertaining to poverty alleviation and women empowerment; lack of training to farmers; economic insecurity of farmers; non-exposure of markets; and non-existence of appropriate model of agro-forestry development. These factors affect agro-forestry development in the region.

Table - 9 : Factors Effecting Forest Loss

No. of Items	Tribal	%	Non-Tribal	%	Total	%
Default policy of govt.	20	17.39	70	43.75	90	32.73
Uncontrolled grazing	90	78.26	130	81.25	220	80.00
Zhoom/ shifting cultivation	30	26.09	5	36.33	35	12.73
Forest fire	45	39.13	26	16.25	71	25.82
Construction of dams and roads	26	22.61	75	46.88	101	36.73
Massive cutting of forest trees	105	91.30	115	71.88	120	43.64
More concentration on commercial crops	90	78.26	100	62.50	190	69.09
Threat from pests and worms	30	26.09	45	28.13	75	27.27
Increasing trend of urbanization and industrialization	41	35.65	95	59.38	136	49.45
Forest Mafia	26	22.61	126	78.75	152	55.27
Corruption among forest employees	76	66.09	105	65.63	181	65.82
Lack of enforcement of legislation and policies	80	69.57	96	60.00	176	64.00
Total	115		160		275	

Source: Field Survey

Factors affecting forest loss are shown in Table 9. Most of the respondents reported that the main factors for forest loss are related to uncontrolled grazing, corruption among forest officials and employees, lack of enforcement of forest legislations, major emphasis on exploitation of commercial crops and default policies of government, etc. The view perception related to forest loss varies from community to community. However, it has been well realized by the villagers that uncontrolled grazing into forest land is causing severe loss to the forestry resources. The result of forest loss has been reported mainly in form of loss of many plant species, more possibility of flood, adverse impact on environment, loss of natural habitat of wild animals, etc.

Table - 10 : Whether Tourist Come to Your Areas

No. of Items	Tribal	%	Non-Tribal	%	Total	%
Yes	100	86.96	130	81.25	230	83.65
No	15	13.04	30	18.75	45	16.36
Total	115		160		275	

Source: Field Survey

The respondents were asked that whether tourists visit in their areas. Most of the respondents revealed that tourists visit in their areas. However, tourists prefer to visit in tribal areas rather than non-tribal areas. It has already been mentioned that Dudhwa National Park is the only tiger reserve and major eco-tourism destination in the state of Uttar Pradesh. Thus, tourists regularly visit the park and they become interested to enjoy the cultural traditions, handicrafts and other agricultural operations being performed by the tribal and other local communities. The average numbers of tourists per year were reported to be 488. The numbers of tourists were reported slightly higher in case of tribal communities as against non-tribal communities (Table 10).

Table - 11 : In Which Sector You are Interested for Employment

No. of Items	Tribal	%	Non-Tribal	%	Total	%
Agro-forestry	68	59.13	75	46.88	143	52.00
Social Forestry	25	21.74	95	59.38	120	43.64
Industrial Forestry	12	10.43	35	21.88	47	17.09
Organic Farming	36	31.30	46	28.75	82	29.82
Jatropha plantation	19	16.52	96	60.00	115	41.82
Cultivation of Medicinal & Aromatic Plants	72	62.61	135	84.38	207	75.27
Handicrafts	81	70.43	35	21.88	116	42.18
Total	115		160		275	

Source: Field Survey

The respondents were asked regarding their desire of employment sector. Most of the respondents were found interested in the cultivation of medicinal and aromatic plants (75.27 per cent), agro-forestry (52 per cent), social forestry (43.64 per cent) and Jatropha plantation (41.82 per cent). The tribals were mainly interested in cultivation of medicinal and aromatic plants, handicrafts and agro-forestry sector while the non-tribals were interested mainly for plantation of medicinal and aromatic as well as Jatropha (Table 11).

Table - 12 : Need for Livelihood Development

No. of Items	Tribal	%	Non-Tribal	%	Total	%
Technical support	84	73.04	137	85.63	221	80.36
Financial support	89	77.39	39	24.38	128	46.55
Availability of raw material	70	60.87	45	28.13	115	41.82
Arrangement for marketing of finished products	44	38.26	100	62.50	144	52.36
Entrepreneurial & Technical Education	52	45.22	112	70.00	164	59.64
Total	115		160		275	

Source: Field Survey

Need for initiating livelihood is shown in Table 12. Most of the respondents revealed that they are interested to start employment activities, however, they need technical support, marketing arrangements for finished products and entrepreneurship and technical education. The tribals were reported that they need mainly technical and financial support for starting of livelihood activities. Education-wise desire for livelihood development is shown in Table 6.50. The educated respondents were mainly interested for Jatropha plantation, cultivation of medicinal and aromatic plants, handicrafts while low educated respondents were mainly interested for agro and social forestry. Technical support is required mainly for cultivation of medicinal and aromatic plants, social and agro forestry development while financial support is required for handicrafts development. Raw material support was desired by the respondents for the development of medicinal and aromatic plantation while entrepreneurial and technical education is required for development of agro forestry, social forestry and industrial forestry as well as Jatropha plantation.

Overall, the analysis simply demonstrates that forest department is significantly contributing in the development and conservation of forestry resources. The villagers are getting benefits

from these schemes; however, the problems of man-animal conflicts, poor participation in conservation and development of forestry resources as well as poor access to development programmes are being reported. Most of the villagers are interested to initiate livelihood development in the sectors of Jatropha plantation, agro forestry, social forestry, industrial forestry, cultivation of medicinal and aromatic plants as well as organic farming. However, they need support in terms of finance, technology, entrepreneurial and technical education, availability of raw materials and marketing arrangements for the marketing of finished products.

Conclusion

Livelihood security and sustainable development are the major development agenda in the policy and planning of forestry sector development. It has been well realized that agriculture sector cannot absorb the increasing work force for livelihood generation while industry sector has already shrunk over the period. Thus, the non-farm sector has enormous potential for the employment generation. Forest dependent people may have a crucial role in the conservation and development of the forestry resources as well as conservation and protection of wild animals such as tigers; however, the livelihood security is imperative. Significantly, the biotic pressure and stress on part of the forest dependent people has to be reduced through providing opportunities for livelihood development as well as incorporating economic activities which promote livelihood development for the forest dwellers and farmers nearby the forest areas.

Suggestions

- Participatory system based on traditional management system through village community should be promoted in order to regenerate and participatory rehabilitation of degraded forest. The local community would have to respect social fencing and must not allow grazing in the demarcated areas. More reliance should be placed on re-generation and development of silvi-pastoral practices rather than on conventional forestry.
- Promotion of low-caste conservation measures/strategy based on indigenous practices and devices with higher reliance on vegetative conservation measures and use of plant species in degraded land is ensured. Agro-Forestry systems have proved potential for the reasons which require for educating farming community for adoption of improved practices of agro-forestry.
- The management of the Dudhwa National Park should be improved. The first step in this direction will be to control poaching in the adjoining areas of the park. It must be kept in view that earlier villagers welcomed tiger in their field for saving their crops from wild boar, now they welcome it for the money that poachers might, give for allowing them to kill and extract tiger's bones and skin in their field.
- In order to take advantage of bamboo resource generation, national agriculture policy should encompass and stress on efficient use of resources and conservation of soil and water and promotion of bamboo based agro-forestry be ensured and adopted at the state level.

- Agricultural Research Institutes need to ensure development and dissemination of plantation technologies, mass production of planting material, demonstration of plantation methods, silviculture practice, pre and post harvest treatment and development of communication packages for NGO activities and progress farmers.
- It is necessary to development bamboo-based agro-forestry system based on species suitable available in particular area. Intensive training is also required in order ensuring wider industrial application of bamboo products and promoting bamboo-based handicrafts.
- The country must move towards bio-fuels – ethanol as substitute for motor sprit and bio- diesel for diesel. Blending of motor sprit with ethanol @ 10% can be achieved if only additional facility to dehydrate ethanol could be added. Ethanol may be manufactured using molasses as the raw material. Ethanol may also be manufactured through cultivation of sugar beet, sweet potato, sorghum, maize and sugar cane crops.
- A state should immediately launched bio-diesel policy in order to ensure the exploitation of emerging potential of bio-diesel plants like jatropha. The community and farmers will be mobilized and motivated for plantation, seed collection, procurement and oil extraction from the jatropha plants. The state government may also established demonstration-cum-production units at the regional level for wider and effective dissemination of information pertaining to bio-diesel development.
- An integrated, multi-pronged and multi strategy is required to promote jatropha plantation programme in the degraded and waste land for employment generation, poverty alleviation, income generation and social empowerment of the poor farming community.
- Integrated and holistic development of the rain-fed areas for promotion of conservation of rainwater through vegetative measures on watershed basis and augment of biomass production through agro and farm forestry with the involvement of watershed community is ensured.
- Agro-forestry and social-forestry are prime requisites for maintain of ecological balance and augmentation of biomass production in the agriculture system. Today, forestry has a wide spectrum of interfaces and multi-dimensional array of impacts. The situation calls for new and in-depth knowledge about forest resources, their use, their management and conservation, etc.
- Forest resources and forestlands should be sustained ably managed to meet the social, economic, ecological cultural and spiritual human needs have presented and future generations. The farmers should be encouraged by government and research institutions to take up farm/agro-forestry for higher income generation through evolving technology, extension and credit support packages.
- Technological development to diversify of agro-forestry species will help to ensure a ready market in view of the emerging potential of bamboo, jatropha, measures plantation, energy plantation, etc.

- Rehabilitation of degraded forest is possible through people's participation in generation, plantation, and protection of social forestry programme in order to realize emerging potential of natural resources.
- The nature, extent and causes of land degradation are required to be assessed and suitable strategies for rehabilitation of degraded land like bio-mass production, watershed development, agro-forestry, soil and water conservation, rainwater, etc. should be ensured.

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Conclusion

Tribal Livelihood in Tripura : Issues, Challenges and Policy Direction

Jayanta Choudhury

Introduction

A person's livelihood refers to their "means of securing the basic necessities -food, water, shelter and clothing- of life". Livelihood is defined as a set of activities, involving securing water, food, fodder, medicine, shelter, clothing and the capacity to acquire above necessities working either individually or as a group by using endowments (both human and material) for meeting the requirements of the self and his/her household on a sustainable basis with dignity.

A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stress and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base. (Chambers & Conway, 1991)

The concept of Sustainable Livelihood (SL) is an attempt to go beyond the conventional definitions and approaches to poverty eradication. These had been found to be too narrow because they focused only on certain aspects or manifestations of poverty, such as low income, or did not consider other vital aspects of poverty such as vulnerability and social exclusion. It is now recognized that more attention must be paid to the various factors and processes which either constrain or enhance poor people's ability to make a living in an economically, ecologically, and socially sustainable manner.

In a classic 1992 paper, Sustainable Rural Livelihoods: Practical concepts for the 21st Century, Robert Chambers and Gordon Conway proposed the following composite definition of a sustainable rural livelihood:

"A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term."

Of the various components of a livelihood, the most complex is the portfolio of assets out of which people construct their living. This portfolio includes tangible assets such as stores (e.g., food stocks, stores of value such as gold, cash savings) and resources (e.g., land, water, trees,

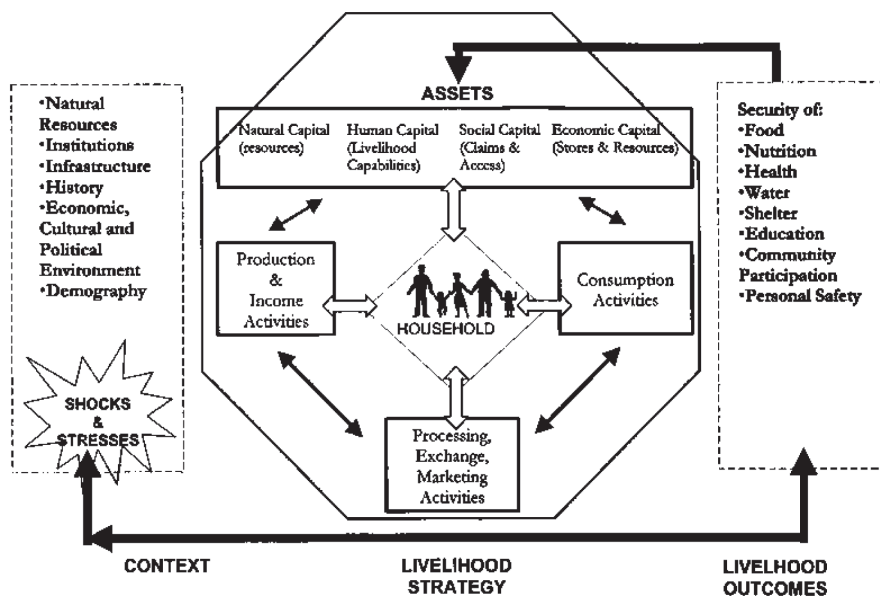
livestock, farm equipment), as well as intangible assets such as claims (i.e., demands and appeals which can be made for material, moral or other practical support) and access, which is the opportunity in practice to use a resource, store or service or to obtain information, material, technology, employment, food or income.

A distinction is made between environmental sustainability, which refers to the external impact of a livelihood on other livelihoods, that is its effects on local and global resources and other assets, and social sustainability, which concerns the internal capacity of a livelihood to withstand outside pressure, that is to cope with stress and shocks and retain its ability to continue and improve over time.

Livelihood Resources means the basic material and social, tangible, and intangible assets that people use for constructing their livelihoods. These are conceptualized as different types of ‘capital’ to stress their role as a resource base ‘...from which different productive streams are derived from which livelihoods are constructed’ (Scoones 1998:7). Basically these are:

- Natural capital: The natural resource stocks (soil, water, air, genetic resources, etc.) and environmental services (hydrological cycle, pollution sinks, etc.) from which resource flows and services useful for livelihoods are derived.
- Economic or financial capital: The capital base (cash, credit/debt, savings, and other economic assets, including basic infrastructure and production equipment and technologies) which are essential for the pursuit of any livelihood strategy.
- Human capital: The skills, knowledge, ability to labour and good health and physical capability important for the successful pursuit of different livelihood strategies.
- Social capital – the social resources (networks, social claims, social relations, affiliations, associations) upon which people draw when pursuing different livelihood strategies requiring coordinated actions.

Figure: CARE’s Livelihood Model



Source: After Swift, 1989; Drinkwater, 1994; Carney, 1998; Frankenberger and Drinkwater, 199

CARE's definition of household livelihood security emphasizes a capacity-building approach to development, and even relief activities, treating people more as active beings in constructing their own livelihoods than as passive recipients of external help. It has grown out of three major shifts in the internal development of the organization:

1. A shift of concern from regional and national food security to a concern with the food security and nutritional status of the household and the individual.
2. A shift from a 'food first' perspective to a livelihood perspective, which focuses not only on the production of food, but also on the ability of households and individuals to procure the additional food they require for an adequate diet.
3. A shift from a materialist perspective focused on food production to a social perspective which focuses on the enhancement of people's capabilities to secure their own livelihoods (Drinkwater and Rusinow, 1999).

Tribal Livelihood in Tripura: Scope and Challenges

Tribal in India have been deprived of opportunities because of many factors. One of the important factors is unavailability of suitable infrastructure for the development plan to reach to them this is largely because of myth and lack of infrastructure to establish effective communications between inhabitants of mainland and tribal. (Kumar & Bansal, 2013)

The Tribal are primitive in nature and mostly depend on forest and natural resources, on the other hand increasing pressure on a fragile resource base has indeed contributed to widespread failure to meet subsistence needs among tribal households, and majority tribes live under poverty line. The tribes follow many simple occupations based on simple technology. Most of the occupation falls into the primary occupations such as hunting, gathering, and agriculture. The technology they use for these purposes belong to the most primitive kind. There is no profit and surplus making in such economy. Hence there per capita income is very meager much lesser than the Indian average. Most of them live under abject poverty and are in debt in the hands of local moneylenders. In order to repay the debt they often mortgage or sell their land to the moneylenders. Indebtedness is almost inevitable since heavy interest is to be paid to these moneylenders (sociologyguide.com). As a result these people had to leave their native places in search of work which led to the loss of their rich heritage. (Kumar & Bansal, 2013)

Tripura with a population of 36.74 lakhs (2011 census) is located in the southwest north eastern region. 31.8 percent population is tribal and is spread across the state. Tripura shares 84 percent of its border with Bangladesh and the porous border allows trade of a number agriculture and allied activities between the two countries. Though the state has good social infrastructure in terms of education but unemployment is high due to limited local opportunities (MART, 2011).

The forestry sector interfaces with tribal livelihoods in different regions in Tripura. About 2/3rds of the area of the state comprises of forests and about 80 per cent of the tribal population depends on forests for their survival. The main survival strategies being practiced are jhum cultivation and bamboo collection. The Jhumias have been cultivating in forested lands since the time of the kings, and there is a very rough estimate of 40,000 people who still reside in the forest and practice jhum. Since a large part of the area of the state is under forest cover the problem of jhum rehabilitation and tribal livelihood is challenging in both socio-economic and ecological ways. In the first place the forests have been great zones of conflict between the people and the state.

Further more than 70 percent of the forest area falls under the 6th Schedule or the Tribal Areas Autonomous Development Council but the Council has no control over its administration since it falls under the purview the Forest (Conservation) Act 1980. This makes the task of tribal development even more difficult and the initiatives of the state government and the challenges before it have to be evaluated in this context. This paper will look at the status of the interface of the forestry sector with tribal livelihood. It will also attempt to evaluate some of the strategies that the state government has evolved over time to develop the skills, knowledge base and livelihood of tribal people (Prasad).

The state economy is largely rural and agricultural and is constraint by availability of only 27 percent of its Geographical area for cultivation. Rural community is engaged in three major categories of livelihoods; agriculture based, livestock based and nonfarm based. It was found that 85 percent communities are engaged in livestock followed by 68 percent in agriculture and 46 percent in non-farm activities indicating involvement in multiple activities to sustain family needs. (MART, 2011)

In Tripura 60 per cent of the geographical area is under forests. More than 70 per cent of the forested land is out of the control of the State administration (including the Autonomous District Council), since its control is vested with the Central Government (through the Forest Conservation Act 1980). The use and development of forest areas is particularly relevant to the creation of sustainable livelihoods for the tribal peoples. (MART, 2011)

There are around nineteen tribal communities. Tripuri is the leading one that constitutes 55 percent of total tribal population. The first-ever census by the forest department in 2007 found 27,278 shifting cultivators families (1,36,000 persons) or *jhumia* dependent on *jhum* cultivation as their primary source of livelihood. This constitutes nearly 10 percent of tribal families in the state and is a matter of concern since *jhum* is a high-risk system of cultivation and in the current circumstances (with reduced years of the *jhum* cycle) cannot provide an adequate means of livelihood. However, it is still an important supplementary income and inputs in the daily lives of tribal people and provide sometime difficult to quantify benefits from the collection of fruits, bamboo shoots and other edible produce, from fodder, from construction material for houses, and from medicinal plants. (MART, 2011)

“Sustainable Rural Livelihoods” is a people-focused concept centering on the multiple livelihood options and strategies of the poor. Central to the concept is the understanding that livelihoods are built around a series of tangible and intangible assets or resources, of which income earned may be one but certainly not the only one, and the ability to make claims on resources is probably the most significant. (Okali 2006)

Since tribal communities live in close proximity with biodiversity rich landscapes, they have evolved local specific and novel livelihood strategies based on their indigenous knowledge. This knowledge was passed on through generations and it played an important role in the conservation and sustainable use of biodiversity. By and large, they were depending on nature for their survival. Thus, there always existed an organic unity between humans and their surrounding environments in the traditional societies. As a result, there existed an intricate

relationship between their culture and nature. Social and cultural diversity, coupled with the environmental complexity, have generated diverse approaches and technologies in the management and use of different natural resources (Mishra, 2007).

There are various livelihood activities through which Tribal communities are mainly involved in livelihood -

Shifting Cultivation

Traditionally, most of the tribal population practiced shifting or Jhum cultivation and were termed Jhumias. Jhumia is a generic term used for tribal people dependent on shifting cultivation as the primary source of livelihood. The big concentration of Jhumia families was residing in Dhalai and South Tripura District. Nevertheless, forest remains an important source of livelihood for the tribal population. Jhum cultivation has an intimate relationship with forest use, not only in terms of the habitation and cultivation of tracts inside forest areas, but also because the forestry sector provides important supplementary income and inputs in the daily lives of tribal people. The Reangs of Tripura use *hooknismong* as a synonym for jhum. Jhumming as a system of crop husbandry has been an ancient one and more prevalent in the hilly terrains in this part of the world. In Tripura over 10,039 hectares of land are under jhum cultivation a decade ago. As per the estimates of Forest Survey of India (1999), the cumulative area (million ha) of shifting cultivation (1987 to 1997) was 0.06. A sizeable portion of population in the hills of Tripura is still depending on jhum cultivation as an option for their livelihood. Jhum cultivation to the tribes of Tripura has over the years been not just an economic activity; rather it is a way of life (Das & Das). Though the cycle of jhum cultivation is reducing over the time due to scarcity of land and as a result livelihood is in challenge for large number of tribal families who are still practicing and depending on jhum cultivation.

Non Timber Forest Produces (NTFPs)

The tribal communities from whom this land is alienated are thus deprived of all their livelihood because most of them live in a natural resource based informal economy that depends on the one hand on agriculture, both settled and jhum and on the other on the non-timber forest (NTFP) such as medicinal herbs, edible flowers, leaves and fruits. They also get their small timber and firewood from the forest. Hence development is bound to affect their agricultural and forest land which is the primary source of their livelihood. The development process pushes them from an informal to a formal economy that is new to them without any preparation. They had depended on agricultural land and forests, both of which they lose to the project. They receive compensation it is monetary with which most communities living in the informal economy are not familiar (Bharali, 2006). NTFPs generally accounted for more than 90% of the forest revenue of Tripura and around 30% of the State Revenue till the time of independence (Sharma, 2009). From a small sample study, it was found that tribal communities are dependent on various forest produces like vegetables, fruits, leaves, flowers, root & shoots and the total value of dependency on forest products in Dhalai District and South Tripura District was calculated as Rs. 9693 and Rs. 14100 per family per year respectively. (Das, 2018)

Livestock

Livestock rearing is done throughout the year in the state mainly as supplementary source of income. Fish culture, backyard poultry, cow rearing, and Goatery are the predominant activities done by villagers. Piggery is popular mainly among tribal. Most villagers rear local breeds only. It was found that 85 percent of rural community is engaged in livestock. Inputs for most livestock activities are available locally within the village. Majority of farmers sell their livestock produce to traders within the village and in nearby towns.

The livestock sector is constraint by low livestock productivity, adoption of traditional set of practices, high inputs costs, marketing information and inadequate availability of extension services. Organizing poor for collective sourcing of inputs and marketing, adoption of better animal management and rearing practices, marketing information, and field based handholding support can help poor villagers realize higher returns from livestock activities. (MART, 2011)

Self Help Group

SHGs are now believed to be the driving force in changing the economic face of the households. A large number of Tribal SHGs have been promoted in state since the year 1999. Various programmes facilitate both financial and non-financial supports to SHGs. Women and Tribal Development plan of the Tripura component of World Bank Aided India Rubber Project envisaged support initiatives to the formation of women self help Groups in order to use Women Self- help group (WSHGs) strength for a sustainable development. Success of the approach encourages the Department to replicate the process initiatives in their rehabilitation projects. SHGs are engaged in fish culture, piggery, goatery, cow rearing, handloom & handicrafts, poultry and agriculture, duckery, rubber plantation, tent house, incense stick making, betel vine. However, these activities are hardly successful and SHGs face issues related to lack of proper marketing plan, low productivity levels, low volumes and high overhead costs, limited holding capacity of agriculture produce, and lack of marketing information and linkages.

Settled Agriculture

The state has good agro-climatic conditions, suitable for a large variety of Agro/horticultural crops. Further, industrial development has also been picked up over the past few years. Even Tribal farmers are engaged in a number of cereals (predominantly paddy) and horticulture crops throughout the year. Farmers procure inputs individually locally from government and private players on as-and-when-required basis when demand is high and supply is low resulting in higher inputs costs. Farmers use traditional and different package of practices even within one village. Use of power tiller has picked up for land preparation as it saves time and cost. Majority of farmers sell agriculture produce in raw form to traders within the village and in nearby towns and realize different prices depending upon supply and demand situation. (MART, 2011)

MGNREGA

The MNREG Act is hailed as a historic land mark that can ensure the democratic privilege of dignified means of livelihood through Right to work with participatory processes like Social Audit and People's plan. This will also make way for creation of durable assets

CONCLUSION

at community level for drought proofing, soil and water conservation, irrigation and communicable roads. Rural India is at the centre-stage of all growth in the future. However it continues to suffer from lack of basic infrastructure. Caught in the vicious poverty-cycle, rural India, in absence of adequate infrastructure, rural India finds it difficult to undertake activities that can accelerate economic growth. In absence of infrastructure facilities, there is lack of market-access to rural population, slow growth in organized retail and thus, limited livelihood opportunities, stagnation in agriculture and aggravation of rural poverty-levels. MNREGA is designed as a safety net to reduce migration by rural poor households in the lean period through at least a hundred days of guaranteed unskilled manual labour provided on demand to each household, at minimum wages prescribed by respective states. It is also expected to enhance people's livelihoods on a sustained basis, by developing the economic and social infrastructure in rural areas. Tripura achieved the first position in the country in implementation of Mahatma Gandhi National Rural Employment Guarantee Act seven year in a row. Among 10.73 lakhs active MGNREGA workers 33.12 percent belongs to Schedule community. ST persondays % as of total persondays is 42.74 in 2012-13 43.1 in 2013-14, 44.37 in 2014-15 and 43.32 in 2015-16 and 44.48 in 2016-17.(MGNREGA website, Government of India)

Bamboo

While Tripura is rich in natural resources-forest, field and natural gas, its historical and geographical circumstances, have resulted in an economic structure that is non-diversified and lacking a manufacturing base. Focus of development activities in the state towards a self employment model. This has resulted in creation of livelihoods generating programs those are designed to take advantage of the specific natural resources which the state has in abundance. The Tripura Bamboo Mission (a registered society under Societies Registration Act 1860) is an Initiative of the Dept. of Industries and Commerce, Govt. of Tripura to promote and develop the bamboo based industries and enable livelihood generation through bamboo based activities. TBM has a special focus on promoting sustainable livelihoods for the rural poor by strengthening their own grassroots enterprises through building mainstream market linkages, providing production infrastructure & technology, supporting design & skill development, facilitating credit linkages. IL&FS CDI Ltd has been engaged as the project implementation agency for effective implementation in close association with the Government (TBM, 2012). Market Share of Agarbatti or Incense sticks is estimated to worth at Rs 3,000 Crore in India. Industry is growing at 15% per year. There are more than 10,000 units operating in the sector spread across rural and semi-urban households, providing employment opportunities to nearly 8,00,000 household-based women workers. This sector is grouped as cottage industry or tiny industry as most of the work is being done at house hold level. This sector has tremendous potential to create livelihood opportunities in the rural pockets, especially for the women, as a result of which large-scale rural employment is created to generate self employment. (Ray & Biswas)

Weaving

The hilly frontier state has a unique tradition in arts and crafts, sculpture and architecture, textiles, woodcarving, basketry, and cane and bamboo work. With tribals comprising an important part of the population - over 3 lakhs - they have a variety of tribal crafts (especially textiles) which are often associated with their social or religious life. The important crafts are mainly, the weaving of cotton and silk fabrics, cane and bamboo work, sitalpati (mat making) and woodcarving. Handloom weaving is the most important craft in the state. The artistic textile industry (tribal) is concentrated in a number of places, in the sub-divisions of Sadar, Soonamura, Khowai, Kailasahar and Belonia. The handloom items include riha, lungi, sari, chaddar, and scarves with Tripuri motifs peculiar to the Chakma, Kuki, Lussai and Reang tribes. The main feature of Tripuri handlooms is vertical and horizontal stripes with scattered embroidery in different colours. It has rich heritage in designs that differ from tribe to tribe. It was estimated that In Tripura there are total 139011 nos. of Handlooms, 137177 handloom workers, 37 nos. of handloom clusters and 59 nos. of SHGs are involved in weaving activities.

Plantation Activities

Tripura is one of the leading states for value added bamboo products and for developing the sector in the country. It is estimated that around 6.1 million man days is generated per annum by way of management, harvesting and utilization of bamboo. Bamboo is an important natural resource and the livelihoods of thousands of rural communities are directly linked to it in Tripura. Realizing the important role played by bamboo, the Government of Tripura has been working towards developing the sector in a strategic manner. (Ray & Biswas)

The agro-climatic conditions in Tripura are suitable for development of tea plantation. In fact, Tripura is categorized as a traditional tea-growing State – with about 55 Tea Estates and 4,350 small tea growers, producing about 8.9 million Kg. of tea every year. (Department of Industries & Commerce - Tripura)

Rubber Plantation: The objective of the scheme is to bring the tribal people under rubber plantation in order to improve their economical condition. The project is implemented over a period of seven years. The unit cost was around 1, 09,000/- per hectare. The grant amount of T.W Department is Rs 1, 10,740/- per family for plantation of one hector .rubber. The Rubber Board subsidy is Rs.35, 000/-. The beneficiaries are selected by the “Sub Divisional level Jhumia Rehabilitation committee” from the fully/partly schedule Tribe Jhumia families.

Tea plantation: The objective of the scheme is to improve the economic condition of the tribals by bringing them under Tea plantation. Implementation is done over the period of 5 years. Total unit cost is Rs. 96,354/- for one acre. The Tea Board subsidy is Rs. 20,200 /- , Tribal welfare Department grant is Rs, 76,154/-, the beneficiaries are selected by the “Sub Divisional level Jhumia Rehabilitation committee” from the fully/partly schedule Tribe Jhumia families.

Horticulture: Landless schedule tribe families residing in interior areas are eligible to get the benefit of the scheme. An r, 50,000/- grant is provided to each selected family in installments. The beneficiaries are selected by the “Sub Divisional level Jhumia Rehabilitation committee” from the fully/partly schedule Tribe Jhumia families.

Coffee Plantation: The objective of the scheme is to rehabilitation landless Jhumia families through coffee plantation. The beneficiaries are selected by the “Sub Divisional level Jhumia Rehabilitation committee” from the fully/partly schedule Tribe Jhumia families. The unit cost is 70,000/- per hectare per family for plantation of one hector. The coffee board subsidy is Rs 20,200/- T.W Department grant is R s. 50,000/- . (Choudhury & Ghosh, 2016)

Other options for Tribal livelihood

Vocational Training

The objective of the scheme is to impart training to un-employment tribal youth in different trade like carpentry, electrical wiring, cycle repairing, watch repairing, transistor repairing. The stipend is granted at the rate of Rs.350 per trainee per month during the period of training. The duration of training ranged from 3 to 6 months on the basis of trades.

Pre- induction Training for recruitment to Para Military/ Army

Recruitment in Para-military forces and army is one of the most rewarding employment opportunities for the tribal youth in North eastern region. Unfortunately, many of the resilient tribal youths from across the interior tribal areas fail to make use of this opportunity; this is mainly because of the absence of competitive skills and needed exposures in them. In order to bridge the gap and induct more tribal youths in Para-military forces and army, the scheme of “Pre-induction Training course” has been introduced. Under this scheme one month training is provided to the unemployed tribal youths for recruitment in Army/ Para military forces. Total Rs. 400/- for food and Rs. 100/- as pocket allowance per trainee used to give for one month during training.

Construction of Market stalls for Un-employed Youths

The objective of the scheme is to Assist Un- employed Tribal Youths by way of Construction of small business shed to encourage such Un-employed Tribal Youths in the field of small business. The ravished unit cost is Rs 85,000/- per business shed. The entire amount is provided by tribal Welfare Department.

Tripura Scheduled Tribe Co-operative Development Corporation (TSTCDC)

In order to take up beneficiary oriented economic programmes suitable to the Tribal families, the Schedule Tribes Co- operative Development Corporation was set up in the year 1979. The authorized share capital of the Corporation is Rs. 20,000 Crore.

Development Unit World Bank Aided Rubber Project, Tripura

The Development Unit, World Bank Aided Rubber Project, Tripura, constituted to oversee the implementation of rubber supported socio-economic activities under the Tribal Development Plan of the World Bank Aided Rubber Project besides inter-alia objectives came into being in the year,1994. Responsibilities of the Development Unit were to coordinate implementation of the objectives of the World Bank Aided Rubber Project, Tripura component and implementation of Women & Tribal Development Plan through NGO. Under Women & Tribal Development Programme 4009 ST rubber growing families were assisted against the

target of 4009 families with financial assistance of Rs.5.61 crores with involvement 11 Nos. of RPS and 130 Nos. of WTG formed to ensure economic sustenance during immaturity period of rubber. Credit (loan) to the tune of Rs. 9.18 crores had been extended under Alternative Financing Arrangement Scheme of World Bank Aided Rubber Project, Tripura to 4228 rubber growers through 105 Nos. of RPS (Development Unit – 89 Nos. and TRPC – 16 Nos.) and total area covered 4007.93 Hecter. Recovery of loan till date is to the tune of Rs. 9.63 Crores and the overdue is Rs.10.41 Crores.

Tribal Sub Plan

Considering the persistent and widespread socio-economic backwardness of STs, Government prepared a separate Development Plan called Tribal Sub Plan (TSP) for the STs in 1976. The TSP aim at facilitating convergence and pooling of resources from all the other development sectors in proportion to the population of STs for their overall development.

The Ministry of Tribal Affairs are implementing two Special Programmes viz. Special Central Assistance to Tribal Sub-Plan (SCA to TSP) and Grants under Article 275(1) of the Constitution of India. The SCA to TSP is meant for filling up critical gaps in the family-based income-generating activities of TSP and to cover employment-cum-income generation activities and infrastructure incidental thereto. Besides family-based activities, other activities run by the Self-Help Groups (SHGs)/Community are also to be taken up. The Grants under Article 275(1) of the Constitution of India are for promotion of the welfare of Scheduled Tribes and up gradation of the levels of administration in Scheduled Areas to bring them at par with the rest of the State and for welfare of the tribal people.

In Tripura a special strategy was adopted during the 5th five-year plan (1975-79) for accelerated development of the Scheduled Tribes. This strategy is called Tribal Sub-plan (TSP). It is a mechanism under which each development department of the State Government is required to quantify and set apart an amount of their plan budget provision for implementation of schemes exclusively for the Welfare of Scheduled Tribes in Tripura. The fund so quantified shall not be less than the percentage of ST population in the State. In Tripura each development Department has to quantify at least 31% of their plan fund towards Tribal Sub-plan. In 1995-96 an important decision was taken by the State Government to the effect that the fund earmarked as Tribal Sub-Plan should be booked against the Budget Demand of the Tribal Welfare Department (under Demand No-19).

Tribal Welfare Department of Tripura is the nodal department of the Tribal Sub Plan of the State. But, TW department does not play any effective role for the formulation of the TSP. TW department failed to prepare any comprehensive plan for the TSP areas. The role of the TW department is only restricted to receive TSP documents from the development departments, checks their stipulated transfer of plan fund to the TSP and submits the aggregate document to the Central Ministry. And in absence of any proper monitoring at the state level, the proposed TSP plan outlay quite often does not match with the physical target in most of the departments. As a result, although the flow of state plan funds to the TSP maintain 31% or more, the physical achievements in the tribal areas do not reflect the desired result.

Japan International Cooperation Agency (JICA) Project in Tripura

The forest Department, Govt. of Tripura has entered into an agreement with the Japan Bank for International Corporation (JBIC) now called Japan International Corporation Agency (JICA). This is an afforestation and poverty alleviation Project. Tripura JICA project started in 2007-2008 and will be ending in July, 2017.

The aims and objectives of the Project include restoration of degraded forests and to provide sustainable livelihoods to the forest dependent communities through joint Forest Management Committees. The main strategy of the Project is registered society under the name of “Tripura Forest Environment Improvement and Poverty Alleviation Society” (TFIPAP) TFIPAP is being implemented in the 7 Districts (North, Unakoti, Khowai, West, Sepahijala, Gomati and South) covering 40 Forest Ranges under 7 Forest Divisions and one Wild life sanctuary. So far, the Project has achieved plantation of 49,500 ha., 4,500 ha. of agro- forestry, about 2,000 units of soil and conservation structures. Total 464 joint Forest Management Committees (JFMCs) and 1420 Self Help Groups (SHGs) are constituted (Tribal Welfare). (Choudhury & Ghosh, 2016)

Indo-German Development Cooperation Project

The Indo-German Development Cooperation (IGDC) Project is a forest based bi-lateral project between the Government of India and the Federal Republic of Germany aiming at socio-economic development of tribal shifting cultivators, rural poor and conservation of natural resources in the state. The basic purpose of the project is to improve the natural resource conditions supporting enhanced livelihoods of forest dependent communities in Tripura. The broad concept of the project was originated with Government of Tripura in a programme concept document submitted to the German Government in 2003.

Total project area under IGDC is 3,43,100 ha (of which 65% forest area) in earlier districts of Dhalai and North districts, covering previous named 11 blocks of Ambassa, Ganganagar, Salema, Durgachowmuhani, Dumburnagar, Raisyabari, Manu, Chawmanu, Dasda, Damcherra and Jumpui Hills. Total villages cover under this project is 70 and all are within the TTAADC.

Forest Right Act

The Ministry of Tribal Affairs is the nodal agency for implementing the provisions of the scheduled Tribes and Other Traditional Forest Dwellers under the Recognition of Forest Rights) Act, 2006. The Act seeks to recognize and vest the forest rights and occupation in forest land in forest dwelling Scheduled Tribes and other traditional forest dwellers who have been residing in such forests for generations but whose rights could not be recorded. As per the provisions of the Act and the Rules framed there under, the onus of implementation of the Act lies at the level of the State/UT Governments. 1,20,418 Forest Dwellers (cumulative) had been given Forest Rights under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 and the quantum of land involved is 1,69,297.844 hectares. Recipients of the Forest Dwellers are being supported through various programmes of line Departments/MGNREGA for their sustainable livelihood under the State Level Flagship Programme namely “Economic Benefit Scheme for the Recipients for the Forest Dwellers”.

Recommendation for improvement of Tribal Livelihood in Tripura

1. Village wise participatory micro livelihood plan based on the available resources should be prepared. Under IGDC scheme such plan has been done in 70 villages in North Tripura district and in Dhalai district. This model plan may be replicated throughout the state.
2. Additional skill / vocational training centers should be set up or facilities in the existing training centers should be augmented in order to provide various skill /vocational training specially for tribal youth. Regular and rigorous skill gap analysis is required. Most of the skill /vocational trainings conducted in the state all unable to yield any desired results because of lack of necessary follow up support services. Time to time impact assessment of skill training is very much required.
3. The tribal people who are still involved in primitive livelihood like shifting cultivation and are deprived of the real labour due to the presence of middle man and lack of the information about the market this drawback can be compensate by aware them about the market condition and the real price of their products.
4. A major portion of tribal population involved with agriculture allied activities they should given the help of new technology and other equipment so that they can their productivity can be increased. They should be encouraged to rely not only on primate nature of occupation but also to take part on the mainstream livelihood options.
5. There is a dire need to establish agro-based training institutions and related labour-intensive processing industries in tribal regions. Terms and quantum of micro-credit should be made reasonable for individuals, SHGs, cooperative institutions and Gram Sabhas in Scheduled Areas for the tribes to pursue these occupations.
6. In order to make use of land available with the tribal farmers, they should be motivated to undertake organic farming and eco-forestry. This requires concerted efforts by the Departments of Agriculture and Forest to motivate the tribal farmers to undertake such activities.
7. There are 55 weaving clusters in Tripura. For better forward and backward linkages, mega weaving cluster may be formed including all those clusters. More clusters may be formed with tribal weavers who are still not included in any cluster so far.
8. In Tripura, majority of STs are marginal farmer and cultivation is their main occupation; water for agriculture is the greatest impediment in production. Micro watershed development program with people-centered participatory approach is a good method for poverty reduction through natural resource management in tribal regions. Therefore, micro watershed should be given top-most priority in tribal areas to enhance agricultural productivity under Pradhan Mantri Krishi Sinchai Yojana (PMKSY).
9. The legal requirement of final mapping of forest land and incorporation of the rights in records has not been initiated in the state, creating confusion about the areas and jurisdiction of the Gram Sabhas. The process of modification of land and forest records to incorporate rights granted under FRA, particularly CFRs, should be immediately initiated. The coordinating department (Tribal Welfare) should develop and maintain all related records, maps etc. for each village on priority in order to expedite the process of implementation.

10. Credit and marketing facilities need to be extended to the STs. Delivery of social justice must be monitored by the National Commission for Scheduled Tribes, both at the national and state levels.
11. There is severe under-representation of STs and pending vacancies in Government services. Therefore, the Government should follow a transparent policy with regard to jobs for STs in public sector.
12. The discriminatory credit policy of the financial institutions is a major deterrent in the participation of STs in business. Entrepreneurs among STs must be given credit facility on par with other social groups. Micro-finance approaches taken by the MFIs / NBFCs need to be encouraged.
13. NGOs may be encouraged to be involved in different stages of the project like preparation of village level micro-plan specially preparation of Livelihood Action Plan (LAP), awareness generation, credit linkage, capacity building, marketing support, monitoring and concurrent evaluation, etc.
14. In 2012, MoTA had sent a letter to all Chief Secretaries to modify their states' transit permit rules with gram sabhas empowered to issue transit permits. Procedural obstacles in the collection, sale and transportation of NTFPs by right holders and gram sabhas need to be effectively removed. Tripura should implement the 2012 directive of MoTA on NTFPs.

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