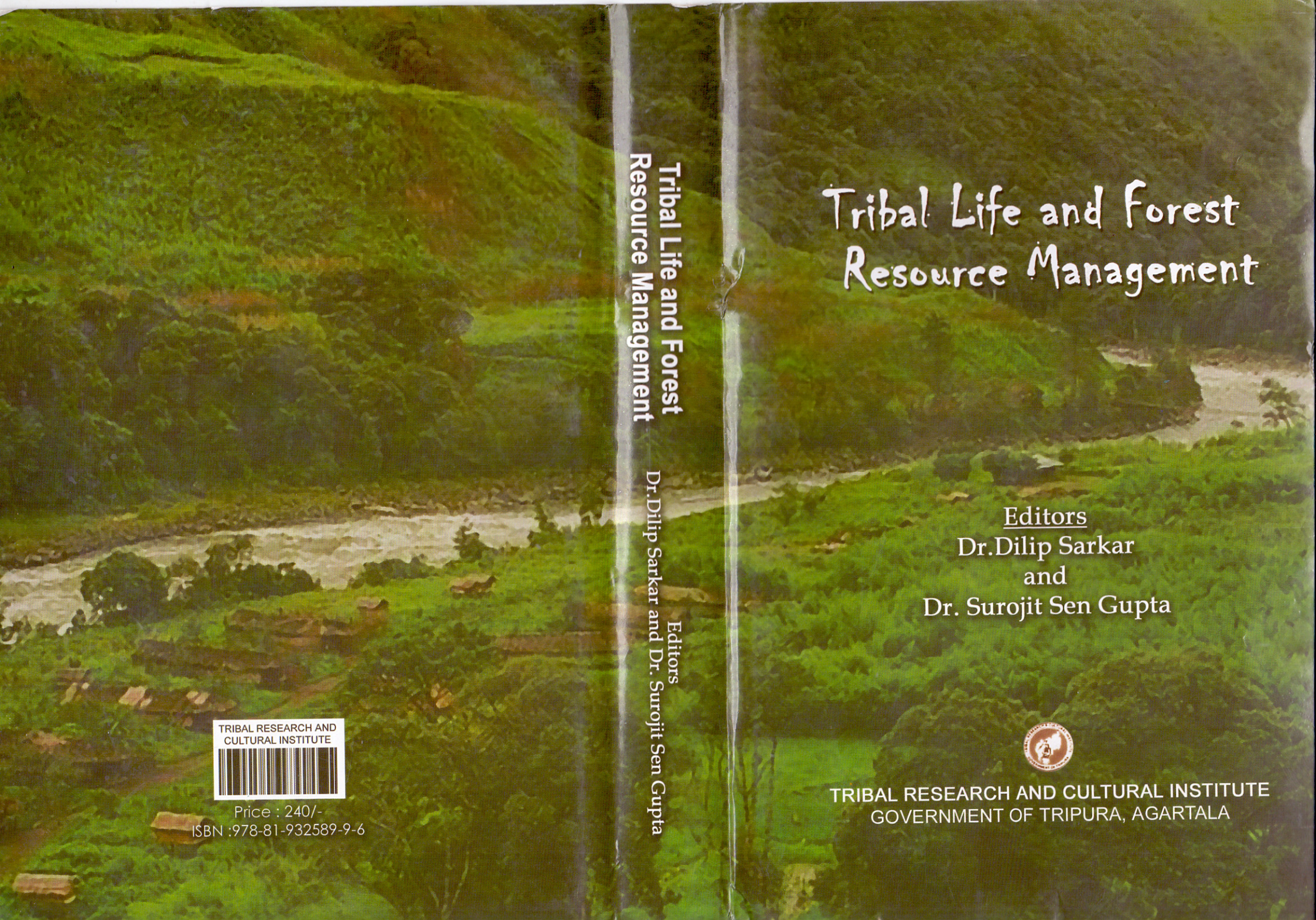
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Tribal Life and Forest Resource Management
Editors
Dr.Dilip Sarkar and Dr. Surojit Sen Gupta
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and
Dr. Surojit Sen Gupta
TRIBAL RESEARCH AND CULTURAL INSTITUTE
GOVERNMENT OF TRIPURA, AGARTALA

About the book

The tribal communities largely occupy the forest regions, where for a long period in their history, they live in comparative isolation. These communities have symbiotic relationship with forest.Forests are their cherished home through generations. It is an abode of their mother-deity.The tribal communities would subsist for thousands of years with reasonable standards of health and abode mainly because, forests provided them food, water, shelter, clothes, medicines and employment. Tribal and forests are ecologically and economically inseparable. They have co-existed since times immemorial and will contiune to co-exist in a mutually reinforcing relationship.

Tribal people statying mainly in the hills, mountains and forest areas, form a strong bond with the nature and its surroundings. Any imbalances in the ecosystem and the nature affect the mindset of these people and therefore, any initiative for their development should not disturb this human-nature bond. In this perspective proper implementation of Right to Forest Act, becomes highly significant. Keeping this background,it was felt necessery to trace out the relation between tribal life and the world of forest.

This book is an outcome of a National Seminar. The content of the book are, therefore, an amalgam of the paper presenters and the concensus reached with the participants at the National Seminar.This book will be useful for students, socholars, policy framers, administrators foresters and many others in this field.

About the editors

Dr. Dilip Sarkar has been teaching English in various Colleges and Universities at Undergraduate and Post Graduate level in Tripura since 1989. At Present he is the Principal of Maharaja Bir Bikram College, Agartala, Tripura. He was awarded Ph. D. for his research work " Culture and Commitment: A Critical Study of the Plays of Arnold Wesker." He has participated in many National and International Seminans, Workshops and Symposium. Dr. Sarkar is a keen observer and commentator on the socio-economic, educational and cultural scenario of India, especially of Tripura.

Dr. Surojit Sen Gupta graduated with Honours in Sociology, did his M.A. (Sociology), B.Ed., LL.B., Ph.D., from North Eastern Hill University (NEHU), Shillong. He has contributed a number of research papers in national seminars, journals and edited volumes and Authored Four Books. Presently Dr. Sen Gupta is an Assistant Professor and Head of the Department of Sociology, Maharaja Bir Bikram College, Agaratala, Tripura, a premier institution of higher learning in North-East India.

Tribal Life and Forest Resource Management

Edited
by
Dr. Dilip Sarkar and Dr Surojit Sen Gupta

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Editors' Note

The tribal communities largely occupy the forest regions, where for a long period in their history, they live in comparative isolation. These communities have symbiotic relationship with the forest. Forests are their cherished home through generations. It is an abode of their mother-deity. The tribal communities would subsist for thousands of years with reasonable standards of heath and abode mainly because, forests provided them food, water, shelter, clothes, medicines and employment. Tribal and forests are ecologically and economically inseparable. They have co-existed since times immemorial and will continue to co-exist in a mutually reinforcing relationship.

Tribal economy is intimately connected with the forest. This relationship has been recognized, but has not been articulated in terms of clear policies and programmes. The tribal economy and forest, therefore, have tended to drift apart with adverse implication to both. In some cases, the forest have suffered tremendous loss while in others; the tribal economy has been shattered. A clear analysis of underlying processes in the changing socio-economic structure of the tribal communities and their implications to the forest economy, therefore, is urgently needed.

From this perspective, it was thought to trace out the relation between tribal life and the world of forest highlighting the issues related to forest and tribal people and to find out the probable way-outs of their critical socio-economic, political and cultural situation. Keeping this viewpoint, the Department of Sociology, Maharaja Bir Bikram College, Agartala, Tripura has organised a National Level Seminar on "**Tribal Life and Forest Resource Management**" on 12th and 13th March, 2015 with the financial support of Tribal Research and Cultural Institute (TR&CI), Government of Tripura, Agartala.

This book is a collection of 29 articles and research papers presented by academicians, scholars and administrators in the Seminar. Later, these are all modified and revised by the authors. All the paper contributors are appreciated for their innovative thoughts and their deep concern related to the issue. A special debt of gratitude is due to Dr. Prafullajit Sinha, Mayor, Agartala Municipal Corporation for inaugurating the Seminar. We express our deep sense of gratitude to Professor A.C. Sinha, Former Professor, Department of Sociology, North Eastern Hill University (NEHU), Shillong and to Professor K.K. Basa, Department of Anthropology, Utkal University, Odisha for their deep knowledge generously exposed at the disposal to the participants during the Seminar.

We would also like to extend a heart-felt thanks to all the faculty members of M.B.B. College, Agartala, for their active help and support during the seminar. A special thanks goes to Ms. Lalmalsawmi Sailo, Dr. Tapan Kumar Som and Ms. Seuli Das of the Department of Sociology, M.B.B. College, Agartala, for their stupendous support and ever abiding encouragement for making the seminar a grand success inspite of their hectic academic and other engagements.

The editors laid hands in editing the task, yet neither the editors nor the college nor the publishers claims the responsibility of the papers. Views expressed in the papers are entirely of the Authors concerned.

Finally, we expressed our indebtedness to Tribal Research and Cultural Institute (TR&CI), Government of Tripura, Agartala, for taking all the pains for bringing out this volume with great precision and noteworthy elecgance.

Editors
Dr. Dilip Sarkar, Principal
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and
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Foreword

Tribal people being the original inhabitants of India have been dwelling in the forests surrounded by hills and mountains for a long period. Tribal culture and economy is also intimately connected with the forest. This relationship has been recognized, but has not been articulated in terms of clear policies and programmes. A clear analysis of underlying processes in the changing socio-economic structure of the tribal communities and their implications to the forest economy, therefore, was urgently needed.

Keeping this view Dr. Surojit Sen Gupta (Assistant Professor and Head) Department of Sociology, Maharaja Bir Bikram College, Agartala, Tripura, took the initiative to organize a National Level Seminar on **"Tribal Life and Forest Resource Management"** which was sponsored by the Tribal Research and Cultural Institute (TR&CI) Government of Tripura, Agartala.

This book is a systematic collection and presentation of the papers presented at the National Seminar. I strongly believe that the articles included in this book hints the need for serious plans and programmes relating to Tribal Life and Forest Resource Management.

I wish this book reaches the attention of the policy makers, planners and administrators which will be of immense help in this field. My congratulations to both the editors of this book Dr. Dilip Sarkar (Principal) and Dr. Surojit Sen Gupta (Assistant Professor and Head- Sociology) of Maharaja Bir Bikram College, Agartala, Tripura, for their painstaking efforts and dynamism for editing this volume so brilliantly or else this venture might not have seen the light of the day.

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Contents

1

State, Society And Forest Management in North-East India

Key Note Address

Prof. A. C. Sinha

Forests (Aranya) were inseparable from human society in ancient India. They were the abodes of the ascetics, hermits, sages, and dynastic seminaries (gurukulas) for the royalty. Hunting, collecting fruits and roots, catching the wild animals and birds, looking for herbal plants, honey and the like were considered normal vacations. Moreover, forests were not devoid of human settlements; there were flourishing human enclaves. The communities such as Kirat, Kol, Bhil, Kinnar, Gandharvs etcetera residing in the forests reportedly excelled in dancing and music. Elephants were caught for the rulers and or commercial transactions. Another precious forest product was ivory, which was traded globally. In ancient India, there were territorial units named after forests and mountains such as Vindhyanchal, Himanchal, Champaarnya, Saranya, and the like. There were a number of folk tales in which vanquished rulers retreated to the bush or a lonely prince appears from nowhere to establish a kingdom in the forests. Forests were at times were treated as the boundaries between the competing kingdoms such as the Nambor forest in the heart of Assam between Ahoms and Dimasa-Kacharis. And that was also the time, when

forestry and agriculture were not identifies as the two separate vocations; rather they were seen as complementary to one another. A good farmer was also an excellent hunter and similarly, a forest dwelling family could as well possess some plots of cultivable land. The best example of this vocational combination one may observe even today among the jhumminas of the region.

With a view to the organized state of Magadh in ancient period, Kautilya, the Mauryan Prime Minister, had classified forests into eight as per the quality of the elephants found among them for the royal mount and as military purposes. However, other scriptures classify entire vegetation into a eight fold classification. However, apart from local/folk and regional categorizations of the vegetation in different parts of the country, a broad four-fold division of the vanaspati (which bears fruits, but not flowers), Vrksa (which bears both fruits and flowers), Virudh (which creepers around and entwines) and Osadhi (annual herbs, which wither away after fructification. There were sacred forests, trees, plants, animals, and birds associated with various communities and in fact, many communities had them as their totems. Apparently, technology was simple production was limited by the means of manual and animal lobour and produce was basically for consumption. Society had a relatively stable population with high birth and death rates. Everybody was a part farmer, fisherman, hunter, weaver, smith and the like as vocational specialization was still in its early stage.

This was the background in which the British emerged on the Indian scene as the expanding colonial power. By the beginning of the 19th Century, Europe was already having industrial revolution and looking for more and more raw materials

from anywhere they could find. Their imperial power rested on well-organized navigational network spread all over the world. With a view to maintaining their imperial supremacy they needed coal, iron ore, and hardwood timber among others. By then they had already exhausted their own hard wood timer producing forests. Naturally, their attention first to teak wood timber of the Malabar Hills in India and they regally declared teak trees reserved for the government and for that an Inspector of Forests was appointed. That was also the period in the European history, when the catch words were progress, science, industry, which the countries of the West like Britain possessed. In that spirit, inventions and discoveries were made; transportation was being revolutionalized; factories were erected and scientific bodies were created. In that spirit, with a view to enhancing the Imperial interests, a number of scientific bodies such as Botanical, Geological, Zoological, anthropological Surveys and even a Survey of India were established over a period of time. And, "that was also the heyday of the museums. Science teaching was focussed around show cases exhibiting specimens classified by types: fossils, rocks, insects, stuffed birds, caged animals in zoo, fixed entities, changeless, everlasting" (Hugh-Jones, S and James Laidlaw: 2000: 84). And there was also a new movement led by Sir C Linnaeus for establishing botanical gardens all over the world, which did not have scientific motive alone, but also an imperial commercial motive behind.

Forest Policy and Forest Administration in British India

The British colonial regime appointed a Forest Committee in 1805 to examine whether a regular supply of teak wood from Malabar Coast could be ensured and recommend the royalty rights on teak trees. Consequently, Captain Watson of the

Police Department was appointed on November 10, 1806 as the first Conservator of Forests in India. His duties were to preserve and improve the production of teak and other timber suitable for ship building. He established a timber monopoly throughout the Malabar Coast and supplied inexpensive timber to the British ship builders at the cost of the owners and merchants of the trees. His high handedness and vague authority led to such a controversy that the office of the Forest Conservator was abolished in 1823. Nothing was heard of the forests for next three decades, but once the railways were introduced in 1850's colonial regime remembered the Indian forests once more. Incidentally, railways sleepers were first imported from Norway at a considerable. Thus, Lord Dalhousie, the Governor-General of India issued a memorandum on August 3, 1855 leading to appointment of Dr. Mc Cleland as the first Superintendent of the Forests, who was succeeded by D Brandis on April 1, 1864 as the Inspector General of the Forests. Brandis, the father of the Indian Forestry, was instrumental in organizing the Forest department as a professional body by initiating legal and educational measures during his three decade long stewardship (Sinha, AC: 2003).

By 1830s, the British realized the potentiality of North-east region as tea producing and for that legal frame for acquisition of uncultivated forest land was initiated. Under the general trend of the British policy in governing India, it had been ruled that when the population had settled in joint village communities, any forest or waste land that fall within the boundaries are considered common property. And this recognition formed the basis of all land settlements made after the occupation of the country by the British. Any plot of land, which was not legally claimed by some body, was considered to be

state property and thus state had every right to declare it as the reserved forest for larger interests. In the light of that, the first Indian Forest Act, VII, 1865 provided with details of forest conservancy, 'reserved', 'unreserved forests' , their demarcations,, privileges thereof to the local villagers, types acts prohibited within the forests, lists the reserved trees, and procedures for removal of unreserved trees, grass, fuel, etcetera.

But the above stipulations led to certain anomalies. For example, "in case of un-united villages (better call it settlements such that of the Jhummias), no right to the waste land was recognized. The old Rajas claimed all the areas which were not actually brought under cultivation, but any person who required waste land for the purpose of cultivation, could obtain it without difficulty on agreeing to pay the assessment enforced. The rest of the waste land had always recognized as the property of the rulers and from them (it) was inherited by the British Government by right of conquest. In some cases, the cultivator shad acquired prescriptive rights of users. It was right of this nature, which were to prove a source of trouble and difficulty to the Forest Department. For these prescriptive (and wasteful) rights of the users are often incompatible with the scientific and economic working of a forest", opined the noted forest historian, E P Stebbing (tebbing, E P: 1982: 464-'65).

The third Inspector General of the Forests, B Ribbentrop, described the forest settlement work and the idea behind the forest reservation: "The various laws in India make it quite clear that the object of the forest settlement is, in the first place, to fix and define legal status and extent of proprietary rights of the state in any or wasteland, constituted or declared to be forest within the meaning of the forest laws, and consequently, to inquire and record to what extent the proprietary rights of the

state are limited by legally existing adverse rights of private persons or communities. Secondly, to arrange for exercise or communication of adverse rights so recorded in order to allow the property being managed with a view of obtaining the best possible return, both for the present and in the future, for general public. The settlement of a forest, which has resulted in its constitution as a reserve merely determines the rights of the Government and private persons over the forests and in no way aims at prescribing the agency, by which a forest may be managed, or the requirement is which is intended to meet, are. In every instance, dictated by local circumstances. Thus, a reserved forest has not necessarily, the object as it is frequently believed, of producing large timber for export or public works, but it is more often of supplying the local demands in smaller timbers, fuel, grass, or any other forest produce. A forest may be said to fulfil its highest function when it produces, in a permanent fashion, the greatest possible quantities of material which is most useful to the general public, and at the same time, yields the best possible return to the proprietors" (Ribbentrop, R: 1888). Naturally, as per the provisions of the Indian Forest Acts, the Forest Settlement Offices (FSO) were designated to determine the legal status to be entertained as rights. And in this way, as much as 81,000 square miles of Reserved Forests were created in India by 1900.Before the first quarter of the 20th century forestry made a remarkable progress to the extent that the British established first a forestry school in Dehra Dun in 1873, which was later turned into a Forest Rangers' College. Extension of forestry also resulted in unrest at the grass root level reflected through the Indian Home Rule, Civil Disobedience and non-co-operation movements, which caused extensive damage to the forests in different parts

of the country since 1920s. The Indian Forest Act, 1927 was enacted incorporating provisions of all the previously existing forest laws, which tried to close all the perceived loopholes from administrative points of view. However, it turned out to be more and more oppressive from points of view of the immediate communities residing around the forests. For example, all the community rights granted as per 1865 Act were dropped; individuals were to file their on the forest land to FSO, who were to be satisfied with the claim before the claimed land released. Its provisions led to local level extensive conflicts by 1930s leading to Satyagraha in a number places in Kumaun, Garhwal and Kannara. Not for nothing that Forest Reserves and Railways, two early British innovations, turned out to be easy targets of future anti-state agitations by the freedom fighters. Luckily for the Indian forestry, taking advantage of inexpensive labour, British never thought of introducing mechanized logging in the Indian forests, saving them for the future.

Introduction of Forest Reserves and Administration in Northeast India

William Robinson, a missionary turned education officer in the administration in the province of Assam found in 1841that 'the forests in Assam were an extensive scale, but they were yet to be surveyed' (Robinson, W: 1950: 40). And that was the time the British were examining the existing land laws view a view to facilitating extensive tea plantation on the forested locales. Assam administration promulgated the Waste-land Rule, 1838, which was patterned on the Gorakhpur Waste-land Rules in Terai and Sunderban Grants in the Gangetic marsh land. This new dispensation envisaged three categories of land for tea cultivation in Upper Assam: (a) the first class, the forest land and high waste land to be held rent free for five years,

(b) the second class, extensive high reed and grass land for ten years, (c) the third class, the grass land amidst cultivated lands to be held for 20 years. And even after those periods, the rent on the land was nominal, e.g. rupees one and half for the local measure for the three-fourth of allotted land and one-fourth was rent free in consideration for other establishments (Barpujari, H K: 1980: 236). The above provisions were revised in 1854 to permit a 99 year land lease on more favourable terms, which were rightly termed as "land grabbing" and "land rush" all over Assam (Guha, A: 1988: 14). In this way, the extensive forested foothills of Lakhimpur, Sibsagor, Nowgong, Sylhet, Silcher on the southern bank of the Brahmaputra and Darang, Kampup, and Goalpara on the northern bank of the river, extending soon to Darjeeling on the Himalayan foothills Duars in the west were turned into thriving tea plantations at the cost of the verdant forests.

In 1839, a joint stock company, Assam Tea Company, was formed in England with its effective branch in Calcutta. "In deciding upon the name of Assam Tea Company, the (Tea) Committee (a Committee nominated by the Govt to advise on tea cultivation) was aware that the lime, coal and oil, and gold were alleged to have been found in the rivers. With a eye on possibility that they might want to develop any one of these other commodities, the Committee decided to adopt the general designation of 'Assam Company', rather than Assam Tea Company, although tea was the main object of the enterprise" (Anthrobus, H A: 1957: 37). Some four decades later, Assam Railways and Trading Company was formed in the same region, which got engaged in railways, collieries, forests and plywood factories, oil and tea plantation (Surita, Pearson, 1981). Coming to the absurd theatre of "Tea-mania" in Upper Assam, apart from tea,

railways also became catalyst. "Almost all the private capital spent on Indian railroads were raised in Britain, of the 50, 000 holders of Indian railroad shares in 1868, only 400 were Indians, because shares could only be traded in London. It was the policy of the railroad companies, the East India Company and the British Government to hire British contractors and discourage Indian enterprise. Two-fifths of the capital raised for the railroads was spent in Britain. Skilled workers, foremen, and engineers were brought from Britain and were paid twice the home rate, plus free passage, medical care and the allowances. Rails, locomotives, rolling stock, and other iron goods were imported. A lack of suitable timber for sleepers,...led the railroads to bring to India the sleepers of Baltic fir creosoted in England. Even the British coal was preferred to the cheaper Indian coal" (Daniel, R: 1982: 190).

There was a popular myth among the British that the vegetation grows very fast in Assam. So much so that 'if you leave your walking stick outside in the lawn in evening, it will turn into plant next morning' so goes the saying. Another myth was that the forests in Assam were inexhaustible: one could cut as much as possible; it was considered essential for development of the province. The regional forests were known as the ideal for hunting great games such as tigers, elephants, rhinoceros, bosons, mithuns and the like. At the top of all these, there was no labour force willing to work on wages, and thus, the entire land was sparsely populated. There were no towns; no industry worth name with exception of cottage industry and nor was there market for the precious timber locally available in abundance. The hills were abodes of so-called savage tribes, unsafe for the British administrators to venture. The tribesmen were not only good hunters, but they were also by habit non-vegetarian in their food habits. With exception of the boat ride on the mighty Brahmaputra and elephant mounts for the select ones, there was no reliable surface transportation available in the region. At the top of it, there used to be heavy monsoon rais inundating extensive areas and causing malarial epidemic annually.

Once Assam was created into a separate province in 1874, Gustav Mann, Assistant Conservator of the Forests filed his first annual report in which he indicated about 8,000 square miles of valuable forests in the province. However, his superior, Dr. W Schlich advised to create forest reserve only for 700 square miles and rest of the forests were left open for the time being. One of the recurrent concerns of the administration was to generate revenue from the forests. For example, it was ruefully noted that in a decade in 1880s an amount of Rs. 25,000 only received as revenue surplus from the Department. Once Assam was recognized as a distinct province in 1912, the forests of Assam were divided into two circles: Eastern and Western. The former Circle had forest Divisions of Lakhimpur, Sibsagor,Chachar, Sylhet, Lushai Hills, Naga Hills, Frontier Tracts, and princely state of Manipur. The Western Circle had Nowgong, Kamrup, Darrang,Goalpara,Khasi and Jaintia Hills, and the Garo Hills. The forest administration files an annual report, divided in to six chapters: constitution of the state forests, financial results, research and experiments, administration and 'general'. We have the regular annual administrative reports on the foresta of Assam from 1911-'12 to 1932-'33, when the decline in the forests of Assam set in for a variety of reasons, from which it has never recovered. Reading these 20 forest reports exposes the strength and ills of the regional forests, which we shall hurriedly review below.

Forest Villages and Grazing Rights on the Degraded Forests: Assam was a province in where inexpensive labour was difficult to find to perform arduous work in the forests. With a view to alleviating the shortage of labour, Forest Department hit upon an ingenious idea by creating captive village settlements on agriculturally suitable locale in the forests. The settlers of such forest villages were to offer certain compulsory labour to the department and they were allotted certain agricultural plots to their defined families, on which they could keep a certain number of animal heads to work on the fields. But it so happened that the captive villagers raised such bumper crops they did not feel the need to work as forest labour. They went on increasing their family and cattle heads against the stipulation. The Forests department tried to evict them which demanded prolonged judicial proceedings. The Depart resorted to police cases to evict them, which the settlers would desert only to return soon after. Though the Department needed labour, but it was constrained to abandon the scheme in 1928.

But this a short reprieve. The minority Muslim League Government of Assam (1937-1945), led by Sir Mohammad Saadulla, launched a programme known as "Grow more food ", which was termed by the British Governor -General Of India, Lord Wawell, as "Grow mor Muslims" (Hazarika, S: 1995:59-60). It is alleged that taking advantage of the Indian Forest Act, 1927, thousands of Mymansinghia Muslims were settled on swamp and reserved forests. The provisions of the above Act allowed for a limited number of forest villages to be located inside the reserved forests mainly to help the Department to work on the forests. But each of the family was settled entitled

to eight hectors of land to clear the forest and cultivate and a lso to keep five heads of cattle. This disastrous situation further changed for the worst for the forest Department after the Independence. The First Citizens' Report records: "After independence, however, the forest villages began springing up at the rapid rate. Those living in them worked outside the forest, but used provisions, such as tax exemption to their advantages. The size of the original clearing would grow unchecked and eat into the forest. In just one Division of Cachar district, Silcher, there are 116 forest villages today. The creation of more forest villages was stopped with promulgation of the Forest Conservation Ordinance on October 6, 1980, which was later converted into an Act. This law restrains State Government from using forest land for a "no-forest" purpose without prior approval of the Central Government" (Agrawal,A et al: 1982:45).

Coming to Tripura, in the aftermath of Indian Independence, partition of British India and the exodus of the refugees from East Pakistan, refugees were everywhere in the little state (with an area of 4, 116 square miles and reserve forest of 1,760 square miles) in the hills, plains, and creeping even into the reserve forests causing havoc to the llives of the indigenous people. The Government proposed to create 'tribal reserves' with a view to guarding the tribal interests. The Prime Minister Nehru advised the Chief Commissioner of Tripura, N M Patnaik to seek Dr. Verrier Elwin's advice. The administration did not agree to the advice given by the Advisor Tribal Affairs, Government of Assam, Verrier Elwin: "To wean the tribal people from shifting cultivation, the Government offered them the prospects of colonization. And, colonization has been partially successful and partially a failure. We are not much aware that

Verrier Elwin had visited Tripura in 1958, and expressed his reservations against the tribal colonization scheme when the experiment was very young. The Tripura administration disagreed with him and went ahead, reaping mixed results" (Misra, B P: 2013).

The story of cattle grazing in the forests of Assam is much older. There were 12, 915 buffaloes grazing in un classed forests in 1893-'94, which increased to 45, 893 in 1904-'05. This number kept on increasing phenomenally year after year. Its menace became so serious that the government created grazing reserves for the Nepalese herdsmen in the year 1912. As much as Rs. 5, 22, 548 was realized as the grazing fees in the year 1918-'19, which reduced to a mere 4. 2 percent in the next year. It so happened that the forest grazing fee was transferred from the forest to the Revenue Department of the government. It were the Nepalese herdsmen, the pioneers of dairy farming in the region, who kept the herds of cattle and as soon as occasion was ripe, they get settled on the marginal forests and waste land turning it into a thriving Nepalese settlement. Deforestation, poaching, squatting on the forest land, land alienation, and other forms of forest related crimes continued to be reported in the first quarter of the 20th century. The climax came in 1921-'22, When President of Assam Congress Committee, Chabilal Uppadhyay and the spokesman of the Nepalese herdsmen, resorted to non-co-operation movement and civil disobedience against the Government's decision to turn their grazing grounds into now famous Kaziranga National Park, especially for the rhinoceros.

Forest Revenue

Creation of forest reserves in Assam was, of course, part of imperial design to supply timber to the industries and grow-

ing urban needs, especially on construction sites. But more potent requirement was that of increasing the revenue for the financially deficit Province of Assam. Thus, the Department was organized to raise revenue at any cost without much care for the need of personnel in the Department. To begin with, the Department had a very small trained staff at the top and poorly paid forest watchmen, and guards at the bottom. The employees lived in poor conditions without amenities; forest roads were rarely cut; there was constant death on duty, desertion from the duty and there were no takers for low paid jobs in the Department. So much so that, even for senior positions, posts remained vacant. For example, forest officers in Darrang, Sadiya, Nowgong divisions could not be found thus those Divisions were put under the charge of the civil administrators in 1918-'19. Similarly, much of the forests were left in the hands of the Political Officers of the Lushai Hills District, Naga Hills District and other Hill Districts. We studies the financial results of the year 1910-'1 to 1932-'33 and noted that maximum surplus (Rs. 21, 81, 260) was secured in the year 1927-'28 , when expenditure was Rs. 14, 32, 200m and revenue accrued was that of Rs. 36, 13, 460. W R L Jacob, the Conservator of the Forests in Assam took up the issue in his hands and pleaded for Department. He noted that that year(1926- '27) the resignation of the foresters and guards had not decreased and the number of resignations showed that the forest service was not sufficiently attractive to hold the employees back on their posts. However, the Governor of the Province asserted that the large surplus, which the Department had yielded, had been of inestimable value in resorting to the financial health of the province and providing funds for many important schemes of the provincial development in other fields.

Saw Mills and Tea Chests

Light and soft wood is required for packaging finished tea leaves for despatching to the markets to various destinations. Initially, the British tea planters imported tea chests from the Scandinavian countries at considerable costs. The logic of the economy forced the planters to look for local alternative and they identified the modest timber of Simul (Bombax Malabaricum). As there was no local tradition of planking the timber, the planters themselves came forward and they sought permission to cut them from the unorganized forests. It is instructive to remember that till then, there was no forest department organized by the Government. Further, simul trees were scattered in the forests, they used to hire their own men to the trees and turn them in to planks. As soon as the forest Department was organized, it was assigned the job of providing tea chests to the industry at considerable financial loss. The planters paid the royalty on the tea chests, but rest of the parts of tea, which was not used was wastage for the Forest Department. The greedy tea industry created an unpleasant situation for the colonial administration.

Saw Mills run by the tea companies used to hire wood cutters to procure Simul trees from the forests and for that, the wood cutters would penetrate deeper and deeper in search of the right tree. It so happened that the wood cutters would as well cross the Inner Line in search of the Simul tree in the Sadiya Frontier Tracts; cut the timber and float them to the factory through the river. When they would be challenged by the local tribesmen for trespassing, they buy peace by offering inducement in money, which the planters termed as 'blackmail money'. This so-called blackmail money hurt the pride of the arrogant powerful planter lobby, which reached the Governor of the Province with their complaints against the alleged culprits. Noel Williamson, the Assistant Political Officer,

Sadiya, was instructed on October 31, 1908: "Should the tribesmen meet you in a friendly and a conciliatory spirit, it will be open to you to discuss with them the question of compensation for any loss, which the tribesmen may consider themselves to have sustained by the prohibition of the exactions from the saw mills companies, which they have hitherto considered to be a legitimate source of revenue...the services of the tribesmen may be enlisted in collection of the poll tax by the offer of a commission and similarly it is open to you to consider whether a commission may be offered on the sale of forest products from those tracts from which the tribesmen have hitherto derived certain advantages. It will be your duty to consider and advise on the executive measures required for the protection, so far as possible of the more valuable forests between the inner line and the otter line". Williamson along with Dr. Gregson, the doctor for the expedition, went across the Inner Line on an expedition in the Abor Hills in March 1911 and with exception of six coolies, who managed to escape, was murdered at village Komsing by Kebang Abors. An impressive armed expedition under Major General Graham Bower was sent to punish the Abors during the winter months of 1911-'12, which resulted ultimately in the creation of North East Frontier Tracts, present Arunachal Pradesh.

Railway Sleepers and Sal Timber Extraction

Railways were introduced in Assam to reach tea to Chittagong and Calcutta ports for exporting them to London (which claimed to be the biggest auctioning centre for tea in the World) and bringing inexpensive indentured labour from tribal heartland of the central India. Thus the railways lines meanders from plantations to plantations making it unnecessarily longer. Railways were the main customers of sleepers shown from hardwood timber of the Forest Department, contributing

as much as 60 percent of revenue in the year 1912. However, the price offered by the railways for the sleepers was unrenumerative. The Department made a representation to the Eastern Bengal State Railways in the year 1912 and it was enhanced by 23 percent. However, even that was hardly to compensate for the cost of labour involved in turning hardwood trees into railways sleepers, but it was still pursued to enable the Department to assist the Railways without an actual loss of potential revenue.

The railways sleepers were procured from Sal trees ((Shorea Robusta) found in lower Assam, especially in Goalpara, Garo Hills, Kacugong and Kamrup divisions, were transported to the consumers after chemically treating them. It is difficult to make head and tail of its accounting as it is mentioned by broad(BG) / metre (MG) gauge size, by timber such Sal or others, against the clients such as Eastern Bengal State Railways, then they were shown as source of production like Departmental or contractual. Then the sleepers were shown as per payments received such as advanced payment, failure to supply, sleepers ordered but not lifted from the railways sidings. However, the cost of producing sleepers was increasing and the demands from the railways were shrinking. The Department was so much engrossed with increasing its revenue by supplying Sal timber sleepers to the railways that it soon ran into problem with Garo Jhumias ,whose land forests were acquired as 'reserved' violating the norms.

Forest Reserves and Movement for De-reservation

Reservation of the forests was secured keeping in mind the availability of marketable timber in a particular area. However, one hastens to add that the some of the best forests were cleared to make room for tea plantation in the Himalayan foot-

hills, Upper Assam, Duars and elsewhere. In fact, one of reasons for creation of forest reserves was to provide tea chests for safe packaging to distant markets. Railways were introduced for easy transportation of goods and human cargo from distant destinations as fast as possible. And for that it was the forest which provided sleepers to run the rails. It may be noted that Tea plantations and railways were laid by the British entrepreneurs for making money and not any philanthropy. Keepng these two customers in mind, Forest Department under the colonial regime kept on extending forest reserves on densely forested timber bearing locales. But the administration ran into two problems: jhumming resorted by the tribes as per their traditional practices and lack of transportation to reach the market. Keeping the above mentioned two potential customers in mind, the operators of the Department went on extending forest reserves to two ends of Assam: one, Upper Assam by side of the imaginary Inner Line and the western corner in Garo Hills and Goalpara districts, where they ran in deep trouble.

Garos, apparently a hill tribe, were spread across the hills named after them to the Brahmaputra plains in the north and southern slopes of the hills Mymansingh district of Bengal. The hills were sparsely settled and Garos tend to shift their settlements along with their shifting cultivation. However, there were precious teak wood forests, which the Garos used to fell, float in the rivers to the plains for making canoes. Out of 18 forest reserves in the district, 14 with an area of 89 square mile were resrved in 1883 at the cost of Rs, 1, 235, paid to the four Garo villages only. "In all, the Government paid Rs. 5, 030 for 141 square miles reserve forests. (However) the move to reserve another 25, 400 acres in 1900 and de-reserve 1, 654 acres of forest land to the (influential) Bijni Maharaja on the northern

edge of the district gave momentum to the movement against the forest reservation" (Sinha, A C:2003). A Garo leader sonaram Sangma along with thousands of others articulated their demands in the following ways:

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(i) Removal of encroachment (allegedly the Bijni Maharaja) on Nazrana Mahal land , Habraghat Pragana;

(ii) Restoration of Reserved Forests to the Garos;

(iii) Abolition of Begar (unpaid compulsive labour for carrying officials' baggage) system, or impress of labour.

Among others, Sonaram Sangma was identified as the leading light of the movement for Garos' cause. The Government of Assam was forced to appoint the J C Arbuthnutt Commission on October 29, 1906 to inquire into the above grievances. Among others, the Commission held public hearing on the spot and ex-

amined more than hundreds of witnesses and submitted its report to the Chief Secretary of the Province on May 11, 1907 and largely found the Garos' demands tenable. The Government of Assam decided on March 20, 1908: "As regards, the complaints of the Garos that the formation of the forest reserves deprived them of valuable privileges, it seems clear that the reserves in the Garo Hills were constituted in the same way as in many other parts of the country. The waste land was treated as being at the disposal of the Government and no compensation was given for such lands when taken up. It is now proposed that a careful examination of the existing reserves should be made and the areas, which were found not worthwhile to retain, should be surrendered to the villagers. It is recommended that representing roughly the approximate value of land should be an act of grace or reserves, which are to be retained, the amount being treated as forest charge. The Government of India is prepared to accept these proposals. The diminution of reserves is prima facie untenable, but there need be no objection to surrender of worthless portions. The proposal to give compensation now is unusual, but political reasons in favour of liberality, is strong, and the Government of India does not think that merely technical objection should be allowed to stand in no way of giving fair compensation".

It appears that no concrete steps were made to translate the above orders in reality. Two major demands, de-reservation of the certain forests and payment of compensation for the lost forests though approved, but never met. However, the British stopped reserving forests in Garo Hills any further and hiring Garos for unpaid compulsory labour. Sonaram files civil suit against the Bijni Zamindars for recovery of Pergana Habraghat. Though Sonaram was the pioneer of environment movement in

the region, but he does not appear to seek cooperation from the educated Assamese or Bengali middle class, lawyers, political activists. It appears he had unwittingly opened too many fronts against himself: British bureaucracy, American Baptist Missionaries, and neighbouring powerful Bijni Zaminadars. As per Garo tradition, he changed his residence half a dozen times in his life time prior to his death on August 27, 1916 at the age of 49 years at Bakrapur village in the district of Goalpara. In this confusing situation, no settlement staked a claim to his heritage, a prerequisite to create a myth of inspiring leadership of the community.

Outlook on the Status of the Regional Environment

This hurried review of the environmental scenario during the British rule exhibits that the everything, that is wrong today, had begun during the British administration, who had propensity for short term gains at the cost of the forests. The colonial forest policy was geared to supply raw materials for the industries, tea plantations, and railways. For example, creation of 'forest villages' as captive labour for the forest led to Sir Saadulla's infamous illegal settlement of Muslim villages. Similarly, creation of grazing ground for Nepalese herdsmen with a view to raising revenue led to extensive Nepalese settlement in the forested locales. Though no efforts were made to save the forests from these maladies, but another calamity knocked at the door in the form of the Second World War, when the region was turned into a limited theatre of the armed conflict. Many of the employees of the ill staff Forest Department were drafted to war duties; army camps were constructed in the forests; aerodromes, landing stripes, refugee settlements were created in the forests. Soon the country was divided into two and extensive exodus of refugees from East Pakistan began unabated.

The poorly paid and ill-staffed forest department is no

match to the armed and organized and motivated poachers looking for tigers, rhinoceros, tuskers and other precious wealth of the forest department. Thus, one finds that heavily guarded wild life sanctuaries of Kaziranga, Manas, Balpakaram and Namdhapa are not free from occasional environmental crimes. Insurgency and counter-insurgency operations, which operate from inaccessible forests, have further added to the woes of the reserved forests (Sinha, A C: 1997). In fact, many of the forest reserves are just on paper, but one inspection, one may land on degraded bushes, burnt trees and roots, and unauthorised settlements. The regional food habits have not help very much in this regards, as most of the wild life, animals, birds, insects, have been hunted for the dining tables. Naturally, the famed forests of the region along with equally famous exotic wild life are under severe threat for their existence.

In such as bleak situation, the Government tried to rehabilitate the jhumias on permanently cultivable agricultural sites with limited success. State of Mizoram is having this experiment under its new New Land Use Policy in which cash incentive is provided to turn jhum fields into farms and orchards creating inequality on an ethnic egalitarian base. Much earlier cash crops such as ginger, black pepper, apple, cashew, and coffee plantation were introduced in the region without planning for their processing and marketing leaving behind an apathetic attitude among the common people. In this bleak scenario, experiments with rubber plantation in Tripura and Meghalaya have been success stories, where jhumias are motivated to earn respectable livelihood and maintain an appreciable forest cover on the land.

Our review of the forestry in the region effectively ends with 1933, when symptoms of economic depression were vis-

ible leading to shrinking of the revenue from the forests. Within next five years, another disaster knocked on its doors in the form of the Second World War. Northeast region in general and its eastern forests in particular were turned into a limited theatre of War, causing havoc to the forest resources. A number of forest officers were drafted for the war duties. There was a heavy demand on the timber of all types resulting in unplanned felling of the precious trees. By the time the World War ended, the British were getting to leave India as its colonial masters after effecting division of the country into two. That created a situation in which refugees began to pour in and and the region was cut off from rest of the Union because of the transport dislocation. Not only the Department of the Forests, but the entire administration of the region was also to be re-organized by the new idealist, but inexperienced leadership.

There is another aspect of modern scientific approach to environment, which tends to label various sets of human activities such as agriculture, industry and hunting and collecting fruits and roots from the forests as distinct human activities. Environment is seen as a source of raw materials for the industries. The idea is to use the scientific expertise to 'develop' the forest dwellers and agriculturists into urban-industrial entrepreneurs. What will be the cost: Human and monetary? How much displacement it will cause? How much time will be required to develop every laggard? And what will be cost-benefit account of this massive exercise? Who will perform this onerous exercise? And who will perform this massive transformation? And what will happen to the human misery/ or human tragedy in which millions of people are caught in this unending process of development? For the time being let us forget a billion plus Indians for a moment and ask: Does the World have enough resources to bring the rest of the world to the level

of an average American citizen of today? These are some of the endless questions on the development praxis; for which answers are difficult and even impossible to find. Still it is touted as the panacea for the human race: men and women have to develop.

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2

Tenure Rights of The Tribals in Forest Lands of Tripura: A Micro Socio-Legal Study in Tripura

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and
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Abstract

In Tripura current trend of forest tenure reform sanctions individuality based categories such as indigenous people with an assumption to provide better tenure rights access for disregarded groups. Forest Rights Act, 2006 distinguishes traditional rights of the scheduled tribe and other forest dependents house in and around forestlands. This paper mainly examines the politics of forestland access for tribal in different tribal districts of Tripura. Data were collected using in-depth interviews with 47 significant informants and with focussed group consultations. Rights-based access approach was used to analyse outcomes of forest tenure reform on tribals' access to individual forestland, inclusion or exclusion in discretionary decision making of forestland administration. Author one has already spent four years for this topic during his class lectures at B.A.LL.B. / B.A.LL.B. (Hons.) Level in Tripura Government Law College, Agartala. Evidence based arguments indicate that identity based tenure reform act as a mere minimum effort and delays tribals political empowerment process and access to

forest based livelihood alternatives.

Introduction

The forest dwellers in general and the Scheduled Tribes in particular are the most disadvantaged with respect to land, which largely accounts for their perpetual poverty and makes them vulnerable to injustice and exploitation. There are a large number of processes through which tribals have lost their access to land and forests essential for their survival and livelihoods in India. These not only include alienation of land, which is legally owned by the tribals through debt mortgaging and sale, but also loss of access to land through reservation of forests, loss of traditional shifting cultivation land through survey and settlement, displacement, unsuitable and unimplemented land reform law, etc. Over a period of time, all these processes have led to loss of control and access to livelihood support systems vital to existence, and marginalising and destitution of tribal communities. Influx of non-tribals during the last two centuries, many of whom are more capable of negotiating state enforced legal and tenure systems, have pushed tribal communities further bottom in the local power hierarchies, even in areas where they live as majorities. However, of late the Indian government has legislated to acknowledge the "rights" of the Scheduled Tribes by taking them further towards self-rule. By passing the Panchayats Extension to the Scheduled Areas Act (PESA), 1996 which recognises and stresses on traditional community rights over natural resources. The recent Forest Rights Act or the Tribal Rights Act is a step further as they adopt a rights-based perspective and acknowledge the pre-eminent rights of STs to natural resources. Attempts have been made by the union and state governments to promote and protect their rights with regard to the control

and use of forest land. The nature of legislative measures and their implementation such as the Forest Rights Act 2006 and their achievements are likely to vary from state to state. This variation is due to the influence of the complex interaction of historical necessities and socio-political and economic forces, which are largely state or region specific. In this context, a comprehensive and comparative study of the working of the Forest Rights Act and their impact on livelihood will be helpful in accepting the situation at the grass-root level. There is an enormous challenge in the implementation of this Act, which seeks to create a new democratic system of forest governance by redistributing power between the communities and bureaucracy.

Indigenous People and Forest Rights in a Global Scenario

Living at the nexus of powerful economic development and environmental pressures, the traditional forest communities have historically experienced high levels of marginalisation, violence, intimidation, displacement, and the destruction of their cultures and livelihoods. Ultimately, the conflicts over forest resources created by this injustice have undermined both the economic and environmental goals of governments and elites. The 2002 report, Who Owns the World's Forests?, by White and Martin found that even though this profoundly asymmetrical relationship between the states and the forest people was changing, the governments still had a long way to go to bridge the gap. In 2002, 77 per cent of the global forest area was administered directly by governments, while only four per cent was officially designated for use by indigenous peoples and communities, and seven per cent was owned by indigenous peoples and local communities. The remaining 12 per cent of the global forest area was owned privately by individuals and firms. The 2008 and 2010 reports, From Exclusion to Ownership and Tropical Forest Tenure Assessment, expanded the number of countries examined within White and Martin's framework.

Background

Forest dwellers are among this country's poorest people. For many tribal people and other forest communities, forests are the source of livelihood, identity, customs and traditions. The forest dwelling Scheduled Tribes and other traditional forest dwellers inhabiting forests for generations and were in occupation of the forest land for centuries. However, their rights on their ancestral lands and their habitats had not been adequately recognized despite it being integral to the very survival and sustainability of the forest eco-system. The traditional rights and interests of forest dwelling scheduled tribes and eligible other traditional forest dwellers on forest lands were left unrecognized and unrecorded through faulty reservation process during consolidation of State forests, in the past. The problems of these communities were further compounded after the passage of the Forest (Conservation) Act, 1980 when even the development activities in their habitations were termed as non-forestry activities. They did not have a homestead and as such address of their own. On account of non-recognition of their forest rights, they had come to be erroneously looked upon as encroachers of forest lands, resulting in a sense of insecurity of tenure and fear of eviction. The forest dwelling tribal people and the forests are inseparable, a factor that also ensures conservation of ecological resources stemming from the very ethos of tribal life. The conservation processes for creating wilderness and forest areas for production forestry somehow ignored the bona fide interests of the tribal community from

legislative framework in the regions where tribal communities primarily inhabited. The simplicity of tribals and their general ignorance of modern regulatory frameworks precluded them from asserting their genuine claims to resources in areas where they belonged and depended upon. The modern conservation approaches also advocated exclusion rather than integration. It was much later that forest management regimes initiated action to recognize the occupation and other rights of the forest dwellers and integrated them in designs of management. Insecurity of tenure and fear of eviction from the lands where they had lived and thrived for generations were perhaps the biggest reasons why tribal communities felt emotionally as well as physically alienated from forests and forest lands. This historical injustice needed correction and, therefore, the Government enacted the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, or Forest Rights Act (FRA). The Act was notified for operation with effect from 31.12.2007 and the Rules for carrying out the provisions of the Act were notified on 1.01.2008. The Forest Rights Act 2006 represents a major paradigm shift in approach towards recognition of broadly three kinds of forest rights relating to:

(i). Tenurial security providing relief against the persistent physical and psychological threat of alienation from land to the Scheduled Tribes and Other Traditional Forest Dwellers (OTFDs);

(ii). Livelihood in terms of the agriculture on 'as is where is basis' and the ownership of MFP including rights to collect, trade and process the same; and (iii) Traditional, customary and developmental rights. FRA provides an institutional mechanism for establishing individual and community rights. It pro-

vides a process to establish community/people centric transparent and democratic institutions around a set of 13 rights. The major rights recognized under this Act are the right to hold and live in the forests for habitation or self cultivation for livelihood; right of ownership, access, use or dispose of Minor Forest Produce; rights to community forest resource; community rights of uses or entitlements such as fish and other products of water bodies or grazing etc and any other traditional right customarily enjoyed by the forest dwellers. The Preamble to FRA outlines the need and intention of the law explicitly. FRA aims "to recognise 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; to provide for a framework for recording the forest rights so vested and the nature of evidence required for such recognition and vesting in respect of forest land" (emphasis added). The recognition of forest dwellers at the core of forest ecosystem conservation marks a bold and decisive step towards community forest management. The Act goes on to confer the community of rights-holders with the "responsibility and authority for sustainable use, conservation of biodiversity and maintenance of ecological balance". The democratic and transparent process of recognition of rights is both for determining the rights of the communities initially and later for forest governance by Gram Sabhas. This is to be facilitated by the sub-divisional and district level committees consisting of the revenue, tribal and forest departments along with the representative of the local self-governing structures of the Panchayats. Not only does this Act provide tenurial security, it also confers governance powers on the right holders

under the Act. The recognition of individual and/or collective rights to land, and community rights and other traditional customary rights along with the right to protect, regenerate, conserve and manage any community forest resource mark a decisive step forward in resource governance itself. Hailed rightly as a milestone in the history of tribal peoples' and forest dwellers' movements, the Act endeavors to facilitate their political empowerment to govern the forests for sustainable use and conservation. Precisely for these reasons, it becomes important to take firm proactive steps to make the necessary paradigm shift, particularly by the State governments. A common underlying idea across various forms of participatory approaches is the hope that it will benefit the livelihoods of marginalized forest-dependent rural poor, promote sustainable forest governance and the political agenda of reducing the cost of forest management by the state for instance, is defined as a working partnership between local communities and the state for any forest management activities undertaken by rural people as part of their livelihood strategies, irrespective of forestland tenure rights. The JFM activities may be self-initiated or proposed by external development programs.

Method, Structure and Scope

In this research paper particularly examines whether the participation of poor tribals (indigenous peoples) varies in different forms of community forest management (centralized and decentralized), and whether power, rule enforcement, benefit sharing and accountability of members determines people's participation. Forest management institutions were studied in different districts of Tripura. The analysis in this article focuses on key political variables that promote or hinder the participation of local communities in forest management reform.

The next section begins with a description of joint forest management and analysis - how it evolved and its political position in tribal areas. Then, the two village case studies are described using qualitative data analysis. The selection of the villages was purposive. The village reviews focus on levels of participation among tribals, the extent of democratic decentralization carried out and the key actors involved in new forest rights reforms. In doing so, the central role of the village assembly Gram Sabha - in influencing decisions about forest management at village council or Panchayat level is analysed. The village selection was also determined by their tribal population and dependency on forest resources. All households in the two villages comprised small farmers with agricultural landholdings of half a hectare on average, and most of them claimed tenure rights to state forestland. The analysis reviews the institutional dimension of participatory forest reform on two aspects: representative ness and decision making.

Participatory Forest Management

(Centralized People's Participation through JFM (1990 to 2005)

The joint forest management or JFM program in India is one of the largest participatory efforts undertaken by any state in the world. It began in mid-1990s by forming more than 10 000 village forest institutions or committees and involving them to work with state forest departments to protect and regenerate about one and half million hectares of forestland, mostly degraded government forestland. In 1988, the National Forest Policy explicitly identified the importance of participation by local communities in forest management, particularly the Scheduled Tribes. However, the broader interests of people's participation were determined by the 1 June 1990 circular of

the Government of India. JFM is justified as a strategy under which the forest department and the village community enter into an agreement to jointly protect and manage forestland adjoining villages and to share responsibilities and benefits. The institutional structure of JFM committees consists of a general body with representation of all households, and an executive body with representation of elected members, with a minimum of 33 percent of seats reserved for women and other disadvantaged groups.

Decentralized Forest Right Reforms for Tribal People

The scientific forest management initiated during the colonial period strategically deprived the tribals of their customary forest tenure and community forest management rights. The FRA, prepared by the Ministry of Tribal Affairs for the first time in independent India, recognizes the rights of forest-dwelling communities. The act recognizes and vests the forest rights and occupation on forestland of 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. The FRA provides for the recognition of forest rights of other traditional forest dwellers provided that for at least three generations prior to 13 December, 2005 they have primarily resided in and depended on the forest or forestland for bona fide livelihood needs. The act also recognizes the right of ownership access to collect, use and dispose of minor forest produce that has been traditionally collected within or outside village boundaries. One of the unique features of the act is that it provides for the right to hold and live on forestland under individual or common occupation for habitation or for self cultivation for livelihood by a member or members of a forest-dwelling Scheduled Tribe or other traditional forest dwellers. Tribe members and at least one shall be a woman. The Panchayat Raj Institutions are three-tier government bodies, the lowest level of which is the gram Panchayat or village council.

Legal Status, Ownership, and Management

Legal status Forests have been classified broadly into two categories of reserve forests and protected forests as per the Indian Forest Act, 1927. Reserve and protected forests cover 56% and 27% of the forest area (Figure 1). There is another category of village forests mentioned in the Act. Village forests are the reserve forests, which are assigned to the communities for management. Another category, which does not find mention in the Indian Forest Act, but covers about 17% of the forest area, is known as "unclassed forests". This category of forests awaits to be included in the reserve or protected forest category (ibid). The status of rights varies across these legal categories. Local people have minimal rights in the reserve forests. Protected areas like national parks and wildlife sanctuaries, along with other forests, come in this category. People have some rights in the protected forests while rights have not been recognized in the unclassed category. So, across 73% of forest area, which comprises reserved and unclassed forests, people have either minimal rights or their rights have not been recognized.

Ownership and Management

Of the total forest area, close to 97% is legally owned by the government (comprising 93% of the forest area controlled by state forest departments and 4% by state revenue departments) and 3% is owned by private entities and communities. Though the government owns a large part of the forests, there has been increasing involvement of communities in the man-

agement over the years. Reportedly, 28% of the forest area is managed in collaboration with communities under the Joint Forests Management (JFM) programme. Similarly, there have been efforts by companies and individual farmers to manage vegetative cover mainly outside the forest area. After the 1980 Forest Conservation Act, which substantially reduced the supply of raw material from state forest lands to wood-based industries the government promoted plantation of trees under various agro forestry and social forestry plantation schemes. Despite the involvement of communities, the government still manages 69% of the forest area on its own, through the state forest departments. The state owns and manages the largest part of forest estate in the country, where rights of people have not been recognized. It has marginalized forest dependant communities in the country. They have protested against this deprivation of rights for long. These protests finally resulted in the Forest Rights Act.

Implementation of FRA

The act is being implemented for more than two years now. It has been reported that million titles for individual and community rights have been distributed across India. Individual rights constitute 99.78% of the total recognized claims as against 0.2% of recognized community rights. Similarly, the area recognized under individual rights constitutes 97.5% of the total area as compared to the 2.5% of the area recognized for community rights. So, very few community rights have been recognized as compared to individual rights. Average area given for individual and community claims is 0.88 ha and 10.39 ha, respectively. Similarly, aggregate information is available for 13 major FRA states of the country Andhra Pradesh, Assam, Chhattisgarh, Jharkhand, Karnataka, Kerala, Madhya Pradesh,

Maharashtra, Orissa, Rajasthan, Tripura, Uttar Pradesh, and West Bengal. Close to 1 million titles with rights over 1.42 million ha of forest area have been distributed in these states. It constitutes 2.8% of the forest area and 3.2% of the forest cover in these states. As mentioned above, 1.169 million claims have been recognized across the country. However, easily comprehensible information is not available about the total forest area covered under these claims.

Wildlife Conservation and Forest Rights

Though FRA applies to wildlife protected areas (PA) like national parks and sanctuaries, there is reluctance at the state level to recognize the rights in these areas. State forest departments are taking undue advantage of Critical Wildlife Habitat (CWH) provisions in the FRA and are trying to relocate people from protected areas. Civil society groups have reported instances from various states like Madhya Pradesh, Rajasthan, and Orissa where the rights of people are not being recognized under the FRA and instead efforts are expedited to relocate them (CFSD; 2010; A report from Centre for Social Development (CSD), a civil society organization, accuses the government of continuing with the anti FRA actions, such as a forestation on tribal lands, relocation of people from protected areas, and mining in forest areas (CSD 2010). It has been argued that because of bureaucratic "apathy and sabotage" and the aforementioned factors, the implementation of FRA has been undermined. It clearly states that such areas could not be created unless "the process of recognition and vesting of rights is complete in all the areas under consideration".

Land Grabbing and Politics

FRA has led to fresh encroachments over forest land

across various states in the country, expecting that these will be regularized (Ghate 2009; PTI 2007; Chauhan 2011). Chauhan (2011) argues that various instances of land grabbing were found in a study of 10 states across the country. He reports that 11,000 ha of forest land has been encroached upon in Andhra Pradesh since the implementation of the Act. Instances of land mafia paying tribals to encroach land have been reported from the states of Maharashtra and Uttar Pradesh. Similar stories of fresh encroachments have been reported from states like West Bengal and Maharashtra (Ghate 2009). Encroachments are being promoted by political interests at some places (Kothari 2006). FRA is being used as a political tool. Even the joint committee of MoEF and MoTA has reported that state governments in Andhra Pradesh and Madhya Pradesh are using FRA as a political tool to distribute lands and gain from it in the upcoming elections.

Conclusion

The Forest Rights Act has started a transformation of the forest landscape in India. It is set to redraw not only forest boundaries, but also alter the state people relations in the context of resource management. Currently, the implementation process is marred by several institutional and efficiency issues, due to which rights have been recognized only over a limited forest area. Also, mostly individual rights have been recognized so far. But the implementation process is expected to improve with clarifications and amendments in the policy guidelines under the constant vigil of civil society. Once community forest rights are recognized over a large area, local people will have control over the management and conservation of resources. Implementation of the Forest Rights Act, 2006 (FRA) in India provides an interesting insight into this

interaction. Peoples' rights over forest resources are being recognized under FRA in a comprehensive manner for the first time in independent India. Although a number of challenges of implementation are yet to be addressed, it has started changing the forest landscape of the country by redefining the relationship between the state and the people with regard to the use and management of forest resources. Internationally, there is increased focus on forests because of their role in climate change mitigation. There is a huge programme underway for recognition of people's rights over forest resources and minimum provisions for tenure rights in the country specially in Tripura, through a unique legislative measure known as The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights Act) India is one of the seventeen mega diverse countries of the world. It has great diversity of ecosystems and animal and plant species. Forest ecosystems constitute an important part of this diversity.

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3

Forest Conservation and Rehabilitation of Jhumias in Tripura

Anindita Ray Bhattacharjee

Abstract

Forest in one of the most essential part of the earth which forms a predominant role in the life of people. As per geological time scale in the paleolithic age primitive man lived in dense forest or trees or in the natural caves and subsisted on forest resources. Tripura is a tiny state tucked away in a corner of North-East India where a considerable section of people depend on forest, forest produce and shifting cultivation (Jhum) for drawing their sustenance.

To restore the nature in its proper condition undoubtedly conservation of forest is one of the most relevant factor. But being a hilly and border state of India, Tripura is facing several problems of industrial backwardness. In this juncture Forest Conservation Act brought a deep impact on the socio-economic condition of the people. It is also a hard task to motivate the rural people to understand the meaning and necessity of conservation of forest as there is a yawning gap between the root and fruit of conservation.

In this backdrop this study tries to put forward the attitudinal change evident among the rehabilitated Jhumiyas of the state towards the conservation of forest land. A field study of the plantation rehabilitation have been made in a few villages under Sepahijala district of the state. An attempt is made here to show how weaning them towards plantation based agriculture under different government and non-government organisations can help them to preserve this very essential natural resource.

Introduction

The present study is based upon the problems faced by the people of the state in regards to forests conservation rule. As forests are simply essential to environment they need to be preserved. At the same time conservation of forests at random will hold back the indigenous people of the state from getting the essential provision of fuel, fodder, oil, honey etc. therefore the present study tries to find out the impact of forest conservation rules on the socio-economic life of the tribal people Tripura.

Methodology

The methodology adopted is basically descriptive and analytical in its narration. The problems regarding forest conservation are highlighted. The issue have been discussed in a historical perspective, hence a thorough study of the forest policy during princely regime had to be under taken. A field study had also to be undertaken, hence a visit was made to few villages under Sepahijala district to learn about the socio-economic impact of forest conservation. Field data thus collected reveals a lot of currently known and unknown facts which have been incorporated in the study.

There is a well-known saying in Bengali "dao feerey she aronya loho ei nogor", which means give us back the forest and take away the city where there is less greenery. Forest is not

only the fundamental factor of balanced life but also the only way to restore the ecological balance of this modern high-tech world. No matter how much developed a civilisation is, it can never persist without greenery and one of the greatest example is the ancient urban civilisation- Indus valley civilisation which declined due to several causes of which the major was rampant forest depletion. If we give a look on the page of history it would be observed that there was a separate department and various rules and regulationsregarding preservation of forest in the reign of Maharaja Chandragupta as quoted in Arthashastra. During Gupta period (320-800 AD) a well-known work of that time "Shukranti" threw light on the improvement of forest department. During the ancient period in the Hindu era forests and trees were used to be preserved that as the Hindu used to believe on several myth about different species of the same.

But in the state of Tripura where tribal or indigenous people practise a rudimentary method of cultivation locally called as "jhum" is completely contradictory to the concept of forest conservation. The rulers of the state prior to Birchandra Manikya being a little or no conscious regarding the ill effect of jhum never tried to stop this practice. Besides, due to topographical condition plough mode of cultivation is mere impossible. In addition to this, family tax levied from the Jhumias was one of the most effective sources of revenue. Moreover it was not a matter of concern when Tripura was abounded in luxuriant forest with above 40% crown cover. But as the time went and the population increased especially because of large influx from the neighbouring country of Bengal territory with the extension of plough mode of cultivation, Jhumias got confined within more interior area of the state. Place for shifting became less which caused the lowering of fallow period of

land. In this context although the forest conservation act is a relevant and necessary step in order to restore the human civilisation in its proper position, side by side it is also a very tough job to move away the Jhumias from practicing their age-old system of cultivation which is the reason of forest depletion.

Forest conservation rules were first introduced in 1886 A.D. in Tripura and later in 1952 by few notification under the forest act of 1927. The main purposes of these rules were to stop this rudimentary practice of jhum. At the same time the first jhumia rehabilitation scheme was introduced in Tripura in the year 1955. According to the schme the first colony was set up at Bishramganj (under Sepahijala district at present) in January 1957 covering 848 families. During 1955-68 total 58 colonies have been established covering 1942 families favoured with allocation of khas land varying from 1-2 ha of land for settled cultivation per family and also with cash grant of Rs. 500 per family along with other opportunities. Till 1958, 13 forest villages were set up. From the official record it was transpired that from 1955-79 as many as 102 jhumia colonies have been established with total families of 12194. The cash grant has also been considerably increased. It can be said that forest conservation has its reverse effect on the trial life and their culture in Tripura. Therefore attempt made by the govt. to rehabilitate the Jhumias towards plough mode of cultivation or other profession from this nomadic practice.

TRPC started plantation programme under Sepahijala district during 1983 with 800 landless jhumias. At present (2014) in accordance to the report of Rubber board total panted area in this district 7121.8 ha. Total planted area under TPDPC is 11323ha where the production is 2889 tonnes in the year 2013-

14. Under block plantation scheme total 25010.75 ha of land is planted with 2564 beneficiaries. Their total annual income is Rs. 4757 lakh i.e. Rs 1.86 Iakh is their annual income per family.

A field study regarding plantation and rehabilitation was undertaken in three villages namely Kaliram, Laxmandhepa and Andredhepa under Sepahijala district of the state. Plantation has been raised in those villages under TRPC and rubber board. Kaliram, the village, mostly resided by Jamatia tribe has been covered with rubber plantation in 15.43 ha. Rubber plantation was started there with 12 beneficiaries. On talking to the clan leader it was found that he was very much conscious regarding the economic return of rubber plantation. A female beneficiary namely Rajkumari Jamatia was of the opinion that they all used to pursue Jhum in this hilly area which was completely covered with bamboo forest. She still bore in mind the past days of juming and also wanted to continue the practice. But as the surrounding has been completely involved with rubber trees no place is left for it. She also added that they are doing rubber plantation as there is no substitute way of living. On visiting their households, expensive electronic goods were found to be displayed which obviously proved that they are not poverty stricken or that present job merely provides them daily food.

Laxmandhepa the village where the rubber plantation started in 93.00 ha of area with 64 beneficiaries of Malsoom community. The condition of the people showed an amazing change since last visited by the author 13 years earlier. Their poverty was appalling as they had to depend upon uneconomic Jhum at that time. The area where the view was distinct from one tilla to the other because of persistent jhum, has been covered with greenery. Beneficiaries are busy in collecting latex

from rubber trees.

The third was Andredhepa where the plantation raised in 2004 on 42.7 ha of area with 40 beneficiaries. In the initial stage a motivation programme had to organise to make the clan leader realise the benefits of the scheme. The report says that in Rangmala block plantation unit has been brought under rubber plantation with 72 beneficiaries where the total annual income Rs 2.64 lakh per family.Though this average rate doesn't show the practical scenario of each family but it is undoubtedly a greatly flourishing socio-economic development.

Apart from rubber, forest dept. has undertaken various projects to save the greenery as well as to rehabilitate the indigenous people. Among the 19 major tribes of the state Reang community has been identified and recognised as "primitive tribal group" as they reside mainly in inaccessible hilly reserved forest area and backward in all spheres of human life and activities compared to other tribes. Therefore to protect forest resources in such reserved forest they should be moved and motivated to other occupation. This difficult and delicate task has been undertaken by TRP&PGP (tribal rehabilitation in plantation & primitive group programme) with the objective of rehabilitation of primitive group families through plantation of teak and gamai etc. It is noteworthy that the rubber plantation has proved itself to be most effective in rehabilitating the indigenous people whereas the plantation of teak, gamai , garjan, Arjun etc. is coming down.

It is to be mentioned that Japan Bank of Industrial of Cooperation sponsored implementation of Tripura forest environment improvement and poverty alleviation project

(TFIPAP) with the objective of rehabilitation, soil and water conservation, extension of agro forestry etc.

Yet it is not easy to change the age-old attitude of mistrust among the people and the forest personal suddenly. But changes in the attitude will be considered as the pre-requisite factor for the conservation of forest. Needless to say the shifting cultivation or jhum is not only the way of livelihood but also the art of their life. In this context it is quite obvious that only the govt. initiative regarding such issues can't be enough unless the social workers and individuals too to participate in winning the indigenous people from forest dependence.

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4

North-East India a Storehouse of Unexplored Medicinal Plants - A Study

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Abstract

North Eastern states of India are the richest repositories of unexplored medicinal plants and also well-known for diverse culture of human races. In addition to that, this region is the habitat of large number of ethnic people of India. The age long inherent relationship between this ethnic people with the natural resources mainly plants endued the modern civilization with many herbal medicines, though a large number of medicinal plants and their folk uses have remained prevalent to certain tribes of the region. For their proper exploration, utilization, conservation and value addition scientific approach may be the key points to develop indigenous exact data. Moreover, the therapeutic activity of such plants has made an outstanding contribution in this origin and evolution of many traditional herbal therapies, but, with the course of time due to scarcity of written documents and relatively low income in these traditions such folk traditional knowledge have started to disappear. Though the ethanobotanical survey is a very intricate process, but a more number of ethanobatanical surveys and assembly of

such information in systemic way can make distinction in research and expansion work on such medicinal plants. This type of approach will be helpful for conservation of rare plant species of this region as well.

Keywords: *North East States; Medicinal plants; Ethnic people; Traditional knowledge; Ethanobotanical Survey.*

Introduction

India is one of the 12 mega-biodiversity countries of world having three hotspots - the Western Ghats, the Himalayas and Indo-Burma. [1] The northeast region of India comprises eight separate states namely Arunachal Pradesh, Assam, Mizoram, Manipur, Meghalaya, Nagaland, Tripura and Sikkim, flanked in the north by the Himalayas and in the south by the Bay of Bengal, constitutes a characteristic narrow passageway that connects the Indian subcontinent to East Asia and South-east Asia. The huge variety of the climatic, edaphic and altitudinal variations in North-eastern India have resulted in a great range of ecological habitats. This area characterizes the transition zone between the Indian, Indo-Malayan and Indo-Chinese biogeographic regions and a meeting place of the Himalayan Mountains and Peninsular India and it was the part of the northward migrating 'Deccan Peninsula'. [2] Northeast India, thus the geographical 'gateway' for much of India's flora and fauna, and as a result, the region is one of the richest areas of India in biological measures. The profusion of its landscape, flattering climatic condition, the variety of communities and geographical and ecological mixture makes this region of India rather different from other parts of the subcontinent and in point up for its lofty biodiversity and traditional knowledge. [3,4] The region is rich in medicinal plants and many other rare and endangered taxa. High endemism in higher plants, ver-

tebrates and avian diversity in this region has able it to be a "biodiversity hotspot". [5] A large number of ethinic people are also inhabited in this part of India and posses a huge traditional knowledge on effective herbal medicines, which was acquired through the experience, are usually passed on by oral traditions as a cautious secret of certain families. Thus, the potentialities of ethnomedicinal studies in North East should be given the importance as it can provide us a lead to discover of more and potential useful chemical compounds. The identification, conservation of medicinally important plant species, traditional knowledge is absolute requirement for our time. [6,7] Although several ethnomedicinal survey on North Eastern India has been carried out by different researcher, but still it is believed that use of different plant for health care is trapped in the remote area of the region. A detailed and systematic review on ethnobotanical study in the North East region is required as this may offer an evocative way for the look after of the traditional knowledge and medicinal plant, and use this information for future research.

Forest Cover and Biodiversity

The North Eastern region of India covers an area of 2,62,179 sq. Km (8 percent of the total vegetation) and contains 1,73,316 sq. Km of forest cove (66 percent of total geographical area) whereas the national average of 20.6 percent.[8] In this region very dense 70-100%, moderately dense 40-70% and open 10-40% forest constitute 10.4%, 46.4% and 43.2% of the total forest cover respectively. North east India is the richest area in terms of biological wealth in the Indian subcontinent and has been in focus for its rich biodiversity. The affluence of the region's avifauna basically reflects the diversity of habitats associated with a wide altitudinal range. In this low-

land-highland evolution zone, the highest variety of biomes or ecological communities can be found, and species diversities within the regions are also very high. Northeast India is blessed with a large range of physiography and ecoclimatic condition. Northeast India forms a variety of tropical forests, particularly the species-rich tropical rain forests, after the Western Ghats and Andaman and Nicobar Islands in India. The North eastern region also consider as an important part of the Indo-Myanmar biodiversity hotspot, one of the 25 global biodiversity hotspots accredited currently. [3,4,6-10] Table 1 listed total area, forest cover area and plant diversity of North eastern states.

Ethnic Diversity and Indigenous Knowledge

Besides unique natural diversity, north eastern region of India is also a classic example of 'unity in diversity' for the entire country. A large number of indigenous and immigrant ethnic and tribal groups are inhibit in this region with bewildering physical and cultural features. The region is the abode of more than 200 different tribes with district dialect, custom, belief, heritage and socio-religious tradition. It is believed that this part of India used as crucial corridor for human migrations including, perhaps, the first migrations from Africa towards East Asia and Australia more than 40,000 years ago. [1,3] Ethnic communities have always generated, polished and passed on traditional knowledge from generation to generation. This knowledge is based on their requirements, sense, inspection, assessment and mistake and long experience. Such knowledge is often a vital part of their cultural identities. Traditional knowledge has played, and still plays, a vital role in the daily lives of those people. Traditional knowledge is essential to the food security and healthcare system. Till date a large number of ethnic people are still live on remote forests and hills and agri-

culture through 'Jhum' of 'Shifting' cultivations is the main occupations these people. They are greatly dependent on natural resources as well as forests. The discrete tribes of this region have their own and rich traditional knowledge and utilizing natural resources in daily life. The knowledge and mode of utilization of local plants varies with ethnic groups. The use of medicinal plants plays a very crucial role in the health care of tribal people. [11,12] Table 2 listed different tribes of North eastern states.

Ethanobotanical Survey

Ethinic and tribal people have specific power over a great transaction of indigenous knowledge arising from their utilization of natural resources. These people are conscious of the scope of variation as well as the qualities exhibited by the natural plants. Exploitation of this knowledge is precious in making enquiries and expansion of modern research. The information that local tribal communities possess about their natural resources like how plants are used, how plant resources are allocated across the ecosystems they manage, the classification and identification of plant diversity, and the relationships between plants, people and animals in their ecosystem are very important for protection of plant and conventional knowledge. [3,5,13] Ethnobotanical information which derives from ethnobotanical and socioeconomic surveys and literature reviews often represents the indigenous knowledge of ethnic/tribal/ local people. Therefore citation of this type of information can direct the researcher to identify new drug molecule and also can help in addressing intellectual proper right issues. Since after 1970's different researchers, university, research institutes has been working on ethanobotany and traditional knowledge. [14] In last few years the research and documenta-

tion of traditional knowledge of north eastern state has augmented but still it is not adequate. Compare to rest of India the number of survey is very less though it is a huge source of indigenous knowledge, and a lot of information about plants, their medicinal uses, ethanobotany still trapped into certain areas of North eastern India. Therefore a lot of survey needs to be carrying out to explore our conventional and native knowledge. Table 3 & 4 listed some of the important species endemic and under threat in to the North-eastern India.

Importance and Conservation of Medicinal Plants

The magnitude of medicinal plants and traditional health systems in solving the health care problems are an growing focus of the world today. North east India represents an enormously distinctive eco-system rich in medicinal plant wealth associated with Folk medicine, Ayurveda, Homeopathy, Siddha, Amchi, and Unani system of medicines. Among these many species of medicinal plant North-east origin have reformed the allopathic systems of medicine. The medicinal plants also have traditionally occupied a key position in the socio-cultural, spiritual and medicinal arena of the people in the region. Medicinal plants play a vital role in supporting rural healthcare system in India. According to the World Health Organization (WHO), 80% of the rural population in developing Asian and African countries utilizes locally available medicinal plants for their primary healthcare needs. About 90% of the medicinal plants of India are found in forest habitats, while only 10% of the medicinal plants are distributed among other landscape elements like open grasslands, agricultural pastures, waste land and in and around fresh water bodies etc. Traditional medical custom is an integral part of culture of people of North East India. In spite of this condition traditional health care systems undergo

a setback during modern civilization, industrialization and lost sponsorship particularly in urban areas. There is an escalating focus on the importance of medicinal plants and traditional health systems in solving the health care problems of the world. Herbal products are gaining global owing in this modern, frantic and polluted environment. Traditional herbal medicine, supplements and cosmetics are better than synthetic components; as they are cost-effective, easily available and most importantly have negligible side effects. Due to this wakefulness, demand of herbal product increasing and the international trade in plants of medical importance is rising incredibly, often to the detriment of natural habitats and mother populations in the countries of origin. [15,16] Therefore the need of the hour is to attach this natural resource sustainably for the socio-economic development of the local and indigenous people while protecting the biodiversity at the same time. The strategies like cultivation of medicinal plants shared with sustainable collection practices from the wild would be useful in attaining this goal. In the 21st century, conservation, sustainable use of medicinal plants of North east India will add to self-reliance of millions for India's own health needs and has universal application.

Future Prospectives

Traditional knowledge of these regions measured as a bulk of information and set of expertises developed by a group of people in due course, which is based upon their need, observation; and in a regular position of change. The information about folk medicine of North East India are still not congregated in systemic way or not documented in old literature, these are generally passed over generation vocally. In order to consider the "preservation of traditional knowledge", perhaps it need documentation of those old and useful literature and to survey the

nature of this system, how it evolves over time. The documentation of traditional knowledge is useful to address the intellectual property right issues and for confirmation based research work. Multidisciplinary research and development work using the traditional folk medicinal plants based upon their traditional knowledge can provide deep motivation for identification of new pharmacophores. Besides escalating the herbal therapeutic and preventive armamentarium, new pharmacophores may help to develop new targets of drug action as well as a possibility for on the original pharmacophores. Newer approaches utilizing collaborative, multidisciplinary research and modern technology in combination with established traditional health principles will yield wealthy surpluses in the near future in improving healthcare worldwide.

States	Geographical area (sq. Km.)	I. Forest Cover (sq. Km.)				% of geographical area	Plant diversity specification
		Very dense forest	moderate dense forest	open forest	Total forest		
Arunachal Pradesh	83,743	14,411	37,977	15,389	67,777	80.93	Flowering plants around 5000 species, but 238 are endemic to the state. The state rich with 500. Species of orchids
Assam	78,438	1,444	11,387	14,814	27,645	35.24	Flowering plants around 3010 species, from which 102 species are endemic. State is rich in bamboo diversity (42 species)
Mizoram	21,081	133	6,173	12,378	18,684	88.63	Flowering plants around 2200 species
Manipur	22,327	923	5,541	10,622	17,086	76.53	Flowering plants around 2500 species
Meghalaya	22,429	338	6,808	9,842	16,988	75.74	Flowering plants around 3500 species
Nagaland	16,579	236	5602	7,881	13,719	82.75	Flowering plants around 2250 species
Tripura	10,486	61	4969	3,125	8,155	77.77	Flowering plants around 1600 species, of which 14% of species found is endemic
Sikkim	7,096	498	1912	852	3,262	45.97	Flowering plants around 4500 species
Total	2,62,179	18,044 Very dense forest	80,369 Moderate dense forest	74,903 Open forest	1,73,316	66.10	

Table 2: Geographical location and tribes of North Eastern states of India

State	Location	Population	Location (Major Tribes)
Arunachal Pradesh	latitude 26° 30' N and29° 30 ' N and longitude 91° 30' E and 97°30' E	1,382,611	Adi, Mongpa, Lispa, Chugppa, Nyishi, Aka, Aptani, Bangani, Khamba, Khowa, Memba, Miji,Hill Miri, Mishing Miri, Sherdukpen,Sulung,Singpho Tagin, Tangsa, Wancho, Yobin (Lisu), Zakhring(Meyor), Idu mishmi, Mishmi, Khampti,Nocte, Bugun, Galo, Hrusso, Koro, Monpa, Sajolang, Sartang, Tai Khamti, Khamba, Memba
Assam	latitude 24° to 28° North & longitude 90° to 96° East	31,169,272	Chakma, Dimasa, Garo, Hajong, Hmar, Khasi, Jaintia, Synteng, Pnar, War, Bhoi, Lyngngam, Kuki tribes (Baiate, Changsan, Chongloi, Doungel, Gamalhou, Gangte, Guite, Hanneug, Hao Kip, Hanpit, Lhonyem,Lhocwun, Lupheng, Mangje, Misao,) Riang, Sairhem,Selnam, Singson, Haolai, Hengna, Hongsungh,Hrangkhwal, Raokhol, Tongbe, Khawathlang, Khothalong, Khawchung, Khelma, Kholhou, Kipgen, Kuki, Lengthang, Lhangum, Lhoujem, Lhouvum, Misao, Riaong, Sairhem, Selnam, Singsom, Sithou, Sukto, Thado, Thangngeu, Uibush Vaiphel), Lakher, Man (Tai speaking), Any Mizo (Lushal) tribes, mikir, Any Naga Tribes, Pawi, Syntheng. Barmans in Cachar, Boro, Borokachari, Deori, Hajong, Kachari, Sonwal, Lalung, Mech, Miri, Rabha
Manipur	latitude 23.830N to25.680N & longitude93.030E to 94.780E	2,721,756	imol, Anal, Angami, Chiru, Chethe, Gangte, Hmar, Kabui, Kacha Naga, Koirao, Koireng, Kom, Lamgang, Mao, Maram, Maring, Any Mizo (Lushai) tribes, Monsang, Moyon, Paite, Purum, Ralte, Sema, Simte, Suhte, Tangkhul, Thadou, Vaiphui, Zou.
Meghalaya	Latitude 20° 1' N &26° 5' N, Longitude85° 49' E & 92° 53' E	2,964,007	Bhoi, Boro, Chakma, Dimasa, Garo, Hajong, Hmar, Ja;intia, Karbi (Mikir), Khasi, Koch, Kuki, Lakher, Lyngngam, Man (Tai speaking), Mizo (Lushai), Naga, Pawi, Pnar, Rabha, Synteng, War.
Mizoram	Latitude 21o 58' &24o 35' N Longitude 92o 15' & 93 o 29' E	1,091,014	Chakma, Dimasa Kachari, Garo, Hajong, Hmar, Khasi, Jaintia, War,Any Kuki (Baiate, Changsan, Chongloi, Doungel, Gamathou, Gangte, Guite, Hanneu, Hao Kip Hanpit, Lhonyem, Lhocwun, Lupheng, Mangje, Misao Riang, Sairhem, Selnam, Singson, Haolai, Hengna, Hongsungh, Hrangkhwal, Raokhol, Tongbe, Khawathlang, Khothalong, Khawchung, Khelma, Kholhou, Kipgen, Kuki,Lengthang, Lhangum,Lhoujem, Lhouvum, Misao, Riang, Sairhem, Selnam, Singsom, Sitlhou, Sukto, Thado, Thangngeu, Uibush,Vaiphei), Lekher, Man (Tai speaking), Any Mizo (Lushai tribe), Karbi,AnyNaga tribe, Pawi.
Nagaland	25°6' and 27°4'latitude, North of Equator and betweenthe longitudinal lines93°20'E and 95°15'E	1,978,502	Lotha, Phom, Pochury, Rengma, Sumi, Sangtam, Yimchungru, Zeliang, Ngami, Ao, Chakhesang, Chang, Khemungan, Konyak, Lotha, Phom, Pochury, Rengma, Sangtam, Sema, Yimchunger and Zeliang. Adi, Aka, Dimasa, Galong, Garo, Khasi and Jaintia, khowa, Kuki, karbi (Mikir), Mizo. Any Naga tribe (Ao, Angami, Chakhesang, Chang, Chiru, Khiemnungan, Konyak, Lotha, Makwari, Phom, Rengma, Sangtam, Sema, Tikhir, Yimchungree, Zeliang), Syntheng, Momba
Sikkim	27°04' and 28°07'latitude, North ofEquator and betweenthe longitudinal lines88°00'E and 88°55'E	607,688	Lepchas, Bhutias and Nepalese.
Tripura	It lies on latitudes22°56' and 24°32' Nand longitudes 91°09'and 92°20' E.	36,71,032	Tripuri, Jamatia, Bhil, Reang, Noatia, Bhutia, Chakma, Chaimal, Garo, Halam, Khasia,Kuki, Lepcha, Lushai Mag, Munda, Kaur, Orang, Santhal and Uchai

Table 3: Important species endemic to the North-eastern Hills.

Species	Family	Habit	Distributionn	Use
Albizia kalkora	Mimosaceae	Tree	Nagaland and Jaintia hills	Wild genetic resource
Areca nagensis	Arecaceae	Tree	Nagaland	Masticatory, solitaryplant at the Indian Botanical Garden
Berberis feddii	Berberidaceae	Shrub	Manipur hills;2500m	Medicinal, golden yellow flower
Berberis micropetala	Berberidaceae	Shrub	Naga hills	Medicinal, white flower
Berberis sublevis var. *sublevis*	Berberidaceae	Shrub	Manipur hills; 1500m-2500m	Medicinal
Carex asraoi	Cyperaceae	Herb	Nagaland	Forage
Cotoneaster nagensis	Rosaceae	Shrub	Naga hills	Cane, used for makingbaskets
Dalbergia watii	Fabaceae	Tree	Manipur	Wood, used for fuel, Ornamental

Species	Family	Habit	Distributionn	Use
Lilium mackinliae	Liliaceae	Bulbous herb	Narrow endemic, found inthe eastern border areaManipur	Pinkish white flowers, of “Shirhoy Lily”; leaves used to treat skin disease
Maesa macrophylla var. magnidentata	Myrsinaceae	Large shurb	Nagaland	Source of light wood
Mahonia magnifica	Berberidaceae	Small tree	Manipur hills	Medicinal, with yellow flowers
Mahonia roxburghii	Berberidaceae	Shrub	Manipur hills	Medicinal
Piper aurorubrum	Piperaceae	Climbing	Manipur shrub	Spice and medicine, asuterine stimulant
Rhododendron elliottii	Ericaceae	Small tree	Naga and Manipur hills	Multipurpose
Rhododendron johnstoneanum	Ericaceae	Shrub	Manipur and Lushai hills	Multipurpose
Rhododendron macabeanum	Ericaceae	Tree	Manipur and Naga hills	Multipurpose
Rhododendron triflorum var. bauhiniflorum	Ericaceae	Shrub	Manipur; 2,450–2,750 m	Multipurpose
Rhododendron wattii	Ericaceae	Shrub or small tree 2,700–3,000 m	Manipur;	Multipurpose
Saussurea nagensis	Asteraceae	Herb	Naga hills, Nagaland	Medicinal
Trichosanthes tomentosa	Cucurbitaceae	Scandent herb	Naga hills, Nagaland	Wild genetic resource

Table 4: Important species under threat in the North-eastern Hills

Species[1]	Family	Habit	Threat level[2]	Use
Anacolosa densiflora	Oleaceae	Tree	R	Wood for toys and posts
Capparis cinerea*	Capparidaceae	Shrub	I	Fruit, genetic resource
Ceropegia lucida*	Asclepiadaceae	Twiner	EN/EX	Ornamental
Citrus indica	Rutaceae	Tree or shrub	EN	Fruit, genetic resource
C. macroptera	Rutaceae	Tree or shrub	EN	Fruit, genetic resource
Dendrobium auranticum*	Orchidaceae	Herb	VU	Epiphyte, ornamental
Dioscorea deltoidea*	Dioscoreaceae	Herbaceous climber	EN	Medicinal, tubers rich in saponin , used for washing,
Elaeocarpus prunifolius*	Elaeocarpaceae	Tree	VU	Edible fruit
Ixonanthus khasiana*	Ixonanthaceae	Tree	VU	Wood for cabinet making
Lilium mackinliae*	Liliaceae	Herb	EN	Ornamental
Magnolia gustavii	Magnoliaceae	Tree	VU	Ornamental
Mangifera khasiana	Anacardiaceae	Tree	I	Wild, genetic resource
Paphiopedilum spicerianum*	Orchidaceae	Herb	CR	Ornamental
Papilionanthe vandarum	Orchidaceae	Epiphytic herb	I	Ornamental
Phoenix rupicola*	Arecaceae	Tree	CR	Wild, farinaceous pithedible
Renanthera imschootiana*	Orchidaceae	Epiphyte	VU in Mizoramand Nagaland	Ornamental
Rhododendron elliottii	Ericaceae	Tree or shrub	VU	Multipurpose

Species[1]	Family	Habit	Threat level[2]	Use
Rhododendron formosum	Ericaceae	Shrub	VU	Multipurpose
Rhododendron johnstoneanum	Ericaceae	Shrub	R	Multipurpose
Rhododendron triflorum var. bauhiniflorum	Ericaceae	Shrub or tree	EN	Multipurpose
Vanda coerulea*	Orchidaceae	Epiphytic herb	CR	Ornamental

1. * = Also listed by the Ministry of Environment and Forests, Goverment of India.
2. CR = Critically endangered; EN = Endangered; EX = Possibly extinct from wild;
I = Indeterminate; R = Rare; VU = Vulnerable

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5

Indian Forest Right Act and It's Social Impact on Indigenous Tribal Life of Tripura

Ar. Biswajit Das

Abstract

India is one of the very few countries of the world, which give the scope of Development of Tribal People forestry and environment in its constitutional setup. Indigenous Tribals are, in fact preserving land, protecting their language and Promoting Indian Tribal Culture, but they, after all, share a history of injustice.

The objective of the paper is to bring out the Indian Forest Right Act and it's social impact on indigenous Tribal Life of Tripura throug Recognition of Forest Right Act 2006, notified on 1st January 2008 on the Jhumias of Tripura.

Geographical area of Tripura is 10,491 Sq. Kms. Out of which 7132.56 kms. that is, (68% area) in under TTADC. Indigenous Tribal people are Socio-economically backward and mostly dependent on forest Resources.

The support for livelihood of the Indigenous Tribal People are most depend on Jhum Cultivation. And through Jhum Cultivation they are able to manage their ration for not more than six months. For the rest of the year mostly they depend on forest product like bamboo, fire-wood and other natural Forest Products.

It is strange enough that since the inclusion of Tripura in Indian territory the tribal's had got no right to use forest for their livelihood and it was due to a law called Forest (Conservation) Act 1980. Which was in existence since 2005 before the law.

The people residing within TTAADC area mostly small, marginal farmers and landless Jhumias.They are very much deprived of Education, Health Care, irrigation, Drinking water and basic needs of life. It is necessary to improved their life style by introducing scientific method through Forest Right Act 2006 to ensure sustainable development emphasizing on the status of Education, Health Care, Agriculture and Animal Husbandry Sector's facilities available in addition to the benefits offered as an action plan to Forest Pattadar holder's under FRA which could be incorporated with the sub-plan for Tribal Welfare of the state.

This paper will also explain how the forest become the life streams for forest dwellers and how the Act recognizes the territorial rights, right of the pre-agricultural communities to protect the sustainable livelihood of forest dweller, development of Tribal and develipment of forest at the same time.

Introduction

At present, India has the second largest Tribal population in the world, next only to Africa. [1] Tripura, is the 3rd smallest state, located in the North Eastern Region. Total Population of Tripura is 36,71032 out of which ST Population is 31.05%.[2].

Tripura merged with Indian Union after Independence on the 15th October, 1949 as Group- 'C' category state. It became

Union Territory on 1st July 1963. Tripura State became a full-fledged state on 21st January, 1972. [3].

Now Tripura has eight Districts. There are 19 Scheduled Tribes in the state of Tripura with their own cultural identity which includes Tripuri, Reang, Jamatia, Chakma, Lusai, Mag, Garo, Kuki, Chaimal, Uchai, Halam, Khasia, Bhutia, Munda, Orang, Lepcha, Santal, Bhil and Noatia. [4].

Geographical area of Tripura is 10,491 sq.km. and about 70% of the area comprises of hill and hillocks (upland) locally known as tilla. The recorded forest area of the state is 6,294 Sq.km. which is constitutes 60.02% of its geographical area. [5] Out of the 10,491 Sq.Kms. of the State, TTAADC is 7132.56 Sq.Kms. (68% area) where indigenous Tribal people who are socio-economically backward and mostly dependent on Forest Resources. Historically, the relationship between Tribal Communities and Forest was characterized by co existence and these communities were considered integral to the survival and sustainability of ecological system. But these rights were not recognized during the period of colonial and as well as independent India when historical injustice was made by Forest conservation Act 1980. Resulting insecurity of tenure and the threat of eviction from their ancestral forest lands. [6].

However, the Parliament of India has enacted the scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights). Act 2006 to "undo the historical injustices" suffered by Tribal Communities. [7].

Indigenous Tribal Life and Cultural of Tripura :-

Generally, indigenous Tribal are those that are historically belonged to a particular region, before it's colonization into a nation . They have unique traditions, distinct culture and peculiar approaches towards land, life and religion. [8].

Interface of Forest and Tribal life and culture in Tripura has a long history going back to time immemorial. Indigenous Tribal Communities of Tripura had practiced 'Jhum' Cultivation basically multi crops system like paddy, vegetable, mustard oil seeds, jute etc. which is based on clearing a forest area in a particular season. The indigenous Tribal Community Shifted from this plot of Cultivated land to return to the same after many years. Since productivity of Jhum Cultivation depends on the quality of forest burned down to prepare the land for cultivators so if the period is long 'Jhum Cycle's', the productivity of 'Jhum' land was quite high.

This helped the Jhum based Tripura Tribal economy not only to meet their needs for food but also provided them a surplus which they could trade with the plains urban people of the State of Tripura to purchase good which they could not produce like salt, dry fish etc. In this manner the Jhum based Tribal economy sustained itself for thousands of years. [9].

Origin of the Forest Right Act 2006

Many member of parliament of India opposed the Bill for appropriate change in the bill. The Lok Sabha Speaker appoint 30 members of Joint Parliamentary Committee (JPC) headed by K.C. Deo. The JPC's recommendations, which were presented to the two houses of the parliament on 23 May 2006. [10]. The Act was passed by the parliament on 18th December 2006. [11]. After a one year delay, the Act was finally notified on 31st December 2007 and the final Rules were Notified on 1st January 2008.[12]. Following the Notification of the Act and Rules, and the Prime Minister's letter to the Chief Ministers of the different state, it was hoped that the benefits of the Act would soon be received by it's beneficiaries. [13].

Constitutional Status of FRA 2006 for the Tribal

The Constitution of India provide for a Comprehensive framework for social - economic development of scheduled Tribes and for preventing their exploitation. It provides rights of Tribal people under Articles 15, 16, 17 and 33 of the constitution of India.

The Hon'ble Supreme Court of India also observed that "Agriculture is the only source of livelihood for scheduled Tribes, apart from collection and sale of minor forest produce to supplement their income. Land is their most important and valuable asset from which Tribal's derive their substance social status, economic and social quality. [14].

Significance of FRA on Indigenous Tribal of Tripura

According to Forest Conservation Act. 1980, does not permit residence on the Forest land. On the other land According to Direction's of the Hon'ble Supreme Court of India all state Government served Notices to vacate the Forest land. And it is estimated that 2,15,000 Nos. Indigenous Tribal of Tripura living on about 14,000 hectors of Forest land, who may become homeless [15].

The main occupation of indigenous Tribal of Tripura are related to Agriculture, Horticulture , Animal Husbandry dependent on Forest land. Under the Tripura tribal Areas Autonomous District Council (TTAADC) Act. 1979 and the TTAADC was set up in 1982 under the seventh schedule of the constitution of India. But finally which was brought under the sixth schedule in 1985 . [16]. Out of 5 lakh families in Tripura (Tangwan and Nag, 1999) only around 35,000 families use LPG and Kerosene. The remaining 4.65 Lakh families depend on forests for their energy requirements [17]. In Tripura, about 16,390 hectares of the total area comes under shifting cultivation involving about 27,278 Nos. of Jhumia families. [18].

Social Impact of FRA in Tripura

The Forest Right Act (FRA) Secures individual and common tenure over Forest lands and Forest of Tripura. Now TTAADC Village Council which authority under the Act to determine right. This will includes rights over indigenous lands, knowledge, system of Education, Agriculture, Animal Husbandry, hill sector, none of which had legal protection prior to this Act in Tripura.

(Table - 1)
Statistics of F RA Beneficiaries Status in Tripura

Sl. No.	Item	Number
1.	Total No of Forest right given	1,23,293 families.
2.	Total No. of Forest Right given to ST Family.	1,23,291 Families.
3.	Total No. of Forest Rights so far vested	2
	to OFD	
4.	Total quantum of land involved in hector	1,75,779.44 hector.
5.	Quantum of land involved for ST Families	1, 75,778.96 hector.
6.	Quantum of land involve for non ST families in hectors	0.48 hector.
7.	Demarcation of land completed through local bodies	1,19,662 Nos.
8.	Pillaring Completed	1,18,697 Nos.

Source : Tribal Welfare Department, Govt. of Tri pura,. 2014

According to Table – 1, Total 1, 23,293 Nos. of Forest Right given out of which 1,23,291 Nos. families covered by ST and total quantum land is 1,75,779.44 hector is involve out of which S.T. families covered, 1,75,778.06 hectors whereas Non ST families is covered only 0.48 hectors. The above mentioned figures indicate the Development approach to ST effecting of increasing quality of life and culture.

Development Status in Tribal Area, in Tripura

(Table -2)

Statistical Presentation Growth of animal Husbandary Sector Before and after setup

Sl. No.	Items	Performance before FRA Set up (1998)	Performance After FRA Setup (2014)
1.	Meat (in kg.)	32,51,967	1,16,37,120
2.	Egg (in crore)	3.39	5.76
3.	Milk (In MT)	18159	39555

Source : - Animal Resource Development Department, TTAADC, Khumwlong, Tripura.

According to Table -2 there is increased in meat, Egg, and Milk Sector in the Tribal Area after FRA Setup. This is one of the indicate the Development approach to ST population in Tripura.

(Table -3)

Statistical Pressention Growth of a Agriculture Before and After FRA SETUP

Sl. No.	Items	Performance before FRA Set up(1998)	Performance After FRA Setup (2014)
1.	Net Cropped area (ha)	95,200	11,3119
2.	Gross Cropped Area(ha)	1,23,760	1,95,572
3.	Cropping Intensity (%)	130%	173%
4	HYV Paddy Seed (MT)	0	938
5.	Area under SRI (ha)	0	34172
6.	Krishan Credit Card Distributed (Nos.)	0	21219
8.	Power Tiller Distributed	55	780
	(Nos.)		
9.	Pump Set Distributed	152	1338

Source : Agriculture Department , TTAADC, Khumwlng, Tripura.

According to Table 3, it is observed almost all items very increased after Setup of FRA in the Tribal area also one of the indicating of Development approach to ST Population in Tripura.

Achievement in Education Sector on Set of FRA in Tribal area.

Education being one of the most important instrument of Social upliftment of scheduled Tribes. Accordingly Govt. of Tripura handed over the control and management of primary School and upper primary School to TTAADC.

(Table -4)

Statistical Presentation in Education Sector Before and After FRA Setup

Sl. No.	Items	Performance before FRA Set up (1998)	Performance After FRA Setup (2014)
1.	No. of School	1037	1719
2.	JB	1035	1498
3	SB	02	221
4	No of Student	43,000	75,858
5.	Drinking water available in school area	640	1233

Source : Education Department TTAADC, Khumlwng, Tripura

According to Table -4, No of School, JB, SB, and No. of Students and also facilities of Drinking water is increased with satisfactory and which is developing the quality of life of Tribal's in Tripura.

Conclusion

Therefore, from the above - discussion, it is well established that indigenous Tribal's is very close and deeper relationship with Forest. Forest is a part of their families. It is being observed that for socio-economic development of in-

digenous Tribal's of Tripura, Forest Right Act is very important. Forest land is essential for cultivation of Jhum for their livelihood . But most of the indigenous Tribal's are landless and practice Shifting (Jhum) Cultivation on Forest land years after years but yield production in low only due to Lack of sufficient modern technological supports. . They needs to be helped in adoption modern methods of cultivation to achieve more and more development and at the same time Forest Right holder's (indigenous Tribal's of Tripura) should also be aware about how to better use of forest land for their livelihood in such a manner so that, Natural Environment and Ecology of Tripura should not be disturb rather it should be preserved and protected. In this regard Govt. as well as NGO's should come forward for awareness about development and livelihood for along with to save the natural Forest and Environment of Tripura. Govt. should also frame the policies for development of Tribal's and for their livelihood keeping in mind save forest, save livelihood , save land surface , save wild life, save atmosphere and save Environment for the interest of Tribal's as well as for the interest of humanity .

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6

Mental Disorder and Tribal Society: An Analysis of Flok Medicines and Other Healing Practices

Dr. Arpita Acharya

Abstract

Traditional medicine is the sum total of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health, as well as in the prevention, diagnosis, improvement or treatment of physical and mental illnesses (WHO). Like other traditional systems, many people of tribal culture in Tripura believe that mental illness is caused by the intrusion of a human or supernatural being, possessing special power. Many magico-religious practices can be observed in villages of north eastern state, even among the educated classes. Available scientific reports also validate the use of a number of plants by the traditional healer in tribal society, especially to treat the mental illness. Even though, these folk medicines have been found to have significant healing powers in some cases, but in most cases, if used improperly, can be dangerous to health and may delay the proper treatment. This paper is an attempt to analyze the magical as well as folk medicinal treatment practices used by some tribal cultures of our state. Theoretical analysis of past researches and literature survey was the tool for the present researcher to explore the areas of interest regarding therapy of mental illness and other culture-bound psychiatric syndrome by the traditional healers of our state with magico-religious practices as well as folk medicines. This paper also analyses the recent trend of tribal societies to adopt the modern scientific psychiatric treatment methods in lieu of traditional healing practices.

Key words: *Tribal, Mental illness, Folk medicine, Magico-religious practices, Modern psychiatric treatment.*

Indroduction

Traditional medicine is the sum total of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health, as well as in the prevention, diagnosis, improvement or treatment of physical and mental illnesses (WHO). Like other traditional systems, many people of tribal culture in Tripura believe that mental illness is caused by the intrusion of a human or supernatural being, possessing special power. Many magico-religious practices can be observed in villages of north eastern state, even among the educated classes. Available scientific reports also validate the use of a number of plants by the traditional healer in tribal society, especially to treat the mental illness. Even though, these folk medicines have been found to have significant healing powers in some cases, but in most cases, if used improperly, can be dangerous to health and may delay the proper treatment.

Objectives of the Study

- To discuss about the existing healing system of mental disorder in remote areas of Tripura.
- To know about the magico religious practices

linked with mental disorder.

- To enumerate the traditional folk medicines used in our state.
- To discuss the major culture bound syndromes and their treatment method by the traditional healers.
- To search the causes behind these scenario.
- To represent the modern treatment facilities and lackings in our state.
- To comment about the Govt. policy in helping enhancement of mental health.

Method

Theoretical analysis of past researches and literature survey was the tool for the present researcher to explore the areas of interest regarding therapy of mental illness and other culture-bound psychiatric syndrome by the traditional healers of our state with magico-religious practices as well as folk medicines.

Discussion and Analysis

According to some traditional system of belief, illness is caused by the intrusion of a human being or a supernatural, possessing special power. If someone happens to disobey a social norm or a religious taboo, he or she may call upon the wrath of a deity which manifest in form of sickness or taken as divine punishment. Similarly, mental illness in many tribal cultures is seen as penalty for not carrying out rituals linked with the adoration of ancestors. Psychosomatic diseases are treated by using magico-religious practices coupled with herbal medicines. Healers believe that the efficacy of medicine is lost, if its formulation is exposed to strangers. Tribal people consider that diseases are caused by discontentment of local deities and

hence treat them accordingly. For treating such diseases, priests or mystic-healers play a significant role. The mystic-healers explain to people the cause of disease and provide remedial advice. If the cause is any spell of an evil-spirit, the healer treats the patient with the help of hymns and supposedly drives away the spirit. Such magico-religious ceremonies can be seen in many villages of north eastern state, even among the educated classes.

The Ochai is generally the specialist in the art of magic. With the performance of magical rites he is believed to be able to cure a diseased man. At times he also plays the role of the village physician. In some cases, they call in the Ochai for the treatment of disease. After observing the diseased person, the Ochai comes to know why and how that man has fallen ill. If any evil spirit be responsible for the illness, the Ochai performs magical rites as a device of treatment to drive away the evil spirit that caused the illness. To drive away the spirit the Ochai sometimes blows over the patient with utterances of mantras which is said to be effective and curative for the ailment. Otherwise, for this purpose, the Ochai performs worship. There are some culture bound syndromes which are prominent in all over the world. The major culture bound syndrome seen several times in Tripura and adjacent places is Koro syndrome.

1.Koro Syndrome

Koro is a culture-specific syndrome in which an individual has an overpowering belief that his or her genitals (e.g., penis or female nipples) are retracting and will disappear, despite the lack of any true longstanding changes to the genitals. Tripura and north eastern regions are repeatedly attacked by koro syndrome. The epidemic rumour-driven form of koro

appeared briefly in India over several weeks in November and December of 1982 in adjacent border areas of North Bengal, Assam and Meghalaya. It was locally called jhinjhini labelled for the tingling in the fingers which can accompany panic attacks, and notable for the unusual 30% incidence of female victims with retraction of the labia or nipples. There was a massive Koro epidemic in the state in 1998 also (Nath et al, 2011). One of the authors (ANC) made a field trip to north east India recently and found that this Koro epidemic also touched the state of Tripura in December 2010. He also met Dr H.R.Phookan (2011), a researcher of 1982 Koro epidemic from Assam and he told that there were quite a few good number of Muslim Koro patients seen in Assam. He traced a link with a pocket in Bangladesh where people have frequently suffered Koro attack and they linked it with persons who visited Bangladesh from neighbouring Myanmar. In Assam it is popularly called 'Mian Syndrome' (Mian is an Urdu syntax used to address a male person as 'Mr.' in Muslim culture).

2.Treatment of Koro by Traditional Healers

Ginger and root of Arum (Arum triphyllum,locally known as Mankachu) was taken together, tied up in a piece of cloth to be worn around the waist, by a red thread.

Crushed seeds of Bottle-gourd (Lagenaria siceraria, locally known as Lau) to be worn within an armlet was also advised.

Manasa (Sijplant, belonging to the cactus family of Euphorbiagenu genus), and Basil (Ocimum basilicum, locally called Tulsi) leaves were taken together and tied up in a string at mid-arm position.

3.Masshysteria

Chowdhury, nath and chakaborti in 1993 reports an atypical hysteria epidemic in tribal village of the State of Tripura, India. Twelve persons, eight female and four male, were affected in a chain reaction within a span of ten days. The cardinal feature was an episodic trance state of 5 to 15 minutes duration with restlessness, attempts at self-injury, running away, inappropriate behaviour, and inability to identify family members, refusal of food and intermittent mimicking of animal sounds. The illness was self-limiting and showed an individual course of one to three days duration. In 2005. july A mystery disease has spawned mass hysteria in three villages in Sabroom subdivision of South (villages of Sindukpathar, Anudhan Roajapara and Jharjharia). Victims were treated by the village ojha and there was no improvement in their condition.

4.Suicide

In Tripura, in the year 2012 altogether 652 people-much more than one a day-had committed suicide as per cases registered in the police stations. The number rose to 732-that is more than two a day- in the year 2013 while it marginally came down in 2014 as altogether 652 people committed suicide that year. According to the chief minister's written reply the ratio of men and women committing suicide were 50:50.In 2013-14 three tribal students in Jiraniakhola higher secondary school near ADC headquarter at Khumlung committed suicide at home for unknown reasons

5.Treees That Are Believed to help to Enhance Mental Health

A study by M. Sharma, C. L. Sharma and J. Debbarma (2014) reveals that Tripuri tribe use different plant parts to overcome the unseen power or to drive away the spirits or any malafide force for the wellbeing of their family. They worship

tree species like Ficus religiosa , Neolamarckia cadamba and Aegle marmelos and consider them as most sacred and think that they will enhance to remain mentally healthy.

6.Protective Measures to Avoid Possession of SPIRIT

Roots from the west side of the Amaranthus palmeri plant is taken without breathing and is wrapped on a paper, then tied on waist or in hand in order to prevent any witch craft. It is usually done on Tuesday or Saturday. Thorns from the west side are taken along with the roots of Acacia nilotica Dilile (Bengali-Babla) and put on waist or in hand as tabiz.

Celosia cristata L. (Khumchak) Flower- It is used along with broom (Thysanolaema maxima Kuntze), Curcuma longa L. and Brassica juncea (L.) (Hoiro) to brush a person to remove witch's affect.

7.Medical Plants Used of Treat Mental Problems

An ethno-botanical field survey carried out by Majumdar et al. (2006) documentation of medicinal use of 33 species of flowering plants used for the treatment of various ailments in the tribal areas of Tripura was done, some of which are used to treat symptoms like mental disorder.

8.Medicinal Plants Used by the Chakma Community to Treat Psychiatric Problem

Sl.no.	Scientific name	Family Name	Local Name	Utilized part	Ailments and formulations
1	Ficus hirta	Moraceae	Thamman mental	Leaf, root gach	Insanity, Vahl disorders, memory loss.Juice obtained from macerated leaves or roots
2	Catharanthus roseus (L.) G.Don	Apocyna ceae	Badam boot	Leaf, bark,stem	Hypertension. A little amount of leaf is chewed (if excess leaf is chewed, it will lead to vomiting) and swallowed. Alternately bark or leaf with stems may be chewed and Swallowed.
3	Rauwolfia serpentina(L.) Benth.ex Kurz	Apocyna ceae	Churmang	Leaf, stem, root	Hypertension. Juice obtained from a combination of macerated leaves, stems and roots is orally taken
4	Ficus religiosa	Moraceae	Ashwoth	Fruit	Hypertension. Dried and powdered fruits are taken with water

9. Rauvolfia-Serpentina (Sarpagandha) to Treat Mental Illness Like Schizophrenia, Hypertension, Blood Presure

The roots of this plant is used to treat blood pressure, mental agitation, insomnia, sedative and as hypnotic in north east tribal Ayurvedic system (Meena et al., 2009). Ethno medical use of this plant as an antihypertensive and tranquilizer was reported by Fabricant and Farnsworth (2001). The plant is used in insomnia, high blood pressure and madness. To treat high blood pressure, Root extract is given to drink 2 to 3 times a

day by the Chakma tribe (Rahman et al., 2007).

Tripura bearing huge diversity of medicinal plant species and other resources of ethno botany may lead to a world of new source of herbal medicine. However, if the ethnobotanical information is to be valued in modern drug discovery programme, it has to be collected in more detail with respect to the information like symptoms, method of indigenous preparation, doses, source of information, route of administration and the final outcome of the treatment9. Further research is required in large scale to find ethno medicinal uses of medicinal plants, their active constituents and revalidation of uses through clinical analysis.

Although over 100 countries have regulations on folk medicines there are still some risks associated with the use of them, especially when they are used without supervision. It is often assumed that because the medicines are herbal or natural, that they are completely safe, but one type of folk medicine commonly used with Ayurvedic medicine is Rasa Shastra which involves the use of dangerously toxic heavy metals in herbal remedies.

10.Reason for Using Such Type of Treatment The reason of the huge practice of folk medicines in tribal villages of north east India can be as explained as below:

✸ Some parts of northeast are inaccessible due to poor communication. So, modern treatment facility is un known to them

✸ Folk practice is the diverse health practices which are non-codified and transmit one generation to other generation.

✸ These type of medicine is easily available, affordable

and acceptable to them and it exists in all the villages.

✸ Represents autonomous, decentralized People Health Culture.

✸ Generally relies on local resources (flora, fauna, and minerals).

11. Some Drawbacks of Using the Traditional Medicines are :

- ✸ No intensive research and development has done or the concerned researches are not well organized.
- ✸ There are major imitations to handle emergency cases.
- ✸ The method of treatment is not streamlined.
- ✸ There is a mixture of natural medicine, superstition and religion.
- ✸ Little support & promotive work has been given to proper and scientific research.
- ✸ Unrecognized or face condemnation by modern health care providers.
- ✸ No or very little recognition in plan and policies.
- ✸ May be fatal if not used properly or dosage is in correct.
- ✸ Delay proper treatment and worsen the case.
- ✸ Promote superstition in society due to misinter pretation and combination of folk medicines with religious or supernatural prejudices.

12. Modern Trends

In recent years, the Debbarma clan members have started to prefer allopathic system more than their traditional medicinal system. In our state educational status is higher than any other states of India. This change has given a positive trend to

the modern generation tribal youths to think more rationally about the mental disorders and they now prefer to take the modern facilities available in psychiatric clinics.

13. Present Scenario of Mental Health Services in North

Number of Patients with mental disorder and proportionate availability of Psychiatrist, Psychiatric Nurses and Social Workers etc.

S.No	State (1)	Population (2)	Density/ Sq Km (3)	Estimated case load (4)		Existing facilities Hospital beds (5)		Manpower resources (6)												
								Psychiatrists			Clinical psychologists			Psy. social workers			Psychiatric nurses		
				Major mental disorders	Minor mental disorders	Govt. sector	Pvt. sector	Available	Ideal req.	Deficit	Available	Ideal req.	Deficit	Available	Ideal req.	Deficit	Available	Ideal req.	Deficit
1	Arunachal Pradesh	1091117	13	10911	54555	10	-	1	10	9	-	15	15	-	20	20	-	1	1
2	Assam	26638407	340	266384	1331720	500	-	29	266	237	5	450	445	1	564	563	1	50	49
3	Manipur	2388634	107	23886	119430	10	-	6	24	18	1	36	35	2	48	46	-	1	1
4	Meghalaya	2306069	103	23060	115300	70	-	5	23	18	-	35	35	-	46	46	2	7	5
5	Mizoram	891058	93	8910	44550	14	-	4	9	5	1	13	12	1	18	17	2	2	-
6	Nagaland	1988636	120	19886	99430	25	-	5	20	15	-	30	30	-	40	40	1	3	2
7	Sikkim	540493	78	5404	27020	20	12	2	5	3	-	7	7	-	10	10	-	3	3
8	Tripura	3191168	304	31911	159555	16	-	9	31	22	-	45	45	-	62	62	-	2	2

Source: Rajya Sabha Unstarred Question No. 4439 dated 7 May 2013

14. Regional Institute of Medical Sciences, Imphal (3-Year Retrospective Study 2007-2010) In Psychiatry Department:

A 3 year retrospective study was conducted on the psychiatry deptt of RIMS. Result reveals some important features:

" Admission rates were reported to be higher for males.

- Admission rates peaked in those aged 25-44 for males and 35-44 years for females.
- The Psychiatric unit of the hospital has 30 inpatient beds (15 each for both genders).
- Maximum of the patients were admitted for al cohol dependence syndrome which was maximal in the male patients.

- Next came dissociative disorder and this was more in the female patients.
- Psychosis NOS and BPAD followed the above two psychoses, while the former was more in the males the latter was found to be more in the females.

15. Psychiatric Services and Problems in Tripura

- TRIPURA MEDICAL COLLEGE - 10 inpatient beds, 02 Psychiatrists
- AGMC- 30 inpatient beds, 3 psychiatrists.
- MODERN PSYCHIATRIC HOSPITAL, NARSINGARH- 120 inpatient beds, 3 psychiatrists.
- 4 DDRCs ARE THERE - In Gomati, Dhalai, Unokoti and West District.
- NRHM progammes are running successfully.

The psychiatry unit of Agartala Medical College suffers from several problems, as mentioned by medical council of India.Considering the Assessment Report (May, 2014), Medical Council of India pointed out some deficiencies in MD (Psychiatry) department and derecognized the course. Professor and HOD is honorary, which is not permissible as per regulations;There is no Asso. Prof in the only Unit; Average daily OPD is only 20; Specialty clinic like Substance Abuse clinic are not running. There are no publications from the department in indexed journals in last 3 years. Facilities for Chronic Psychiatric Care are not available. Occupational Therapy & Recreational Therapy are not available and Other deficiencies as pointed out in the Assessment Report.

16. Promotion of Mental Health and Budget 2015

Budget 2015 has several loopholes which will create

problem in promotion of mental health awareness and treatment programmes, directly or indirectly. Mental health enhancement is closely related with education of children and women, especially in rural areas. The shortcomings which may effect adversely the mental health enhancement programme in tribal and rural areas can be enumerated as below:

- There is a huge shortfall in allocations for the Tribal Sub-Plan - 5.5 per cent instead of the mandated 8.2 per cent (less by Rs. 5,000 crore compared to last year). For SCs it is 8.34 per cent instead of the mandated 17 per cent (less by Rs. 12,000 crore). Even in absolute nominal terms these allocations have been cut. The Gender Budget too has been severely cut by 20 per cent (less by Rs. 20,000 crore). The ICDS programme has been halved from over Rs. 16,000 crores to Rs. 8,000 crores only.
- No allocation to the National Mental Health programme, which is the only programme that has components for community mental health,
- Expenditure reduced for ICDS, SSM, education and other social sectors.

Conclusion

From the above discussion and analysis it can be concluded that, Traditional medicine and its healing practices is about as old as written human history. Folk medicine is practiced by mostly indigenous or native populations around the world. There are many types of alternative or folk medicine practitioners among the tribal community of NE India. Mental disorders are treated in tribal villages with magico religious practices or these practices punched with folk medicines. Most of the time, folk medicine is based on remedies found in nature. Traditional and complementary or alternative medicine provides an important health care service to persons both with and without geographic or financial access to allopathic medicine. The studies carried out by different researchers not only bring into limelight various techniques and methods opted by people for getting rid of disease, but also focus on their traditional wisdom and skills. But use of folk medicine may bring some fatal adverse effects if not properly and scientifically used. Also as those medicines are used with supernatural practices it enhance the superstition in society, especially about the mentally ill because psychiatric illness is generally represented by them as caused by the intrusion of a human being or a supernatural, possessing special power. If someone happens to disobey asocial norm or a religious taboo, he or she may call upon the wrath of a deity which manifest in form of sickness or taken as divine punishment. With the advancement of society this type of treatment should be substituted by modern treatment method. The facility available in our state is not so advanced but also not very much lagged behind. The main thing necessary is promoting consciousness and also research and implementation of programmes by the experts more properly and with dedication. The budget 2015 has some lacking which may create problem in enhancement of mental health awareness programmes in rural areas, especially the tribal communities of the NE India.

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7

User Friendly Relation of Tribal With Forest : A Special Reference to Magh Community of Tripura

Asmita Choudhuri

Abstract

Magh community in Tripura is the scheduled tribe among 19 tribes approved by the government of India who used to live hill tracts of Tripura. This paper tries to relate Magh community with the forest of Tripura by virtue of their ethnic originality. Special emphasized is drawn on medicinal plants,eatable vegetables and their life style with the relation of forest products and how much they use them for their survival and living against many diseas even in this modern technological period. This study based on grass root situation,except the mention juming cultivation in Tripura by Magh community which is known to all.

Introduction

Livelihood of Mog Community of Tripura have always been significantly independent alike other Tribes of Tripura. They only dependants on the natural forests, as forests are supplementing their all necessities and the forest products always help them in their needs.

Every society has evolved its own method of treatment for cure of their ailments. It is noticed that till modern age the

Moghs cure their ailments by using herbal plants collected from the forests and jungles. They have utilised their close relationship with the nature through acquiring unique knowledge about the use of wild herbal plants. Even to-day most of them incline to the primitive faith of Herbal Medicinal process.

Since ancient period Mogs also were/are closely related with the forest and forest products. The person who prescribes the forest products/plants as medicine to use in ailments was known as "Chhisama" or "Baidya".

In modern age Moghs who are used to reside in urban area are less using forest plants as medicine but about 60% of its population who live in rural areas till date are using forest Plants as medicine for curing their ailments.

Till early period of 20th Century medicinal plants were produced through Jhuming but now a day's these are produced in kitchen garden of their dwelling houses.

Methods of the Study

Observation and personal interview made by myself in Ambassa (Kulai) area in 25 houses. Also some secondary sources on the topic are followed for the in-depth study. The time or period of research work was November 2014.

Aims and Objects

My aim was to know about their ayurvedic or ancient medical system and also I want to know how much the Magh community depends on this system now days.

Findings

1. Still now 60% of Magh community residing at village lable are using medicinal plants to cure their disease.
2. Most of the community used some leaves and herbs in their daily food.

3. Now days they produce medicinal plants in their homes.

Use of Forest Products as Medicine

Here we describe the medical or medicinal use of forest products or plants by Mog Community.

1. Kool Barai tree:- a quantity of fried sunned rice poured in some quantity of drinking water for soaking. Thereafter smashed bark of koolbarai tree mixer with that water and diped a hot iron rod in it. After preparation of this medicine they apply it orally for curing the vomiting, headache and loose motion.

2. Leaf of sheuli tree (one type of flower):- fever is treated by a mixture of Sheuli leaf, salt and water.

3. Marsy Tree:- to prepare medicine for tooth pain Mogs used the leaf,roots and bark of Marshy tree. These items are boiled together in water and rinsing the mouth by gargling with this timid hot water.

4. Various trees:- mixture of leafs of Marsy, Paingyo, Sagra, Paing, Sungehhar, Naga Paingyo, Arahara, Nutmeg, Pakhyangdeny, cuminseed and prepare globul. After taking food two globules used thrice in a day for getting relief from gout or rheumatism.

5. Duk Pui :- Root act as an inducer of vomiting. Leaves juice is used in diarrhoea and in indigestion.

6. Kanta Negeshwar:- Fruits are eaten as raw or with dry fish to take preventive measure against measles and small pox.

7. Chatakra :- fruit is used in breathing trouble and asthma.

Various treatments by using forest products

1. Treatment for bone fracture:- both compound and simple bone fractures can be treated well by some Mog Baidays who collect leaves of particular medicinal plants which are not

known to common people. After collection Khamangee (one type of medicine tree) tree and other medicinal plants and they mixed the ingredients to make a paste and apply the past in broken part, the broken part is tightly fastened by cloth, they also boiled these plants together and drink it as medicine for bone fracture.

Kowine rice is also used as the medicine of pain relief.

2. Treatment for diabetic patient:- leafs of Red china rose, Sheuli (one type of flower) flower, salt and variety of cumin seed are boiled together in water and the juice is taken to cure diabetics.

3. Pneumonia (Nayabi) :- Roots, leafs and barks of Arhar tree(one type of vegetable tree), variety of cumin seed, roots of kata mariya tree are boiled together with water is taken to cure Pneumonia.

4. Treatment of Cancer:- Mixture of bark of Thana tree (one type of medicine tree),clove and roots of ladies finger and urine of black cow are used for Cancer treatment.

5. Treatment for Headache:- Leafs, bark roots of Marmelos fruit tree and marmelos fruit powder with verity of cumin seeds are mixed together and use as a medicine of Headache.

6. Process of treatment through hot fomentation:- leaves of "Akanda", "Dhutura", "Bishkachu" (herbal plants of forest) are used as hot fomentation in pain of gout or rheumatic and pain of bone which is popular process of treatment in Bengali and in other communities of Eastern part of India.

7. Medicine for pain in the abdomen:- yochi (a kind of tree produced in forest) chhi kaming, Sammapongiyo (a general medicinal tree for all kind of diseases) Nutmeg, red sandalwood, white sandalwood are mixed together after perfectly

grinding and they take it as medicine with water.

Other Uses of Forest Products

1. Hair colouring:- they used the mixture of Chengshi (a kind of medicinal fruit), myrobalan, roots of agnishita tree, bark of reming tree and leafs of moukhalang tree for colouring their hair.

2. Hair wash:- they use the extract of Til (Sesamum) leaves for washing their hair.

3. Food system:- Mogs used various types of medicinal plants as food. They cultivate these plants at home or jume. They also collect various types of medicinal plants from various water lands.

Kajashe leaf and roots are very useful in zandish.

4. Various use of forest produces: according to Mogs faith water of snail is very use for eye diseases. The baby who are suffering from abnormal growth or obstruction of growth in these cases snail used as food which help in normal growth of body. It is believed that if Kuichhya (a kind of fish) fish is feeded to the paitcint of Anaemia then it help them cure and increase of blood. The blood of " Kuichhya" fish is used in the baldhead for the purpose of growing new hair. Boiled mixture of "egafeh" fish grinding raw turmeric, black paper, ginger, onion to be used in curing measles and small pox.

Apart that they apply an ointment made of young leaves of "achunai"(a kind of tree produced in forest) young leaves of "paingbreeh"(a short of arum) "thong"(lime) and dust of sunhemp they apply juice of leaves of "rowwykyapangbh"(a kind of medicinal herb "patherkuchi") in burnt wounded and pettycut they apply rubbed elephant tusk or conch upon abscess. They apply timid for solution of raw turmeric for two or three days in wounded caused by be-strained or pain in bone.

In ancient time Mog physician treated the place of pain through needle after dipping in liquid medicine.

Conclusion

Under the premises it is evident that due to gradual onward change of Socio-economic and political situation people of the Mogh Community also struggling to survive as a community and now participating in every socio-economic and political events. Due to development of medical science gradually they also incline to treat their ailments through modern system of treatment in spite of primitive systems of treatment.

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8

Role of Education and Forest Resource Management in Tripura

Dipankar Pal

Abstract

Natural forest is an important resource and constitutes a balanced man-environment relationship. Forests provide renewable natural resource and contribute considerably to the economic development of the nation. Tripura is a multi-ethnic and multi-lingual state with rich natural resource. The tribal communities of Tripura live in scattered habitations located in interior remote and inaccessible hilly and forest areas. Forests cherished their home through generations. They have had an integral and close knit relationship with the forest resource and have been dependent on the forests for their livelihood and existence. But, in recent year, it has become much harder for forest dependent people to use local forest resources and their products owing to deforestation, increase of population growth, industrialization, and legal initiatives such as declaration of state forest, national park or wildlife resources. As a result, the bio-physical environment is being degraded. So protection and conservation of the forest resources are essential for the survival and balanced ecosystem. Management of natural resources is influenced by environmental legislation, ethics and education. Present study is designed especially to assess the role of education in generation of awareness about forest resource among the remote tribal people. Education is a powerful strength of implementing the goals of protection of forest resource and equips human beings with attitudes, knowledge, skills, awareness and commitment to improve forest environment in Tripura. The role of education is associated with community forest management, which refers to protect the forest resource by the tribal people of Tripura.

Key Words: *Forest resource, Management, Educational role.*

Introduction

Tripura is a hilly state situated in the North-Eastern region of the country. Tripura is blessed with natural resources like nutrient rich soils, temperate climate, lush green forests with rich flora and fauna, abundant natural gas, rubber, tea and bamboo resources. In Tripura, an area of 6293 sq. km or about 59.98% of the geographical area is under forest. Here, about nineteen different tribal groups with their linguistic variety live in the hilly region most particularly and plain as well. The forest helps recharge of ground water, checks soil erosion, supply timbers, and various other minor forest products and also helps to maintain biodiversity. Tribal communities are mainly the forest dwellers who have accumulated a rich knowledge on the uses of various forests products over the countries. The cave-dwellers of the pre-historic days had little needs to be satisfied and so they exerted little pressure on environment. With the advancement of civilization and modernization, particularly with the rise of population, man's need increased and the exploitation of nature intensified to a greater extent.

Forest Resource

The term 'resource' means anything that we use from our environment to achieve our objectives. A resource can be defined as any natural or artificial substance, energy, organism, which is used by human beings for its welfare. Natural resources are materials and components that can be found within the environment. Originally, forest is uncultivated and unoccupied village boundary consisting of natural plants, which support ecosystems. So, the forest resource refers to a term that is associated with the resources which are found in a forest. Forestry is a significant rural industry. Tripura offers great opportunities for investment in natural resource based on industries as well as in service sector ventures.

Need for Management of Forest Resources

Forest management is a process to improve the relationship between man and forest resource. In the decades of 1970s, there emerged a concern about the fear of depletion of forest resources. Unwise and over-exploitation of ecological resources and destruction of natural habitats lead to environmental degradation and pollution. Thus natural ecosystems became disturbed and destabilized. Consequently, a need for proper management of forest resources was emphasized and thus it became necessary, to pay more and more attention to the various aspects of forest resources.

Role of Education

This paper is an endeavor to carry out the role of education in preserving the forest resources. The Education has been acknowledged as one of the key inputs for balanced socio-economic development. It is the most important crucial input for empowering people with skills and knowledge. Majority of the

tribal people in Tripura live in the far flung backward areas. Education should allow students to reach their fullest potential in terms of cognitive, emotional and creative capacities. Increase of literacy rate among the tribal communities as the indicator of quality, but do not show a remarkable improvement. Tribal education in Tripura should extend beyond literacy. The situation of tribal education is related to the quality of education in general. The problems are not due to their ethnic background but to other inter-related issues. So, the education must promote socially relevant education programs with economically viable options for life which meet the tribal's need to employable.

Objectives of the Study

1. To assess the importance of education in creating awareness about forest resources.

2. To reduce dependence of local people on forest & forest products.

3. To create better livelihood opportunities through the forestry education.

Methodology

To deal with the issues, the paper based upon appropriate secondary sources in collecting data.

Area of Study

The present study was carried out in Tripura. The research work took a period of one month.

Secondary Data

The secondary data collected from Department of statistics, Department of School and Higher Education, Web articles and various books and journals.

Facts and Observation Let us look at the ground realities of tribal education In Tripura. At present 31% of the total

population are belong to scheduled tribe community. The following tables depict the educational development of the tribal population are increasing gradually.

Table : 1 Literacy Rate Among Scheduled Tribes

Sl. No	state	1961	1971	1981	1991	2001	2009-10(Rural)
1	Tripura	10.01	15.03	23.03	40.37	56.5	78.5
2	Manipur	27.25	27.18	39.44	53.63	65.85	84.9
3	Nagaland	14.76	24.01	40.32	60.59	66	92.2
4	Bihar	7.82	7.82	16.99	18.90	28.17	57.0
5	West Bengal	6.55	8.92	8.92	27.78	43.40	65.8
6	Andhra Pradesh	4.41	5.34	7.82	34.40	49.06	48.3

Source: Economics review of Tripura & Statistical Abstract

The literacy figures among the tribal populations of North-Eastern states of India are, however, very high compared to their counterparts in other parts of the country. The figure shows that the improvement of tribal population in literacy increasing gradually in Tripura.

Table : 2 Number of the Scheduled Tribe Students in College Level

Year	NO. of Students		
	Boys	Girls	Total
2006-07	1802	1332	3134
2007-08	1928	1627	3555
2008-09	3075	2313	5388
2009-10	2366	1832	4198
2010-11	3063	1976	5039

Source: Statistical Abstract of Tripura

The above data indicate that enrolment of schedule tribe category students has been increasing from 3134 in 2006-07 to 5039 in 2010-11. The proportion of girls' enrolment in the total ST enrolment increased from1332 in 2006-07 to 1976 in 2010-11. From this table, it may be stated that there is a good sign that girls' enrolment in the college level has been increasing rapidly

Table :3 Number of ST. Students In Different Levels of Education in Tripura

Variation of level of Education	2006- 2007	2007- 2008	2008-2009	2009-2010
Primary	202510	195657	199153	195686
Senior Basic School	64435	66893	71629	70854
High School	25180	27675	NA	33482
H.S School	6230	10222	NA	9795
Graduation	3134	3555	5388	4198
Post Graduate	277	310	331	249

Source: Directorate of School & Higher education, Government of Tripura.

From the table, It appears that out of 1,95,86 students in primary section in 2009-10, only 4198 students stay in higher education at the graduation level. At the post Graduate level in 2009-2010, we found only 249 students. The percentage of enrolment in post Graduate level was very poor.

Table :4 Comparative Literacy Rate of ST & Total Population Percent in India

Category /Census year	**1961**	**1971**	**1981**	**1991**	**2001**	**2011**
Total Population	28.3	34.45	43.57	52.21	64.84	72.99
Scheduled Tribes	8.53	11.30	16.35	29.60	47.10	58.96
GAP	19.77	18.15	19.88	22.61	18.28	14.03

Source: Census of India- 2011

The above data indicate that, for the scheduled Tribes population in India, the literacy rate has increased 8.53% in 1961 to 58.96% in 2011 for Scheduled Tribes while the corresponding increase of the total population was from 28.30% in 1961 to 77.99% in 2011. Literacy rate increased by 11.86% points from 2001 to 2011 for Scheduled Tribes & 8.15% points for total population during the same period.

Now, it is well known fact that along with other sections numbers of ST students are increasing every year in the different levels of education. It is mainly due to massive effort provided by the state government. If the growth rate in school education is to be retained in higher education, a planned financial and other supports have to be extended.

Forest Resource Management and Education

The National Policy of Education-renewed in 1992- 'There is a paramount need to create consciousness of the environment and it must permeate all ages and all sections of society, beginning with the child'. Article 51 A of part IV A of the Indian constitution has laid down the fundamental duties to protect and improve the natural resources including forest, lakes, rivers, wildlife and to have compassion for the living creatures. Forest is considered as an important part of our cultural heritage. Thus the constitutional amendment has been made for it protection.

Forest resource management is a process to improve the relationship between man and forest area, so that the quality of both, the forest and hill society may be improved. This improvement of relationships may be achieved through check on destruction activities of man, conservation, protection, regulation and regeneration of nature. Forest resource management involves socio-economic development of the society on the

one hand, and enhances the quality of forest area on the other hand. Land and forest resources are the traditional rights and livelihood identity of the tribes of India. Due to several reasons these customary rights are denied for many decades. The land and property right thus ultimately has been conferred to tribes under RFR Act, 2006 for promoting sustainable development with dignity and equality. In the light of economic development for the state by quality education, due importance is to be given in Tripura to educate people especially forest dependent poor people to maintain quality forest and perfect biodiversity. The best way is that people dependent on forest is to be provided with alternative to reduce pressure on forests.

Forest resource management strategies of Tripura at present include following programs:

- Forest protection and conservation projects,
- Management of forests through peoples participation,
- Formation of Joint Forest Management Committees,
- Angan Bana Prakalpa,
- Rehabilitation of Jhumia families,
- Creation of livelihood opportunity through sustainable use and resources,
- Restoration through protection of ecosystems and strengthening of infrastructures,
- Expanding forest cover and increasing productivity,
- Tripura-Japan International corporation Agency (JICA) project,
- Indo-German Development Cooperation project,
- Training and capacity building and skill up gradation programs.
- Education and awareness programs to all section of people.

Importance of Education

Effective implementation of Forest Resource Management and conservation depends on Education, awareness raising and training in the relevant areas. Forest Resource Management is influenced by the three inter-woven factors such as environmental legislation, ethics and education.

Role of the Teachers and School

Teachers play a crucial role in forming, changing and establishing attitudes and values that are important for environmentally responsible behavior. Education for the forest resource management is intended to enhance values, ethics, problem-solving skills and action. The most recent developments are the introduction of Environmental studies (EVS) as compulsory course for all the levels of education after the intervention of Supreme Court. A new approach address to environmental issue at school is the Eco-club and science club scheme that aims to bring NGO'S more closely to the school system. The educational institution can help the child to learn new skills and learn to interact with people of different social backgrounds. Awareness programs like, trainings, workshops, and seminars can be organized throughout the year.

Role of Mass Media

Mass media play an important role in imparting education for the economic development as well as social emancipation. As far as environmental education outside the educational establishments is concerned mass media like newspaper, radio, television and traditional media like family, friends, neighbors, relatives and colleagues have the important role in enhancing forest resource awareness among the forest dependent people through Non-formal education. The environmental issues tackled in media are realized and reflected by viewers, readers, listeners at least to some extent.

Role of Community

The contributions of community can be taken in the following areas:

- Sharing knowledge and information, and partici pating in activities related to forest resource im provement,
- Creating awareness among the forest dependent people for the protection of forest resource,
- Celebrating festivals, observing international and national days and extending support to nature club, fairs, cultural and social activities.

Role of Non-Governmental Agencies

Non-Governmental organizations can play very important role in forest resource management. They have the advantages of being in direct contact with the masses. They can communicate with people in their own languages and dialect. They create awareness among the public on current natural issues and solutions. The organizations have been protecting the natural resources and entrusting equitable use of resource and also transforming information through news letter, brochures, articles, audio-visual aids.

Role of Volunary Organazation

Voluntary organizations shall have to play a very important role in our country in creating mass awareness towards forest resources. They have to make people aware of the natural problems, which are caused due to neglect & uncontrolled exploitation of natural resources.

Role of Parents

The role of parents in forest resource management is very important. Their basic role is to provide help and support to in-

stitutions in activities involving both teachers and students. Some of the areas can be identified for interaction among schools, communities and other organizations to enhance their awareness about forest protection.

Government Intiatives

The government of India has taken measures to improve the socio-economic conditions of the tribal communities including education. The state govt. has been attached highest priority to education since it attained the statehood in 1972.The right of children to free & compulsory Education Act, 2009 has come into effect from April, 2010 to provide free and compulsory education to children in the age group of 6-14 year. Primary education is successfully covered under Sarva Shiksha Abhiyan and Mid-day meal schemes in the state. The secondary education is covered through Rashtriya Madhyamik Shiksha Abhiyan. In the field of higher and technical education special provision such as reservation of seats, remedial coaching, scholarships and other facilities are being extended by the department of higher education.

Conclusion

We have to take care of our forest resources and manage them wisely not only to assure that future generations will be able to live sustainably, but also reduce the risks that natural and manmade hazards pose to living today. It is now widely accepted that govt. alone can't ensure that forests resources are sustainably managed; instead of the local communities have greater role to play, participate and lead the forestry activities in the state with the government donning the role of only a facilitator. So, Education as an essential means of improving tribal communities residing in forest areas with the knowledge, values, skills and self-confidence necessary to fully participate in the forest resource management.

Suggestions

- The director of employment & training may provide effective career guidance service to the tribal students for their better livelihood,
- Tribal welfare department may design and launch new programs to generate employment opportunities for forest dependent people,
- The forest depended people of forest areas shall be employed by the govt. in the expansion & protection of forest resources till their descendants get educated & diversify into industrial and service sectors.
- Forestry education can be inculcated in the all courses of education.

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9

Relationship of Tribal Culture with the Forest Resources of Tripura : A Study

Dr. Jyotirmoy Sharma

Abstract

Forest is one of the powerful resource of livelihood if treated rationally. The distinctive feature of the North-East region of India is the variety and ampleness of natural wealth. Tripura is a land of mixed culture in which the characteristics of the traditional culture of the tribes has an exceptional part. It needs no mention that the tribal culture is based on the spirit of the divinity, present in the forests of Tripura. At the same time it is also widely felt that the forests are really endangered. The process of development, especially urbanisation, is one of the challenges to the survival of the forests. It is true that to march towards the changes for betterment is the pre-condition for the advancement of civilisation. However, the detrimental effects of urbanisation are in position for threatening the culture. Still there is a felt need for preserving the core of a rich tradition by conserving the forest as far as practicable. For this, simple awareness against unnecessary destruction of nature in the name of modernity is the main concern of the present situation. A successful end of this venture, thus, demands a good understanding of the core of the rich tribal culture. For this purpose the present paper tries to maintain the main urge of the culture.

Keywords: *Forest resource, Traditional culture, Urbanisation, Modernity.*

Introduction

Civilization is passing through different phases of development which are apparently the phases of proceeding towards a life better than the past. Development has two sides like internal and external and without the former, the later cannot sustain. Any discussion in the realm of social science targets to identify the effective factors for a sustainable development of human race and its surroundings. It is true that human being would have not been on the earth if not cared by the nature. Men learnt, but the study materials were all around. It is not prestigious to remember that human beings started to forget this truth for a passion to modernity. It is also true that almost all the endeavours of human life, aims at the freedom from primitiveness. So to be modern means to be developed. But the basic need in this respect is to feel the actual meaning of development. To be more clear, it is necessary to be developed internally. This sort of development can really be a means for nurturing the culture as such. Though culture is expressed through activities still it is an inbuilt capacity of retaining the values inside. For this reason, the internal development is much more important for achieving anything effective in life. A realisation of the need of forests for maintaining the basic characteristics of the tribal culture of Tripura is the key to the security of the culture.

Objectives

In a view of reassessing the actual relation of culture with

the natural phenomena, the objectives of this study are

1) To identify some aspects of life of the tribal population those are keenly related to the forest.

2) To remind the unchanged role of the natural products in maintaining smooth living.

3) To ensure the realisation for the need of successful combination of technological facilities and natural simplicity.

Methodology:-This paper is purely based on secondary data and for this purpose different books have been consulted from different libraries available in the city. It may also be mention that for partial fulfilment of this study a number of museums have also been visited by the present researcher. So observation method was adopted for achieving at the desired end. For this study near about one month is spent.

Observation: - Tripura is gifted with natural beauty, natural wealth, moderate weather, almost sufficient rainfall etc. In a sense, environmental pollution is not an acute problem in this state. It is fact that one of the reasons of this condition is absence of chemical factories, but still the role of forests of Tripura in maintaining environmental balance to a moderate level is not negligible. The tribal of Tripura are related to its forests in various ways for their livelihood. These may be viewed from some important angles that can be discussed as mentioned here-

a) Forest: A Source of Medicine The tribes all over the world are efficient in keeping the forest in its best condition and also getting the best out of it. In Tripura, the tribes have a long history of using the forest products as medicines. These medicines are the gifts of nature for the tribal of this state because these herbs really can save lives from various critical health hazards. The process of scientific researches and com-

mercial productions of these medicinal resources are being started recently (Debbarma, 2006). There are about 227 medicinal plants recognised by Indian Pharmaceutical Codex. C.S.I.R. has started cultivation of Dioscorea flouribanda (chupri alu) in the Sepahijala area. Collection of wild medicinal plants or cultivation of those medicinal plants which have a good demand in the market will open new avenues for increasing the income of the local people (Chakraborty, 1985).

b) Forest: A Field of Cultivation The tribal of Tripura maintain a specific process of preparing the field for cultivation of food grains and vegetables which is known as Jhum cultivation. They use the slopes of the hills of the forest for plantation and more the land fertile by burning the dry plants of the area. Thus they produce their food with the help of a natural process (Gan - Chaudhuri, 2006).

c) Forest: A Stream of Joy Forest is source of joy to the tribal of Tripura. They observe almost each and every event of harvest by enjoying dance and song. The tribal are very efficient in colourful group dances like- Lebang Bumani, Mamita, Mikataal (Chakraborty, 2010). All these are the expression of bliss and joy of success, fulfilment and satisfaction which they enjoy in the name of forest.

d) Forest: An Inspiration of Rituals Forest are full of natural products like flowers, paddy, turmeric, different kinds of leaves, grasses. The tribal of this state have formed various rituals related to the use of such natural products. The Garia Puja is one of such occasion which is observed in connection with harvest festival (Debbarma, 2006). They use mainly bamboo and other leaves for preparing the pandal for marriage (Debbarma, 1995). They like to relate natural products with

almost every event of life.

e) Forest: An Ingredient of Musical Instrument It is very important and interesting to note that various types of musical instruments, which bears the exceptional characteristics of aboriginal culture are mainly made of bamboo and wood. Mention may be made of Kham(drum), Sumu(flute), Sarinda, Changphreng,Dangdu(mouth organ), Taktuitreng as some traditional musical instruments of tribal culture (Debbarma,2006). So forests play a vital role in maintaining Tribal culture of Tripura.

All these points mentioned here are considered as the traditional culture of the tribal of Tripura. There are nineteen tribal residing in Tripura. They have difference in lifestyle, approach to life, ceremonies, rituals, food habits and so on. But at the core, they are similar in keeping relation to the forests (Sharma & Sharma, 2005).

Findings

The discussion started with the motto to research the key to the strengthening factor for the inter-dependent relation between the forest and the tribal culture. It is necessary because the detrimental effects of urbanisation as well as modernity are in position for threatening the culture. It really makes anxious when a rich tradition starts losing its tight bond from its root. Modern life style demands easy and quick approach to comforts. This urge tends one to left behind the lengthy and laborious process of any creation when quick remedies are ready in hand. For example, necessity of searching herbs for making medicine is minimised as there are medicines available in the market and developed transport system enables to communicate with the markets whenever necessary. Thus the process of nurturing those herbs also becomes less

important. The same are the condition regarding all other basic systems and cultures maintained by the tribal so far. The main tune of this discussion, of course, does not go against the technological development which is very much essential for our civilisation. The basic point is that whether it favours the sustainability which preserves the welfare of the future generation.

Conclusion

It is not the intention of this paper to highlight the point that all the fields of the tribal culture should be retained as its ancient form. There are points against Jhum cultivation system as it is also a process of destroying forest to some extent. It is being told that out of such a consciousness, the Reang community worships God BURATHA and Goddess HAICHHUKMA before making fire in the forest for Jhum (Debbarma, 2006). In fact culture, in real sense, is a balance between the existent and the new one. In this particular field there is no hard and fast and general rule to be followed. For this reason culture demands inner urge of human beings for its security as culture is the real security tool for human beings. Tribal culture tries to follow the sanction of nature for its development and retention. Still at present there are strong pressures of modern trend of lustre, in name of cultural activities, which don't need any touch of nature. As a silent protest against any distraction of tribal culture, the owners of it may provide the scope by conserving forest to their best from their heart. This is the main urge of culture. Rabindranath Tagore once told like this 'you may change my name and provide me a hut here. I shall spend the rest of my life enjoying the nature' (Chowdhury, 2008).

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10

Blue Green Algae Use as a Biofertilizer

Dr. Srabanika Bardhan

Abstract

The present communication deals with the blue green algal flora of West District of Tripura. The survey comprises 20 blue green algae belonging to Cyanophyceae. Describe the use of blue green algae as an alternative source to the synthetic nitrogen fertilizers. In cropping system, nitrogen is the most common limiting nutrient needed to increase agricultural production. This nitrogen can be obtained at high cost from commercial fertilizer or at very low cost through biological nitrogen fixation by blue green algae, which is also protect the environmental pollution. Blue green algae as a biofertiliser can minimize the ecological disturbance. They are cost effective, ecofriendly and when they are required in bulk can be generated at the farm itself. The other plus point is that after using 3-4 years continuously there is no need of application of biofertilizers because parental inoculums are sufficient for growth and multiplication. The addition of nitrogen fixing blue green algae,as a biofertilizer, to paddy fields,is a prerequisite for the improve yield and continued high standard of rice cultivation at Tripura.

Biofertilizers can protect the natural atmosphere without any pollution. These are harmless and eco-friendly low cost input supplementary to chemical fertilizers which can also save the ecological and economical condition of tribal communities.

Introduction

Algae are weeds that are autotrophic in nature. These weeds exist in both, multicellur & unicellular forms. The term algae means ' Seaweeds' in Latin. This plant has been prominently been used for various purposes in many SouthEast Asian Countries. Modern technology has also made the derivation of many different substance from algae like most other plants.

Algae is one of the best example of putting eco- friendly resources to use as none of the products derived from algae are considered to be pollutants. Many products of algae can be used to curb pollution. Algae can also be used to treat sewage & is an excellent alternative for chemical fertilizers. It can be used to curb & arrest the toxic chemicals that are present in water bodies. It is also the ideal substitute for chemical dyes and pigments. In many industries algae bioreactors are used to curb the emission of carbon & carbon compounds.

The microscopic green plants cleaned up the earth's atmosphere millions of years ago & scientists hope they can do it now by helping remove green house gases & create new oil reserves.

In the present work the effects of some blue green algae as a nitrogen fixer in the rice fields are discussed. Blue green algae (BGA) can easily fix nitrogen due to the presence of specialized cells called Heterocyst (large, thick walled & metabolically in active cells), which depends on vegetative cells for energy to fix nitrogen while the fixed nitrogen is utilized

by the vegetative cells for growth & development. BGA are very common in the rice fields. If no chemical fertilizers are added, inoculation of the algae can increase the crop production. The BGA are not inhibited by the presence of chemical fertilizers.

On the other hand, presence of inorganic minerals (Super phosphate) accelerates their growth. They are easy to produce & mass produced in cement tanks filled with fresh water. Since they are not require any processing, they are quite cheap.

Examples of some algal bio fertilizers are Anabaena, Nostoc , Oscillatoria & Microcystis (which grow at Tripura in large scale) which have proved beneficial in the case of certain crops like rice, vegetables etc.

If we utilize BGA as an ideal fertilizer & this can solve the problem of acute shortage of fertilizer in the country. Nitrogen is one of the most essential fertilizers for crop plant. Though it constitute 70% of our atmosphere, the crop plants are unable to exploit it directly from the nature. BGA can absorb it easily and increase the soil fertility in natural way. To support crop production the fertilizer consumption has increased to many folds. Many tones of chemical fertilizers consumed per year which make country self dependent in food production but it detorate environment & cause harmful impacts on living beings. These fertilizers easily reach into water bodies through rain water, which effect the living beings including growth inhabiting microorganisms. The excess uses of chemical fertilizers in agriculture are costly and also have various adverse effects on soils. BGA have unique properties to provide natural products,& serve as a good substitute of chemical fertilizers.

Bio fertilizers can minimize the ecological disturbance.

There are cost effective, eco- friendly & when they are required in bulk can be generated at the farm itself. The other plus point is that after using 3-4 years continuously there is no need of application of bio-fertilizers because parental inoculums are sufficient for growth & multiplication. In terms of N.P.K, it was found to be superior to farmyard manure and other type of manure (Mukhopadhyay,2006)

Materials and Methods

Comprehensive collection of different samples were made regularly to identify the blue-green types, growth and distribution in localized areas. Sixty samples were collected from eighty six different localities from different rice fields. Samples were collected through spoon taking the surface layer of the different parts of the field. After collection, sufficient water was added with the sample to keep the algae alive. Immediately after collection the materials were taken to the laboratory and morpho-taxonomic studies were made. Altogether 86 locations were selected for collection.Eightysix locations are showing in Map of West Tripura.

The PH of all the samples were studied by electrode type PH meter of Philips Holand. In this process materials collected fresh was diluted and electrodes were inserted in the sample solution and PH was recorded.

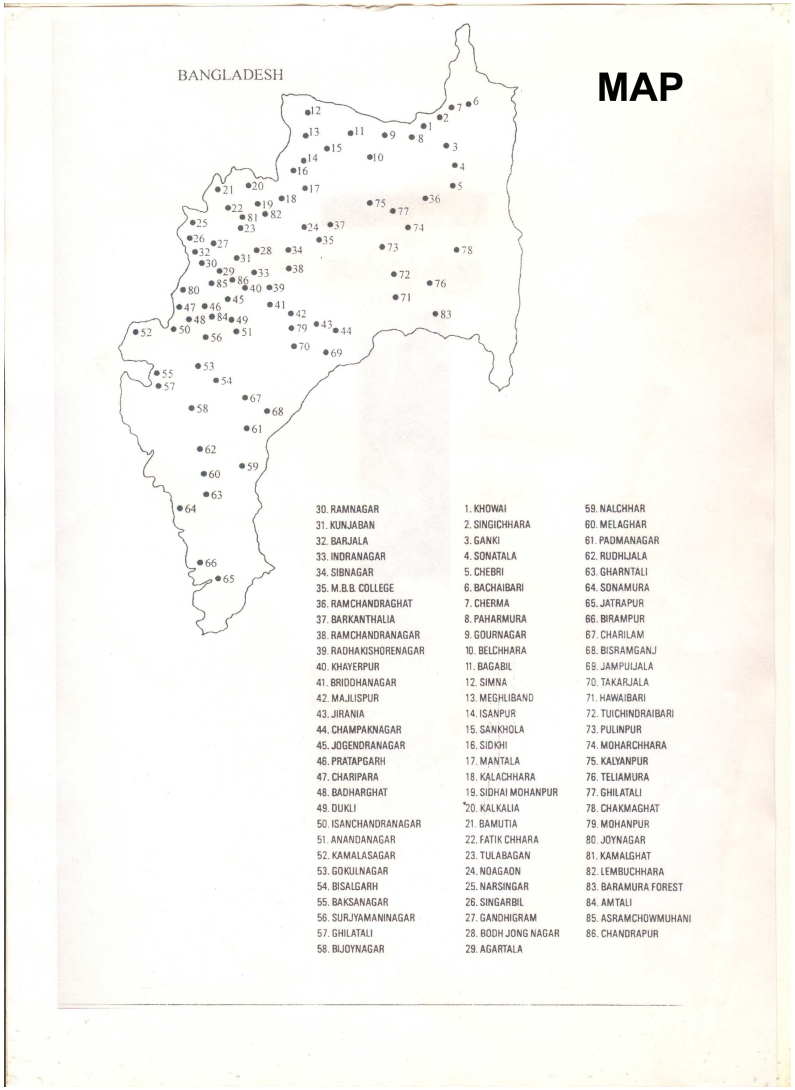
It was observed in the work that the field's PH remained acidic where BGA were high in number, there PH values remained 5-6. This also reported by Durrel 1964, Aiyer 1965.

Key to the Identification Adopted in this Course of Study

Present knowledge of algae indicate that there are more than 80 thousand species along with different forms. Thus, providing Key to the identification of each species will lead to a

voluminas books which is not required in this context. The main Key used for the species identified in this course is:-

Cyanophyta: Desikachary(1959) ICAR Publication.



Results

After examining the samples from 86 locations 20 genera and 64 sps of BGA were distinguished.

Members of different bluegreen algae collected during the course of this investigation:-

Sl. no	Name of Texa	Places of collection
1	Microcystis viridis (A.Br) Lemm.	Wet rice field
2	Chroococcus minutus (Kutz.) Nag	-Do-
3	C.dispersus (Keissler) Lemm.var.minor.Smith	-Do-
4	Gloeothece rupestris (lyngb) Bornet	-Do-
5	Aphanocapsa banaresensis, Bharadwaja	-Do-
6	Aphanothece stagnina (Spreng) A.Br	-Do-
7	Oscillatoria margaritifera (Kutz) Gomont	-Do-
8	O.miniata (Zanard) Hauck ex Gomont	-Do-
9	O.annae Van Goor	-Do-
10	O. sancta (Kutz) Gomont	-Do-
11	O.limosa Ag.ex Gomont	-Do-
12	O.subbrevis Schimidte	-Do-
13	O.curviceps Ag. Ex Gomont	-Do-
14	O.princeps Vaucher ex Gomont	-Do-
15	O.princeps Vaucher ex Gomont var pseudolimosa Ghose	-Do-
16	O.proboscidea Gomont	-Do-
17	O.Chlorina Kutz ex Gomont	-Do-
18	O. boryana Bory ex Gomont	-Do-
19	O. raoi De Toni J	-Do-
20	O. amphibian Ag ex Gomont	-Do-
21	O. acuta Bruhl ex Biswas	-Do-
22	Phormidium anomala Rao C.B	-Do-
23	P.ambiguum Gomont	-Do-
24	P.retzii(Ag) Gomont	-Do-
25	P.corium (Ag) Gomont	-Do-
26	Lyngbya birgei Smith G.M	-Do-
27	L. hieronymusii Lemm forma robusta Paukutty	-Do-
28	L. arboricola Bruhl et Biswas	-Do-
29	L. arboricola Bruhl et Biswas under *Porphyrosiphon notarisii* (Menegh) Kutz ex Gomont	-Do-

30	L. aestuarii Liebm ex Gomont	-Do-
31	L. aestuarii Liebm ex Gomont f. spectabilis Gom	-Do-
32	L. majuscula Harvey ex Gomont	-Do-
33	L. majuscula Harvey ex Gomont	-Do-
	Var chakiaense De. Toni	
34	L. martensiana Menegh ex Gomont	-Do-
35	L. magnifica Gardener	-Do-
36	Anabaenopsis circularis (G.S west) wolosz et Miller	-Do-
37	Cylindrospermum musicola Kutz ex Born et Flah	-Do-
38	C. licheniforme Kutz ex Born et Flah	-Do-
39	Wollea bharadwajae Singh R.N	-Do-
40	Nostoc linckia (Roth) bornet ex Born et Flah	-Do-
41	N. linckia Var arvense rao	-Do-
42	Anabaena sphaerica Bornet et Flahault Var attenuata Bharadwaja	-Do-
43	A. ambigua rao	-Do-
44	A. orientalis Dixit	-Do-
45	A.iyengari Bharadwaja	-Do-
46	A.iyengari Bharadwaja Var. attenuate rao C.B	-Do-
47	A. flos-aquae Lyngb Breb ex Born et Flah	-Do-
48	Aulosira prolifica Bharadwaja	-Do-
49	Scytonematopsis Kashyapi(Bharadwaja) Geitler	-Do-
50	Scytonema chiastum Geitler Var minor Parukutty	-Do-
51	S. simplex Bharadwaja	-Do-
52	S. coactile Montagne ex Born et Flah	-Do-
53	S. schmiditii Gom	-Do-
54	S. iyengari Bharadwaja	-Do-
55	S. hofmanni Ag ex Born et Flah	-Do-
56	S. bewsii Fritsch et Rich	-Do-
57	S.mirabile (Dillw) Born	-Do-
58	Tolypothrix nodosa Bharadwaja	-Do-
59	Calothrix scopulorum (weber et Mohr) Ag ex Born et Flah	-Do-
60	C. fusca (Kutz) Born et Flah	-Do-
61	C. castellii (Massal) Born et Flah	-Do-
	Var somastipurense Rao	
62	Rivularia beccarina (De not) Born et Flah	-Do-
63	R. aquatica De Wilde	-Do-
64	Gloeotrichia pisum Thuret ex Born et Flah	-Do-

Mainly four nitrogen fixing blue-green algae namely Anabaena 6 sps. Microcystis one spp, Oscillatoria 15 sps. Nostoc 2 sps mixed cultures were applied (5 kg in 5000 sqm field) as bio-fertilizers to four paddy soil samples, like Barjala paddy field, Jogendranagar paddy field, Badharghat paddy field, Ramnagar paddy field.

The results showed that algal bio-fertilizer enhanced the growth of the rice significantly, which was noticable in the dry weight of the straw, for all sources of soil. An increase the number of spikes was shown only in the soil samples from Badharghat paddy field and Ramnagar paddy field, those from these fields increase in stem height also. Rice grown on Barjala and Jogendranagar did not show any appreciable change in the number of spike or height after treatment with the bio-fertilizer.

Rice yield also measured as seed weight per pot, was significantly increased with the application of algal fertilizer. The percentage increase in yield ranged from 15% in Barjala field, 20% in Jogendranagar field, 20% in Badharghat field and 30% in Ramnagar field respectively.

Although the application of algal bio-fertilizer can significantly improve the growth and yield of rice, individual seed size and weight.

From the result, we can concluded that the addition of nitrogen fixing blue-green algae, as a biofertilizer, to paddy fields, is a prerequisite for the improve yield and continued high standard of rice cultivation at Tripura. Bio-fertilizers can protect the natural atmosphere without any pollution. These are harmless and eco-friendly low cost input supplementary to chemical fertilizers.

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11

Economy and Forest Resource Management among the Mizos of Jampui Hill

Esther Rengsi

Abstract

T*he Mizos of Tripura lived mostly in Jampui hills (23° 96' 59'' N and 92° 27' 73'' E), North Tripura. Agriculture is main occupation of the Mizos; they practiced shifting jhum cultivation and as well as plantation of Commercial agricultural. The practiced of Shifting jhum cultivation and timber trade witnessed large scale deforestation which resulted in devastation of orange plantation economically. With a rapid exhaustion of cultivable land and mismanagement, an attempt is made in this study to collect information so that an appropriate strategy can be formulated. Study was conducted in Jampui hills, during the period of January 2013 to April 2014. The study reported the introduction of commercialized agriculture such as, coffee and Areacanut.*

Key words: *Mizo, economy, agriculture, Jampui hills, Tripura.*

Introduction

The Mizos, officially recognized as the 'Lushai' in Tripura ,Lu-'Head',Shai- 'to shoot' which define the characteristics of a Mizo as headhunter is a cognate tribe with many clans and

sub-clans in it and are migrants from the East1. The Mizos constitutes one of the 19 Scheduled Tribes of Tripura2. The Mizos of Tripura Settled mostly in Jampui Hills under Kanchanpur sub-division in North district of Tripura. There are 10 villages in Jampui Hills with a total population of 11,000 approximately out of which the Mizos or Lushais and numbered 5,384 according to 2011 census. In this study, the term 'Mizo' is use and not 'Lushai' as Mizo is how the people choose to identify themselves and how they are recognized by other tribes in and outside Tripura. Though various studies had been done on the Mizos of Mizoram by various ethnographers, historians and scholars3,4,5,6,7, studies done on the Mizos of Tripura remains very few.

Agriculture is the principal occupation of the Mizos of Tripura for a long time. Like all other tribal communities, forests played a very important role in the life of the Mizos of Tripura therefore; agriculture forms the basic foundation of the economy. The Mizo economy is largely sustained by shifting jhum cultivation right from the early period and as a result, they are closely intimidated with forests. This was considered as one of the reasons for their migration to Jampui hills from Mizoram in the beginning of the 20th century as they were attracted by the rich forest of Jampui hills which could prove an ideal place for cultivation.

The Mizo's cultivation is mainly 'confined to cutting down jungles, burning it and dibbing in the seeds among the ashes8. The practice of shifting cultivation rendered a rather rapid exhaustion of cultivable land in the areas surrounding the settlement prompting the villagers to move to another site where fertile lands are available for cultivation9.Shifting jhum cultivation continued to be the mainstay of the economy of the

Mizos of Tripura till the 1960's. In 1960, there are 10 villages in Jampui Hills with 350 Mizo families approximately and each of these families depended entirely on shifting jhum cultivation. The area covered by shifting jhum cultivation was 1050 hectres approximately.

Introduction of commercial agriculture in the last few decades resulted in the plantation of orange, coffee and areacanut (betel nut) on a large scale by many Mizo families for sale in the market. As result, the agricultural economy of the Mizos has undergone changes-'it has become more diversified and production takes place for the market as well as for self consumption10.

Materials and Methods

i) Study area: All the 10 villages viz.,(from North to South) Phuldungshei, Sabual, Tlangsang, Bangla, Behliangchhip, Vanghmun, Tlaksih, Hmunpui, Hmawngchuan and Vaisam were selected for the study area.

ii) Questionnaire: Questionnaire was prepared for the purpose of the study, 20 questionaires was randomly distributed in each villages.

iii) Interviews: Interviews was conducted with village elders, members of village councils and certain leaders of civil society organizations.

Results and Discussion

The agricultural economy of the Mizos has undergone changes as the people takes up multi cropping system today. Introduction of Commercial crops resulted in the switching of agricultural occupation by many Mizo families as Shifting jhum cultivation require constant shift in the land which resulted in deforestation which also had an adverse impact on the climate as forests are cleared for the purpose. It also proves less profitable (Fig.1) shows that shifting jhum cultivation is still in practice as it is the oldest occupation and as it forms a part of the cultural life of the Mizo community. But the income is meager, families mostly practice as a tradition and to meet their food needs.

Plantation of Orange was first started by Raja Hrangvunga in 191711 wherefrom other families took the seedlings but they were mainly meant for consumption and not for sale in the market. For better management of forest and for commercial purpose, Plantation of Oranges on a large scale begun in the 1950's with the establishment of Jampui Orange Growers Co-operative Society on 22.04.195411. The introduction of Orange plantation resulted in permanent cultivation system, thereby adding another agricultural occupation by many families apart from jhumming. Orange plantation took a steady slow process during these years due to social practice (jhumming) and unavailability of orange seedling on the other .With the better means of transportation from mid 1970's plantation of oranges increased to a great extent8. Jampui hills witnessed the peak period in orange from 1980's till 1998 and during that period, about 700 trips of oranges were transported with trucks from Jampui. Each trips transported approximately 50,000 oranges sold at Rs.1 per fruit thereby resulting in a considerable increase in income. Fig. 2 shows that Jampui hills which was once the center of Orange production in Tripura is undergoing declining stage in orange plantation and most of the villages in Jampui hills no longer had orchards except two villages in the South viz. Phuldungshei and Sabual.

Since 1988, timber merchants or 'Mahajans' obtained permit from the Government for timber trade in Jampui hills. With this major devastation of forest in Jampui hills started.

Between 1998 - 1996 these Mahajans runs business in timber by engaging around 27 elephants all through the years thereby felling many trees for commercial purpose. Soon Jampui hills witnessed deforestation, the age old grand trees being felled and the thick forests laid barren. With regard to orange plantation, from the beginning of the 1990's, signs of decay of oranges began to emerged from North of Jampui hills. Major decline soon followed and between 1998 and 2002. There was total devastation except in three villages in the southern corner of Jampui hills viz., Phuldungshei, Sabual and Tlangsang during that period.

With the decline or natural devastation of Orange, the people started to adopt multi cropping system. From 1998, the people began coffee plantation on a large scale for commercial purpose. It thrive well with afforestation by planting trees among the coffee. But the mismanagement of forest in the preceeding years mainly because of the practice of shifting jhum cultivaton resulted in the early decay of coffee plantation as many coffee plantation are in the decaying stage once again. As can be seen in (fig.3), coffee plantation is still in practice though a sign of decay sets in.

Areacanut plantation increase at an alarming rate in each village with almost every family taking up this occupation and income from the production is on the increase each year. Areacanut was first grown for demonstration but then it thrive well and with the thriving of areacanut, the people of Jampui hills now initiate major cultivation. As already mentioned, areacanut in itself is afforestation as well as the land is best suited for this cultivation in the present condition and also it proves profitable in the market. Today, areacanut plantation is the most commom agricultural occupation and almost every

families of Jampui hills have taken up this plantation and each year, the plantation rates is on the increase (fig.3) . Now all the hill range is spotted with this cultivation and its result is a better management of forest resources

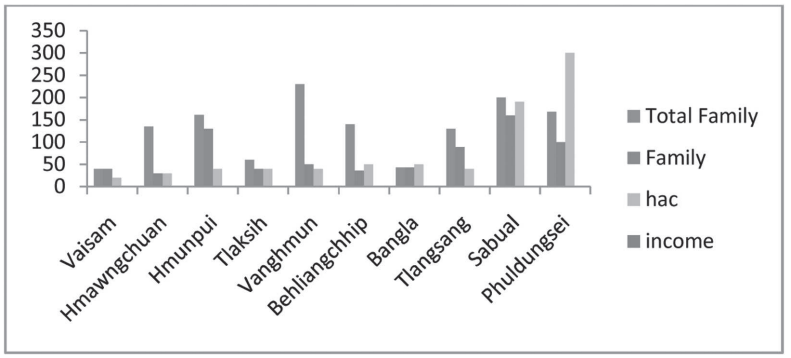

Fig.1 Shifting jhum culltivation of each villages in Jampui hills

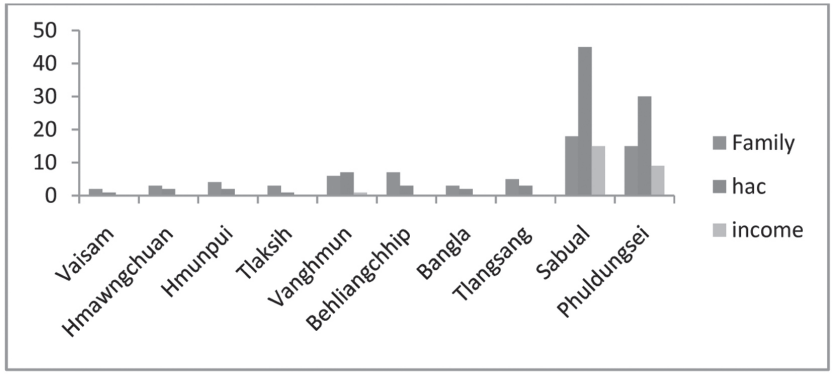

Fig.2 Orange Plantation,its income vs family engaged

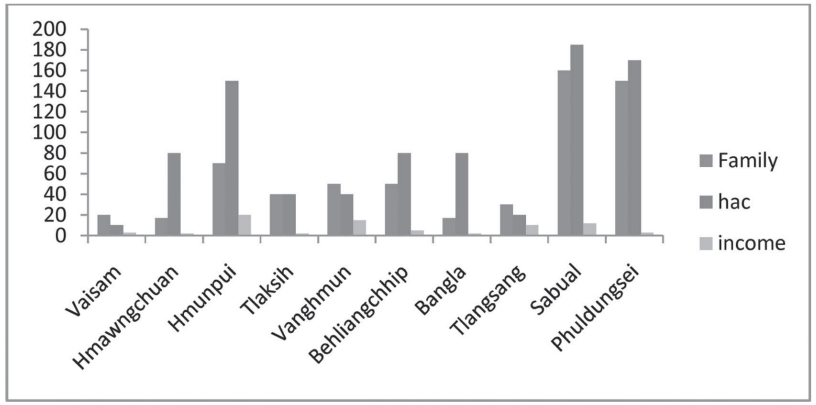

Fig.3 Coffee Plantation,its income vs family engaged

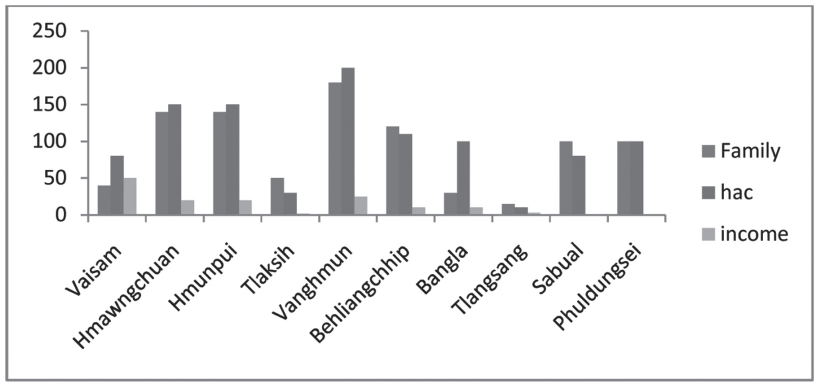

Fig.4 Areacanut plantation,its income vs family engage

Conclusion

The practice of agriculture, be of Shifting jhum or plantations, is becoming more like a custom even among the Mizos of Jampui hills. Jampui hills is richly endowed with forest resources which were vital for her development and prosperity. But increase in population led to increase in demands on lands and shortening of jhum cycle which further resulted in deforestation, land degradation, ecological problems, reduction of species and change in climate. To avoid further deforestation and for better management of forests, NGOs like YMA (Young Mizo Association) and TKP (Thalai Kristian Pawl) have taken steps in different ways by conserving forests, as well as by planting trees on the wayside, degraded land and organizing conservation awareness programs to make a better Jampui for the future generations.

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12

Role of Tribal Communities in Conservation of Forest Resources in Tripura

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and
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Abstract

Forest resource is one of the most important resources for the tribal people since time immemorial as it provides food, fodder, shelter, etc. giving rise to intimate relationship between tribal people and forest. As in the context of Tripura with 31.8 % of tribal population living in once green clad hills of the state, where the basic activities for the livelihood of tribal people are totally dependent on the forest resources. At present Tripura has more than 60% of forest cover which is above the national norms of forest covers to total geographical area. Many studies suggest that the forest of Tripura is dwindling in the hills mainly because of exercising the culture of age old practice of shifting cultivation or "jhum" practiced by the tribal population. Beside this many other activities practiced in the hilly tribal areas have alter the forest rendering the breakdown in the forest ecosystem and it has become the necessity to conserve the forest. The forest conservation and management activities cannot be achieved without educating the tribal people about the forest ecosystem and providing economic rehabilitation of shift-

ing cultivators. Caring both sides there should be implementation of the laws of tribal rights so that forest could be protected wisely without hampering the forest accessibility. Therefore, the present paper will focus on the tribal rights for forest resources, target its implementation and study the role of tribal communities in assisting conservation activities in Tripura.

Key words: *Tribal, ecosystem, forest conservation and management.*

Introduction

Forest is one of the most important natural resources especially to the tribal people and other communities living close to forest environment. Tribal communities are benefited from forest resources as forest plays a vital role in the socio-economic and culture or religious life. It provides raw material for house construction, firewood, food, fodder for grazing animals, fencing, resin, gum, etc. Since the time immemorial the tribals have the freedom of access to exploit the forest resources and it has become a means of their livelihood. About 50 years ago Tripura was covered by over 95 per cent of luxurious forests but it has been reduced due to population growth, an extensive immigration of both tribal and non-tribal population from Bangladesh and due to the practice of shifting cultivation, unregulated and unrestricted felling, grazing and repeated fires, and are replaced with bamboo and savannah type of vegetation (Saigal, 1978). Activities like, illegal collection and trading of forest product, encroachment of forest and various other activities practiced in the forest land also have altered the forest rendering to breakdown in forest ecosystem and it has become the necessity to conserve the forest for sustainability. Therefore, in order to continue the bond of intimate relationship there must be Forest Act and an action of conservation and management activities to be undertaken by the government and NGOs and above all an active participation of forest dwellers.

Study Area

The state is situated between 22?57? N to 24?32? N parallels of latitudes and from 91?10? E to 92?21? E longitudes. Total geographical area is 10,491 sq. km. out of which 60% of the land is hills and 40% land is plain land. Tripura falls under tropical climate zone, it has high humidity, significant amount of rainfall and moderate temperature along with good soil cover is responsible for the luxuriant growth of forest. This type of climate is favorable for the growth of tropical deciduous forest. According to the source of Forest Department, Govt. of Tripura, the total forests cover is 6294.29 sq km in 2009 (more than 60%). There has been no substantial change in the total forest cover. But the quality of forest is decreasing as the dense forest is low compare to the open forest and increasing scrub.

Objectives

The paper is based on the following objectives:

i. to study the tribal rights for forest resources and their implementation in Tripura, and

ii. to study the role of tribal communities in assisting conservation activities of forest resources in Tripura.

Data Base and Methodology

In the present study data has been used from both primary and secondary sources. The study is basically based on the secondary data. Secondary data are collected from various published and unpublished sources like books, journals, internet, and newspapers. Primary data are collected from the field study

during the year 2014-15. Field observation, interviews to the local authorities are the methods used to investigate the role of tribals in assisting conservation activities taken by Forest Department, Government of Tripura and the other Government undertaking department.

Tribal Rights for Forest Resources and its Implementation

The forest dwelling Scheduled Tribes and Other Traditional Forest Dwellers inhabiting forests for generations were in occupation of the forest land for centuries. However, their rights on their ancestral lands and their habitats had not been adequately recognized since the creation of reserve forest, despite them being integral to the very survival and sustainability of the forest eco-system. The scheduled Tribes and other Traditional Forest Dwellers or Recognition of The Forest Rights Act (FRA), 2006 is the result of an unprecedented historical conjuncture which brought the historical injustice of the non-recognition of the rights of forest dwelling communities centre stage in Indian national politics. The Act was passed at the end of 2006 but came into force on 1st January 2008 with the passage of its associated Rules. The Act was enacted in the parliament to vest forest right to schedule Tribe and other traditional dwellers to those who have been staying in the forest for generations. But there has been debate on the conservation issue as if this particular act will adversely affect the state natural ecosystem and wildlife. The act has granted right of land or "patta" to the forest dweller. The Act also empowered village assemblies to protect, conserve and manage statutorily recognised community forests for sustainable use, the Act aims to reform the existing system of state 'forest conservation' combined with centralised resource extraction to-

wards one centered on community controlled forest, wildlife and biodiversity conservation which also ensures livelihood and food security.

For smooth and effective implementation of the provisions of the SOTFD (RoFR) Act, 2006 and SOTFD (RoFR) Rules, 2007, the following committees had been constituted;

i. Forest Rights Committees for all Gram Panchayat and Village Committees under Tripura Tribal Area Autonomous District Council.
ii. State Level Committee (SLC) on Forest Rights Act, 2006 and Chief Secretary is the Chairman of the committee.
iii. District Level Committee (DLC) on Forest Rights Act, 2006 for all Districts.
iv. Sub-Divisional Level Committee on Forest Rights Act, 2006 for all Sub-Divisions.

Status of FRA upto 31st August 2008

1. Nodal officer has been appointed.
2. The different committees at State level, District level and Sub-divisional levels have been constituted.
3. Training has not yet started.
4. Work for translation of the Act and the Rules has been completed and copies have been sent to Panchayats.
5. FRs Committees are being set up.
6. Notification has been issued asking the DMs and SDOs to publicise the Act and Rules amongst the tribals.
7. Because of the Assembly elections in the state during February 2008, the process of

implementation of the Act has been delayed.

Table 1 shows the status of implementation of SOTFD (RoFR) Act, 2006 as on 31st December, 2013 and Table 2 shows the patta distributed and area allotted in Tripura. It shows that, Under the provision of the Act Govt. of Tripura has identified 1.17 lakhs Tribal families and allotted 1.78 lakhs hectare of land among them (Project Report on Agriculture and Allied Activities in areas allotted under FRA, agri.tripura.gov.in/links/FRA-Plan.pdf, date-27/06/2013).

Table 1: Status of implementation of SOTFD (RoFR)Act, 2006 as on 31st December, 2013.

Claims received from Sch. Tribes (in nos.)	1,54,065
Claims received from OTFD (in nos.)	33,766
Forest Rights so far vested-Sch. Tribes (in nos.)	1,20,684
Forest Rights so far vested - Other Traditional Forest Dwellers (in nos.)	02
Quantum of land involved (in hectares)	1,69,615.2167
Community claimed approved	55
Quantum of land involved (in hectares)	36.893

Source: Tribal Welfare Department, Govt. of Tripura.

Table 2: Block-wise patta distributed and area allotted in Tripura under FRA, 2006.

BLOCKWISE PATTA DISTRIBUTED AND AREA ALLOTTED

Sl. No.	District	Name of Block	Patta Distributed (Nos.)	Total (Nos.)	Area Alloted (ha.)	Total (ha.)
1	Kadamtala	North Tripura	275	24,037	497.99	43618.76
2	Panisagar		1,088		1,604.80	
3	Kumarghat		2,559		2,543.00	
4	Gournagar		1,521		2,340.00	
5	Pacharthal		2,178		3,516.51	
6	Dasda		9,503		20,084.79	
7	Damcharra		2,209		3,873.59	
8	Jampuihill		4,704		9,158.08	
9	Manu	Dhalai	3,642	27,624	5,127.00	56368.46
10	Chawmanu		5,380		9,092.60	
11	Salema		3,619		10,186.09	
12	Ambassa		8,062		15,440.97	
13	Dumburnagar		6,921		16,521.80	
14	Tulashikar	West Tripura	3,145	22,292	4,616.00	29017.33
15	Khowai		175		219.64	
16	Padmabil		2,725		2,533.83	
17	Teliamura		1,207		1,399.83	
18	Kalyanpur		438		459.00	
19	Mungiakami		4,141		5,896.00	
20	Jirania		1,677		1,794.35	
21	Mandai		1,113		2,555.56	
22	Mohanpur		27		15.24	
23	Hezamara		2,063		2,897.06	
24	Dukli		65		21.00	
25	Bishalghar		638		493.53	
26	Jampuijala		1,823		2,730.24	
27	Melaghar		1,487		1,761.35	
28	Kathalia		1,198		1,348.35	
29	Boxanagar		370		276.35	
30	Matabari		1,791		1,343.25	
31	Kakrabon		629		440.30	
32	Killa		3,634		3,906.43	
33	Amarpur		5,933		8,776.88	
34	Ampi	South Tripura	3,895	43,396	4,241.79	48214.96
35	Karbook		5,761		5,756.82	
36	Bagafa		9,018		9,606.59	
37	Rajnagar		1,670		1,488.91	
38	Hrishyamukh		2,311		2,041.10	
39	Satchand		3,984		5,090.56	
40	Rupaichari		4,770		5,522.33	
STATE TOTAL			**117,349**		**177,219.51**	

Source: Based on project report of 1st phase of implementation (2011-12 to 2013-14) of Project Report on Agriculture and Allied Activities in areas allotted under FRA, agri.tripura.gov.in/links/FRA-Plan.pdf, date-27/06/2013.

Earlier in November 2010, the National Committee on Forest Rights Act, a joint review committee of the Ministry of Environment & Forests, and the Ministry of Tribal Affairs visited Tripura to assess the implementation of the Forest Rights Act in the state. The Committee found that Form B which deals with community rights was not being supplied to the people. Further, the Committee found that the statutory authorities viz. Gram Sabha and Forest Rights Committees were not involved in the process of survey of the land and the demarcation of its boundaries leading to manipulation of land areas and loss of land rights. The Committee further expressed concerns about restriction of shifting cultivation rights, currently spread over large areas, under the FRA (India Human Rights Report, Quarterly, Issue-2, Oct-Dec 2010). The State government of Tripura has not been properly implementing the Forest Rights Act (FRA), 2006, thereby denying rights to the indigenous and tribal peoples of the State. As on 31 December 2010, the state government of Tripura received a total of 1,75,492, including 1,75,215 individual and 277 community claims under the FRA, 2006. Of these, 1,17,404 number of titles were distributed during the same period. However, a total of 56,020 claims were rejected. From the field study it has been found that the patta land were far away from beneficiaries which hinder from proper utilization of patta land. Today the state government is making its best effort to implement the Act by raising agro-forestry through convergence mode.

Role of Tribal Communities in Assisting Conservation Activities of Forest Resources in Tripura

There are 19 tribal communities in Tripua who are dependent on forest, majority of them are forest dwellers. These communities are: 1. Tripuri/Tripura/Tippera, 2. Reang, 3. Jamatia, 4. Chakma, 5. Halam, 6. Noatia, 7. Mog, 8. Kuki, 9. Halam, 10. Garo, 11. Lushai, 12. Munda, 13. Orang, 14, Shantal, 15, Uchoi, 16. Khasi/Khasia, 17. Chaimal, 18, Bhutia, 19. Lepcha. One of the remarkable conservation measure taken by tribals of Tripura is 'Asha Van' or 'Forest of Hope' of the Jamatias community (Darlong, 2007). It was also found that People's participation was a crucial factor in sustainable development of forest resources. It was this concept that brought in Joint Forest Management committees in Tripura where 1/3rd of the members were tribals involving in conservation process. The tribals of Tripura have played an important role in the conservation of forest in many ways mainly with the help of Forest Department of Tripura and the corporation help of Forest Department of Tripura and the other Government undertaking department. These are:

1. "Daikong Bolong" or Asha Van: A Case study from Toirupha village near Killa in South Tripura showed how the Jamatias, have regenerated their traditional community forests "Daikong Bolong" Since the early 1970s. This conservation measure was taken due to their practical experiences of adverse situations of forest degradation in their areas. So far the communities began to regenerate, protect and manage their community forests over 300 ha areas, which they now call as 'Asha Van' or 'Forest of Hope' (Darlong & Barik, 2007).

2. Forest Development and Plantation Corporation (TFDPC) of 1976 and Tripura Rehabilitation Plantation

Corporation (TRPC) of 1984: The traditional method of cultivation of tribals of Tripura is shifting cultivation or jhum or "huk" (in Tripuri language) was practiced since the time immemorial causing forest degradation and soil erosion. Rehabilitation of such large jhum land (1,08,842 ha. according to Agriculture Department, Govt. of Tripura, 2005) is quit a difficult work and it has to be conducted in such a way that it brings balance between forest and tribals. Rubber plantation and Orange production particularly in North Tripura have boosted in income generation of jhumias. Other important plantation includes pineapple, coffee, banana, jackfruit, lemon, betelnut, arecanut, etc. Creation of Tripura Forest Development and Plantation Corporation (TFDPC) in 1976 and Tripura Rehabilitation Plantation Corporation (TRPC) established in 1984 have helped the jhumias immensely in large scale rubber plantation. Abhanga Rubber Plantation in Ambassa Block is one of the oldest TRPC projects (1985) beginning with 101 ha of plantation and 84 beneficiaries. The corporations have helped the tribals to abandon shifting cultivation.

3. The Schedule Tribes and Other Traditional Forest Dwellers Act, 2006: This Act was enacted by the Parliament in 2006. The Act deals with the issue of settlement of land rights and rights to minor forest produce in forested areas with a view to correct the 'historical injustices' that have been perpetrated on the Scheduled Tribes (STs) and other traditional forest dwellers in the country after the creation of reserve forest. Recently Forest Right acts 2006 views it clearly that the traditional dweller will act as a guardian and custodian for the land rights vested on them. This is one of the act through which tribals in forest areas were given importance to participate in conservation measures. The Act has been discussed earlier.

4. Joint Forest Management (JFM): In India, Joint Forest Management (JFM) is one of the recognized organizational systems to regenerate forest resources, meeting local needs of people and sharing expected benefits Danwar (et. al), 2007. In order to conserve, regenerate and enrich forest resource base as well as to reduce the dependency of forest dwellers and people residing on the fringes of forest, the Government of Tripura passed its own resolution to establish an organization called Joint Forest Management Committee (JFMC). The committee planted many types of forestry species plants. Till 2013-14, there are 1000 numbers of JFM Committees have been formed involving a project area of more than 2,60,210.62 ha involving 1,00,045 tribal and rural poor families (Economic Review of Tripura, 2013-14).

Conclusion

The forest conservation and management activities cannot be achieved without law enforcement and providing economic rehabilitation of shifting cultivators. Caring both sides there should be implementation of the laws of tribal rights so that forest could be protected wisely without hampering the forest accessibility. The conservation activities undertaken by tribals of Tripura are very meager in comparison to its neighbouring states. Therefore, they must learn from them the benefits of building community forest. As the state population is increasing at an alarming rate and increasing more dependency on forest they must meet the sustainability, thereby building more "Daikong Bolong". Government should take an initiative to replace the fuel-wood and other forest product with renewable resources. This will reduce the burden on forest resources. Beside these, the conservation of forest cannot be achieved without educating the tribal forest dwellers about the

forest ecosystem or environment, and also various awareness programme, mass active participation in Vanmahotsav and other afforestation activities etc must be conducted.

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13

Tribal Culture and Forest Resources in Tripura

James Dev Verma
and
Dr. Tripti Majumdar (Das)

Abstract

The tribes as a society with a political and linguistic identity of their own live in a well defined cultural boundary.In Tripura there are nineteen tribes; they follow self traditional culture. In 2001, tribal population was estimated to be 9,93,426 persons in the state. In 2011 it stands at 11,66,813. The tribal people of Tripura are Tripuri, Reang, Jamatia, Noatia, Uchoi, Halam, Kuki, Lushai, Khasi, Garo, Chakma, Mog, Lepcha, Bhutia, Munda, Orang, Bhil Chaimal and Santal. These tribes belong to different ethnic groups such as Indo-mongoloid groups and the Indo-austroloid groups.Traditionally, the Indo-mongoloid tribes have definite form and follow the specific lifestyle, customs and religion of their own.

Kokborok language is mainly spoken by Jamatia, Reang, Tripuri, Uchoi, Noatia and some of the Halam tribes. These tribes (Jamatia, Reang, Uchoi and Halam etc) live on Jhum cultivation. Chakma and Mog tribes live on Jhum cultivation too. Most of the tribal people of the state depend on the forest based resources.Food gathering economy is the

prime activity of the tribal people of Tripura. So, food collected from the nearest forest area, forms their natural form of livelihood. Yum, honey, different types of tree roots, are collected from the forest. Traditional domestic articles like "Takhuk', 'Kaisleng/Seneng', 'Mung', 'Pokhai' and 'Sule' are made from the natural forest resources such as bamboo.

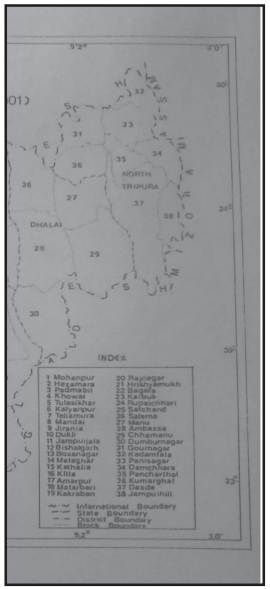
The tribal women engage themselves in weaving. The weaving tools are made of bamboo and other forest resources. In the remote part of Tripura all the tribal familiese weave their own cloths by traditional method. It is due to their poverty and the shortage of money. The tribal people in Tripura are associated with the traditional knowledge and use of medicinal plants. The women are engaged in making fine bamboo and agar sticks. In the rural economy, the tribal men and women collect timber,firewood, thatch and fodder for their domestic needs. In the 21st century, the traditional culture of some of the tribes has fully changed with the advancement of education and the settled economy of the state. The kokborok speaking people (Reangs, Jamatia and Tripuri etc), Chakma and Mog are culturally stable now. A few thousand numbers of these tribes have migrated to urban areas and changed their livelihood, dress and culture. Forest economy has changed into modern subsistence life economy.

Introduction

The tribes as a society with a political and linguistic identity of their own live in a well defined cultural boundary. In Tripura there are nineteen tribes; they follow their self traditional culture. In 2001, tribal population was estimated to be 9,93,426 persons in the state. In 2011 it stands at 11,66,813. The tribal people of Tripura are Tripuri, Reang, Jamatia, Noatia, Uchoi, Halam, Kuki, Lushai, Khasi, Garo, Chakma, Mog,

Lepcha, Bhutia, Munda, Orang, Bhil Chaimal and Santal. These tribes belong to different ethnic groups such as Indo- mongoloid groups and the Proto-austroloid groups.

Kokborok, a major tribal language, is mainly spoken by Jamatia, Reang, Tripuri, Uchoi, Noatia and some of the Halam tribes. Most of the tribal people of the state depend on the forest based resources. Food gathering economy is one of the prime activities of the tribal people of Tripura for many ceturies. Since thousands of years they have survived in the bossom of the forests they live. Centuries of living in these forests of Tripura has made the tribals of the state fully adapted to the forest life. Tribal peoples' occupation, food habits, dress, customs, dance, music and even beliefs have been influenced by the forests. Forest and forest products have entered very deeply into the Tribals' day to day life in Tripura through the generations. On one hand their remote locations make their life hard and difficult whereas on the other the forests products provide them with the resources which help them overcome these difficulties. It wouldn't be wrong to say that even today a tribals life begins with forest and ends with forest in Tripura.



Methodology

For the present research work, primary and secondary data were collected from the various sources. Primary data were collected through the personal field visits in different ADC villages of Tripura such as Pathalia Ghat ADC village, Ujan pathalia Ghat ADC village in Sepahijala District, Jarul Bachai

G.P., East jarul Bachai ADC village and West Jarul Bachai ADC village in West Tripura district and Lowgaon ADC village in South Tripura District etc. Secondary Data were collected from the Census of India office, Agartala, Tripura State Tribal Cultural Research Institute & Museum, Libraries and books of various authors etc. Informations were also collected by interacting with the tribal people with whom we came across in day to day life who belonged to the different economic sections & communities.

Objectives

The main objectives of the present paper are:

i) To study the traditional culture of the tribal people of Tripura.

ii) To see the influence of forest resources in their daily life such as house making, food habits, religion, customs, dress, dance and music etc.

iii) To find out the challenges faced by the tribal people and the State Govt. in the wake of changing situations and suggest some measures to tackle them.

Forest Cover and Types in Tripura

As per the forest report of Tripura, 2013, out of 10491 sq km of area at present 6292 sq km of state area is under the forest cover (table no.1). This include different types of forest covers such as hardwood forests, bamboo forests, plantation areas and shifting cultivation areas etc. These forests not only provide state with revenues but also act as important source of livelihood to the people of Tripura, directly or indirectly, especially the tribal people.

Table No.1
Forest Cover and Types in Tripura

Sl	Stratum	Area in sq km	%
1.	Hardwood forest	1829	17.43
2.	Hardwood forest with bamboo	484	4.61
3.	Bamboo forest	938	8.94
4.	Plantation	2221	21.17
5.	Shifting cultivation area	840	7.81
6.	Grand Total	6292	59.98

source: Report on forest resources of Tripura 2013

Major Tribal Groups in Tripura

Tribes of Tripura can be divided into two distinct groups racially. They are i) Indo-Mongoloid Groups and ii) Proto-Austroloid groups (chart no.1).in 2001 their population was 9,93,426 (table no.2). In 2011, it stands at 11,66,813.

Tribal Population in Tripura 2001
Table No.2

S.L No.	Tribe	Population) (2001)	% of total tribal population
1.	Tripuri	543841	54.74
2.	Reang	165103	16.62
3.	Jamatia	74949	7.54
4.	Noatia	6655	0.67
5.	Uchoi	2103	0.212
6.	Halam	47261	4.76
7.	Kuki	11674	1.18

S.L No.	Tribe	Population) (2001)	% of total tribal population
8.	Lushai	4777	0.5
9.	Khasi	630	0.063
10.	Garo	11180	1.13
11.	Chakma	61793	6.22
12.	Mog	30385	3.06
13.	Lepcha	105	0.01
14.	Bhutia	29	0.003
15.	Munda	12416	1.25
16.	Orang	6223	0.63
17.	Bhil	2336	0.24
18.	Chaimal	226	0.022
19.	Santal	2151	0.22

Source : Census of India 2001 Tripura Series

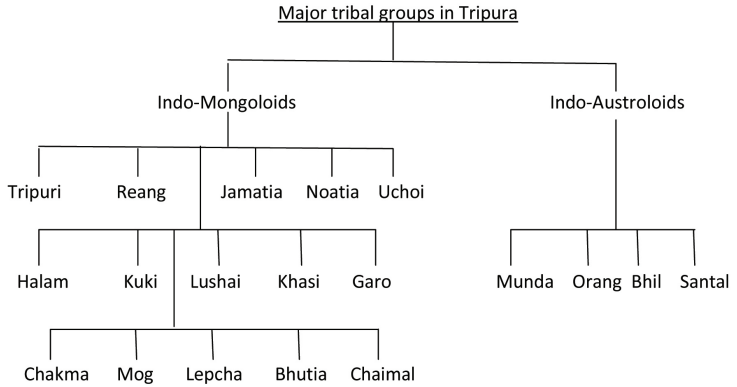


Chart no.1

Indo-Mongoloid Groups

Indo-Mongoloid groups of people include Tripuri, Reang, Jamatia, Noatia, Uchoi, Halam, Kuki ,Lushai, Khasi, Garo, Chakma, Mog, Lepcha, Bhutia and Chaimal. They are the largest tribal groups in Tripura(fig. no.2). They have short to medium tall stature for

both men and women. High cheekbones are prominent in them. They have short to medium nasal index and oblique eyes are not uncommon in them. Their skin colour varies from light yellow to yellowish brown. Numerically, the first five indo-mongoloid tribes of this group who speak Kokborok language (Tripuri, Reang, Jamatia, Noatia,Uchoi) are the largest tribes in the state. Rest belong to the other Sino-Tibetan language subgroups.

Tribal Village

Tribal villages are located mostly near the forest areas or at the heart of forests depending upon the remoteness of their villages (fig. no.1). Tribes like Tripuris (Debbarmas) and Jamatias who are more advanced than the other tribes live near forests. Whereas, Reangs, Halams, kukis, etc live at the hearts of forests. In small hamlets 10-15 houses are found, while in big villages it crosses over 40 houses. Tribals build their houses near their small paddy lands. For the purpose land is cleared by slashing trees and

A Noatia Couple.

A remote tribal village.

houses are built there in so that they could manage the distance with their paddy lands. Proximity to paddy lands and forests help them utilize the forest resources for their daily chores.

A Tribal House

A tribal house is typically built of forest materials. Most of the Tribal people use mud and forest products to build their houses. Usually Tilla tops are preferred for building the houses. Tribes who are more in contact with the general population use mud wall and other forest resources along with modern materials such as tin to built their houses. But tribes who live in remote areas such as Reangs, Kukis, Uchois built their houses with forest resources only such as logs, bamboo, leaves and grasses etc. Their houses called 'Garing' in 'Kokborok' are lifted 2 to 3 feet high above the ground to protect themselves from the wild animals and the rain water during the rainy season(fig. no.3).

Fig. no.3.A Reang house

Lifestyle

Tribal people have a mixed primitive and sedentary way of life style. Some of them have adapted to modern ways of living and settled down in urban areas. But, by and large the majority of them still lives in the rural areas close to the nature and follow their age old ways of living. Tribals who live in remote areas follow Shifting cultivation locally known as 'Huk'. This slash and burn way of cultivation has been followed by them since generations(fig. 4). For this purpose a small patch of forest area is cleared off the trees and bushes and with the help of dao and hoe local variety of paddy crops and some vegetables is grown in the cleared land. (Tribal women doing Jhum. fig no.4)

Same process is followed throughout the year. Family

members mostly women, neighbours and sometimes children help each other for this purpose. While returning from 'Huk' they collect and bring food(eatables) or other forest resources to home for their consumption.

Food Habits

As majority of these people are poor, they depend mainly on the forest products for their food. Food collected from the nearest forest areas forms their natural food items. Yum, honey, different types of tree roots, sweet potatoes are collected from the forest for consumption.

A Reang couple catching Fish(fig. 5)

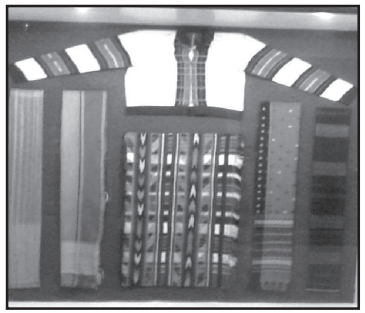
Food Item' Muya'(bamboo shoots. Fig. 6)

Rice known as 'mairum' is the staple food of the tribal people in the state. Bamboo shoot known as 'Muya' is another important food item of tribals which is collected from the forest. Small fishes are caught from the rivulets and streams in the forest which are eaten and preserved in a dried form for the

future consumption(fig 5 & 6). Sometimes small animals like wild boar and wild cock are hunted for food. Besides these, some vegetables are grown at home.

Dress

Tribal women are expert in weaving clothes (fig 7 & 8). They weave their own clothes called 'Rignai' and Risha'in Kokborok at home. Men wear a garment called 'Rutuku'. The weaving tools are made of bamboo and other forest resources. In the remote parts of Tripura the tribal families weave their own cloths. It is due to the poverty and the shortage of money. But young generation(boys and girls)has started wearing modern outfits such as pants and salwar kurta etc.



A Lushai woman's traditional dress . Fig. 7

A Jamatia Woman weaving. fig. 8

Forest Resources Used as Domestic tools and other products

Other than food items tribal people use the forest resources for making various domestic tools for their daily purposes such as baskets, Rice crushers, rice cleaners, hunting materials etc(fig. 9&10). These items are used for

collecting and carrying items. Some of the other items made by the bamboo and the forest products are:

Chokhra- It is a funnel shaped fish trap used in trapping the fishes.

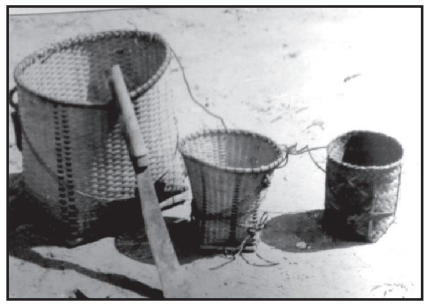
Dol- It is a big sized bamboo basket used for storing the rice after the harvest.

Halam man making baskets with bamboo. Fig. 9

Langa- It's an artistically woven basket for carrying grains, paddy and marketing.(fig.10)

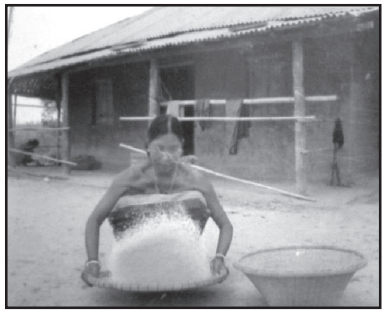
Baling- It is a circular and flat tray like handicraft used for winnowing and drying small quantity of chilli, rice etc(fig. 13).

Romo & Rwsam- These are used for crushing items like rice, spices etc(fig.12).



' langa' and 'kasleng'.fig. 10

women carrying fuel woods in 'Langa.' Fig. 11



Women using 'Romo' and' Rwsam.' Tribal women using 'Baling'
Fig. 12 fig. 13

Takhuk- It is a small cage woven with bamboo canes. It is used for rearing hens and ducks.

Waying- It is made of thick bamboo strips and used as a swing where babies are kept to sleep

Customs

Family members in the Tripura's tribal family follow the patriarchal way of system and respect their elders. Youngest son looks after the old parents. So, he inherits larger share of his parents' property. Women are respected in the society and get equal rights in the parents' property. They cremate their dead. While Christian tribals bury them. Divorce is easier and women can even remarry.

Religion

Majority of them are nature worshippers but influence of Hinduism can be seen. Chakmas and Mogs follow Buddhism. Some of them have converted to Christianity due to the influence of missionaries and their services to these people. Ochai acts as a priest for the Tripuris and other tribes who are akin to them. He acts as the mediator between the tribal deities and the tribal people. Animals and birds are sacrificed for appeasing the deities. No image is used for their deities. Instead some symbol made of bamboo is used which reminisces with the animistic character. Banana leaves, flowers and incense are used for doing the rituals. Hindus believe in Garia, Mailoma, twima, Ker and Kharchi deities along with Shiva and shakti.

Dance and Music

Sarangi and lebanti fig.14 **Halam girls dancing. fig.15**

Tribals are fond of dance and music. As such even musical instruments and dance items have been made by them with the forest products for their amusements. Bamboo dance of lushai & Halam people which is danced with the help of bamboo sticks is one such example(fig.15). Musical instruments such as lebanti, sarangi etc are made of sticks and carved woods(fig.14).

Indo- Austroloid Tribes

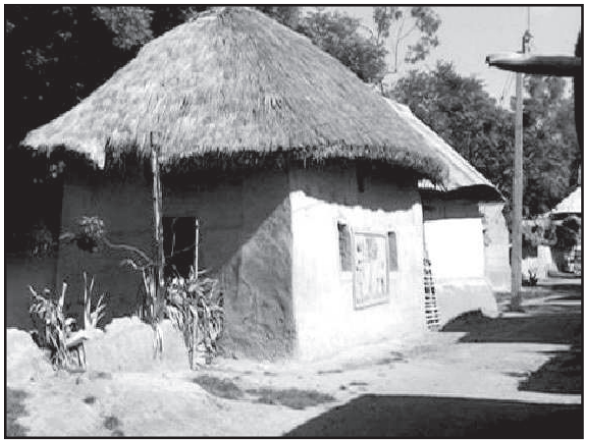
Santhal, Bhil, Orang and Munda are the main people who belong to this population group. They are not the indigenous tribes of Tripura. They represent less than 3% of the total tribal population in the state. They were brought to the state as tea workers during the reign of Maharajas in early period of 19th century from Bihar, Jharkhand, Chhattisgarh and Orissa. Stat-

ure wise they are short, have dark skin and have dark brown eyes. They have wavy to curly hair(fig.16). They are mainly found in Belonia, Khowai, Manu valley, Kailashahar and Sadar areas of Tripura.

A Munda family. Fig.16

Lifestyle

Tea tribes such as Orangs, Munda and Bhils reside near the tea gardens in the outskirts of towns. Their main occupation is tea cultivation. Some of them also work in brickfields. Orangs' village consists of 30-50 families. They build their houses with Chhana, bamboo and mudwall(fig.17). Apart from tea cultivation agriculture and hunting wild animals sustain the additional food requirement of santhals. Nonetheless tea cultivation remains the core activity of the tea tribes of Tripura.



An Orang house. Fig. 17

Customs

These tribes are Patriarchal in nature and father acts the head of the family. Santhals have their religious priests who guide them during special occasions such as marriage, death and sickness. Dead are cremated after following the rituals. In Orang village Orang sardar acts as a village chief and looks after the well being of the community people. Marriage is simple but celebrated with pomp and gaiety. A woman has to take clan of her husband. All these tribes are monogamous and respect their elders.

Dress

Orang women dress themselves in sari(fig. 18). Men wear gamchha. Women are fond of flowers and decorate their hair with flowers. Santhal men wear a short piece of dhoti round the waist. Santhal women wear ornaments of brass, nickel and silver. Dresses of Indo- Austroloid people are identical with some minor differences only. (Orang Women. fig.18)

Religion

Mundas believe in their traditional deities. Pahan (priest) plays an important role in their life. Santals are followers of

Shakti cult. Holy is their main festival. They also follow their animistic beliefs which they have been following through generations. Like Mundas they too have local priests who play important role in their religious life. Some of them have converted to Christianity. Bhils are Hindu by religion and are followers of Shiva and Durga. Small percentage of Bhils is Christians.

Forest resources management challenges and suggestions

Since thousands of years the tribes of Tripura have depended on the forest resources for their livelihood. Forest and tribals are synonymous to each other in Tripura. Even today they collect bamboo shoots, shoots of different kinds, yams, beetroots, sweet potato and taro etc from the forests as food items. The women make fine bamboo and agar sticks. Tribal men and women collect timber, firewood, thatch and fodder for their domestic needs from forests. Small fishes and some small wild animals are hunted for food occasionally. The tribal people in Tripura are associated with the traditional knowledge and use of medicinal plants. Today, a few number of tribal people have migrated to urban areas and adapted to the modern ways of living. Forest economy has changed into modern subsistence life economy. In the present 21st century and in recent times the attitude and the outlook of the tribal people have changed with time. Influence of changing local economy due to the influence of modernity

and education has brought these changes.

Forest is a vital component of ecosystem and plays an important role in maintaining the ecological balance. Tribal people and the forest have always maintained a healthy balance throughout the ages. But due to the pressure of increasing population, serious environmental problems could arise in the future. Earlier 'jhum' cultivation and now rubber plantation have caused serious damage to the forests of Tripura. Endemic plant species having medicinal values and wild animals have been lost or are becoming extinct every year due to the reckless cutting of forests for selfish and unplanned economic gains. Sustainable development of forests is required for meeting the basic needs of the tribals of Tripura along with the opportunities to fulfill their life's aspirations. Tribals still dependent on shifting cultivation need to be settled down for a more subsistence way of life because continuation of 'Jhum' is not feasible anymore. Community owned forest management knowledge should be imparted among the tribes of Tripura and their tradition must be preserved. Sensing the seriousness of the matter and to avoid future catastrophe the forest department has initiated some steps such as Joint Forest management (JFM) and Participatory Forest Management (PFM) to improve and protect the forests of Tripura. Since 1996-97 forest deptt has started 'Angan Ban Prakalp' to plant trees in the fallow lands. But these steps are very small. Sustainable development of forests and stopping reckless destruction of the forests is the need of the hour. Urbanization of the tribals in Tripura without damaging the forest resources is another challenge. For this their education level should be increased and job opportunities in forest management along with regular jobs should be created which would fulfill both the requirements. Judicious use of these re-

sources can bring prosperity for the state and the tribal people whose lives are incomplete without these forests.

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14

Situation of Tribal Women in Forest Life at Hazamara Block in Tripura: Role of Education in Changing their Status

Mallika Das
and
Kamal Deb

Abstract

Tribals are original dwellers of Forest. Forest and Tribals both have inseparable relationship with each other. They possess a symbiotic relationship with their surrounding natural forests. Tribal population constitutes approximately 8% of total population in India. Forest ensures their daily subsistence and protect their economy along with the values like traditional practices, custom, beliefs, Folksongs, Folktales, Folkdances, Folklore, medicines etc. Tribal women play an important role in maintaining their livelihood. Since Tribal women depend on natural gifts, the relationship between them and forest is very intimate. Now a days subsistence burden of Tribal women in North - East - Region has got aggravated due to environmental degradation and depletion of natural forest resources. The degradation of natural resources has become a serious threat to the lives of the Tribal people of Tripura. Tribal women are confronted with an extraordinary workload of collecting their every day commodities from forest. The problem of Tribal women differs specially owing to their geographical location, histori-

cal background and process of social change. We know that Tribal women are more laborious than man. But Tribal women are deprived of many civic facilities and are isolated from modern and civilized way of living. They are suffering from tremendous problems in their livelihood. In this context, this study seeks to explore the situation of Tribal women in forest life at Hazamara Block in Tripura and how education can play a role for the empowerment of women in changing their status.

Keywords: *Environmental degradation, Symbiotic relationship, Empowerment.*

Introduction

Forests are one of the loveliest gifts of nature to all human and many other living creatures who dwell on this planet. From the very dawn of creation, our lives are interrelated and interdependent in forest in every domain. Forest occupy an important place among the natural resources of a country. According to World Bank estimate, more than 1.6 billion people depend on forest resources for their livelihood. Tribals are original dwellers of Forest. Forests and Tribals both have inseparable relationship to each other. They possess a symbiotic relationship with their surrounding natural forests. Tribal population constitutes approximately 8% of total population in India. Forest occupies a central position in Tribal economy. Tribals are basically very fond of nature and they have been living in forest areas where they depend on forest based natural resources. Forests based resources have been providing them motherhood affection. They are getting and enjoying direct and indirect benefits from forests based natural resources. Forest ensures their daily subsistence and protect their economy along with the values like traditional practices, custom, beliefs,

folksongs, folktales, folkdances, folklore, medicines etc. Dependence of Tribals on forests for sustenance and income generation is significant. They earn their livelihood by collection of minor forest produces. Forestry sector alone provides direct employment to a large number of rural populations. According to an estimate 33% of the Tribals earn their livelihood from forests and forest products.

Among Tribal Societies, Tribal women play an important role in maintaining their livelihood. Since tribal women depend on natural gifts, the relationship between them and forest is very intimate. Tribal women operate in close interaction with the forests from where they get water, tuber, flowers, vegetables, fruits, seeds, barrier, mushroom and bamboo shoots. Even different medicinal plants, fibre and weaving and dying materials are also collected from the natural forest based resources. Tribal women also take part in cultivation and agricultural work. Basically Tribal women are more laborious than man.

Now a days subsistence burden of Tribal women in North - Eastern - Region has got aggravated due to environmental degradation and depletion of natural forest resources. The degradation of natural resources has become a serious threat to the lives of the Tribal people. Therefore Tribal women are confronted with an extraordinary work load of collecting their everyday commodities from forest. They are suffering from tremendous problems in their livelihood due to deforestation. There are different factors responsible for rapid deforestation in the region. Among them we can mention poverty, inequality in the distribution of land, low agricultural productivity, lack of infrastructural practices, low level of economic development, practice of shifting cultivation, urbanization, industrial-

ization and rapid growth of population, such rapid rate of depletion of natural forest based resources has brought a chaos situation to the Tribal women in the region for which they are compelled to change their livelihood pattern. Generally they are blame for this situation, but they did not over exploit forest resources rather they conserved them with their indigenous knowledge system.

Reality is vast resources, were one of the main attractions of the British India, most particularly in the North - East - Region. With the coming of British colonial rule, the organised exploitation of forest resources started which not only depleted resources of India but affected the age old livelihood of the forest dwelling communities. They started losing their uncontrolled possessions over the forest resources which were sustaining livelihood for them since time immemorial.

Main causes of degradation and depletion of forest resources are Jhum cultivation, the continuous influx of the refuges and the migrants from East Pakistan/Bangladesh, and one kind of wood smuggler smuggling the tree from the Forest. Now forest life is very alarming. In this situation Tribal women face problems and challenges in getting a sustainable livelihood and a decent life due to environmental degradation and the interference of outsiders. Due to poverty most Tribal women are illiterate, so they are deprived from getting different opportunities for their better upliftment. We know that Education is the most powerful instrument of development of a democratic country. The progress of nation cannot be dreamt of without education of women. The education aims at promoting all round betterment of people.

Jean Dreze & Amartya Sen (1995) provide a useful classification of the benefits of education. Education is desired for

itself as it opens up a vast world of opportunities and ideas to the educated person. It is also a great instrumental value in the process of economic growth and development. As we move towards the next century, the debate on social and human development has also began to highlight the instrumentally of education, specially of female literacy and primary education. It is being argued that the equality among human beings across and within societies can be achieved by providing opportunities, for better health, education and living standards specially to girls and women.

The role of education should be to help do the desirable things better that they are to do. Tribal women play a significant role in the economic development of Tribals as they contribute in various economic activities and education is one of them. Education is a crucial requirement for the sustained growth of developing society and lack of it is largely responsible for the exploitation and pitiable plight of the Tribals. An educated women is aware of environmental protection, and forest conservation. She knows that, their role may be enhanced through capacity building and empowerment in the content of ecological development. Education provides a clear perspective of life to women. Women empowerment is possible with education asset making her culturally, socially, economically, politically and morally strong.

After independence different Forest Policy, Plan and Acts are introduced for Forest development in India. But Tribal women do not fully enjoy their traditional livelihood. In this background, this study seeks to explore the situation of Tribal women in forest life and how education can play a role for the empowerment of women in changing their status of Kambukchhara village in the Hazamara Block, West Tripura.

Location of the Study Area

Kambukchhara village falls within the administrative jurisdiction of Hazamara R. D. Block of West Tripura District in Tripura. The total area is 719.4 hectares. It is geographically positioned on Baramura Hill under the Subal Singh Forest Range. Investigators have selected three (3) Paras of Kambukchhara village. The communication roadway is the Agartala - Khowai high way.

Importance of the Study

Forest is economically and environmentally very important. Tribal economy is largely based on forest resources. Tribal women have an important role is maintaining their household livelihood, which depends mostly on forest based resources. At present time subsistence burden of Tribal women has got aggravated due to environmental degradation and depletion of natural forest resources. The degradation of natural resource has become a serious threat to the forest dwellers. Tribal women are confronted with the extraordinary work load of collecting their every day commodities from forest. They are suffering from tremendous problems in their livelihood due to deforestation.

Their Socio economic status is very low, and they are deprived of many civic facilities and isolated from modern and civilized way of living. Through this sincere effort, the investigators want to suggest some way outs to solve their problems. We sincerely hope that our little attempt in this regard will help the future research fellows and would also help the State Government for making policies for the sustainable development of the Tribal women residing in the Kambukchhara village.

Objective of the Study

1. To explore the Problems of Tribal women in forest in forest life at Kambukchhara village.

2. To evaluate the role of education for the empowerment of Tribal women.

Methodology

The study is done following exploratory and survey method. Cluster Random Technique is use. Data is collected from primary and secondary sources. Primary data has been collected by information schedule; interview & group discussion etc. Secondary data has been collected from departmental reports and records. Data is analysed from quantitive and qualitative point of view.

Delimitation of the Study

The investigation has been done in three Paras of Kambukchhara village located in Baramura Hill namely Aisrang Para, Mohanbari and Hazaribari. It is not possible to investigate all the areas of the Hazamara Block within a short period.

Kambukchhara Village in Hazamara Block: A Case Study -

To get an actual picture of the problems of Tribal women in forest life, Kambukchhara village in chosen by the investigators. Kambukchhara village is situated in Subal Singh Forest Range at Baramura Hill. The geographical area covers 284 hectares which falls entirely under the ADC area and has 17 Paras. The total population in 1912, Male - 951, Female - 961. Investigators further has chosen three Paras from the Kambukchhara village namely, Aisarang Para, Hazaribari and Mohanbari.

Table No: I
Para wise Population

SL No.	Name of Para	No. of Family	Male	Female	Total
1	Aisarang Para	41	111	109	220
2	Hazaribari	07	21	21	42
3	Mohanbari	16	45	51	96
	Total	64	177	181	358

Source : Kambukchhara ADC Village Committee Office.

All the Tribal people of above said paras belongs to the "Tripuri" community. Their language is "Kokborok". All the families of these are "Patta holder Jhumia" families. All people live in their own houses, maximum house size are small. The houses of these areas are made up of mud wall or bamboo and the roof is made of tin. Brick houses are not found. These house are scattered in clusters in the lungas and top hills. No electricity connection is available in the houses. Even there is no sanitation system in any of the houses in the three paras. They are practicing open defecation system. The roads are all katcha throughout the entire village. Their livelihood completely depends upon the forests. Due to geographical reasons, there socio-economic status is very poor. Women participate in Jhum cultivation. Recently Forest Rights Act - 2006 is introduced, so they are turning to settled agriculture. Women have to take on more of workload on an increasingly infertile land. The living standards of tribal women inevitably face a decline is the traditional sources of fire wood and minor forest produce. The women are deprived of a regular income. Majority of the women have no ownership of any productive asset. The main means of production are their physical labour. We have observed that the contribution of women in various unpaid productive activi-

ties like collecting of fuel, fodder and consumable forest products etc. have been underestimated. Women do not work as agricultural wage labours. They work in each others fields on a share basis.

Table No: II
Occupational Pattern of Tribal Women

SL No.	Principal Occupations	Name of village		
		Aisarang Para	Hazaribari	Mohanbari
		Female	Female	Female
1	Wet cultivation	5	2	-
2	Jhum Cultivation	30	3	11
3	Agricultural wage labour	-	-	-
4	Cattle rearing /Poultry/	3	-	-
5	Duckery Household Industry	-	-	-
6	Liquor making	03	1	1
7	Other subsistence work	5	-	-
8	Other non agricultural work	-	-	-
9	Small Business	-	-	-
10	Service	-	-	-
	Total	51	06	12

Source: Field survey.

Occupational diversification is absent the tribal women in this study area. Their socio - economic status is very low, usually unable to participate in economic activities due to suitable land for settled cultivation. In jhum cultivation the participation of women is higher than of tribal men. In some cases it is found that men and women both are engaged in wet cultivation in their agricultural field. 99% jhum is managed by women without any male help. Jhum cultivation not so productive. We have found that unmarried Tripuri girls are reluctant to participate in economic activities in their agricultural field

in this study area. Tribal women very rarely to take up non agricultural occupations. Liquor brewing is their principal occupation in the Tribal society. We observed that some non tribal men of plains are involved in collecting the home-brewed liquor from tribal women for illegal trade.

Since these paras are located in a hill range they face a acute water scarcity. The sources of water for these paras are the streams flowing through the lungas and small ponds and katccha well. But no such water sources are found in the tillas. There is one ring well in Aisrang Para but not suitable for usage. They have one katccha well too but with very low levels of water during dry season. In Hazaribari, there is one pond and one katccha well. In Mohanbari to there is one pond and one katccha well, but most of the in habitants still use impure water for their domestic purpose as well as for drinking. They suffer an acute water scarcity during dry season due to depletion in the level of underground water.

The following table shows the source of water of the three above mentioned paras.

Table No: III
Source of water

SL. No.	Name of Para	Pond	Lake	Tube well	Ring well	Kaccha well	Stream	River
1	Aisarang Para	1	-	-	1 (Useless)	2	1	-
2	Hazaribari	1	-	-	-	1	-	-
3	Mohanbari	1	-	-	-	1	-	-
	Total 3 -	-	1	4	1	-		

Source: Field survey.

It is clearly seen from the above table that how serious water scarcity problem is being faced by inhabitants there. The problem of pure drinking water is assuming an alarming shape.

The very root cause of the problem is deforestation. Insufficiency of water is causing serious problems in farming purpose and cultivation of crops. As a result large scale works like wood selling, livestock selling or wage labour of Agriculture is hampered. Scarcity of water play a major role for their agricultural cultivation. Besides, women are also being the worst suffers of this morose situation. They are confronted with extra ordinary work load. She is continuously squeezed out of energies for domestic labour as she devotes nearly 10 to 12 hours to mundane activities of everyday life, like fetching water, collecting firewood and edible vegetables from the forests. Now a days, forest resources have depleted due to deforestation. Shifting cultivation adversely affects the forest land, vegetation and forest cover and biomass production and soil erosion is increasing. Moreover, some wood smugglers are smuggling forest resources adding to its redundancy. The continuous felling of trees have led this forest to the stage of open field in this fringe areas, decreasing the amount of rainfall. But it is becoming very difficult for them to collect these regular necessities due to the fatal effect of deforestation. As a result, socio-economic status of these women are at a low ebb. The scarcity of food, raises the poverty to an alarming shape. Therefore Tribal women are suffering from tremendous problems in their livelihood. As a result of this, tribal women are mentally depressed and they have to seek alternative way of income like wage earning sources but geographically and socially it is not possible. Basically they do not participate in wage labour.

We observed that they are very much hard working and very innocent; but they are deprived of many civic facilities and are isolated from modern and civilized way of life. The

health status and nutritive values of the hilly tribal women are deplorable. They were traditionally responsible for extracting remedial medication from the forest, drawing from herbs, roots, plant juices and the like. Now it is noticed that most of the women are reluctant to receive allopathic medication. No primary health centre is situated in this area and as a result the people depend on nearby town Mohanpur for their better treatment. The long time taken for reaching to hospital detracts them from seeking medical assistance available in Mohanpur. Consequently Tribal women suffer from more diseases, some of diseases are the direct result of deteriorating living and nutritional conditions: TB, amoebiasis, anaemia, worm infections. Illiteracy is correlated with health. Maternal and child care is an important aspect of health seeking behaviour, which is largely neglected among the Tribal women. We observed that during the rainy season, the outbreak of malaria, diarrhoea and viral fever make miserable conditions of the inhabitants. During dry seasons their children suffer from diseases like dysentery and dehydration. The large number of Tribal women in all the three villages are unaware of sanitation and a proper hygienic way of life.

Education is a necessity, a tool for development and knowledge and is a renewable resource which can compensate for any inadequacy. On enquiry it is found that there is lack of educational facilities and there is one primary school, three anganwari schools, no senior basic, high school, higher secondary school and any continuing education centre. Literacy rate is 65%, but women literacy rate was less than the male literacy rate. Many of them were only able to sign. The number of Madhyamik, Higher Secondary and B.A Pass person were nil.

The following table shows the educational facilities of the three above mentioned paras.

Table No: IV
Educational Facilities

SL No.	Name of Para	Anganwari Center	Primary School	S.B. School	High School	Higher Secondary School	Continuing Education Centre
1	Aisarang	-	1	-	-	-	-
2	Para Hazaribari	1	-	-	-	-	-
3	Mohanbari	1	-	-	-	-	-
	Total	2	1	0	0	0	0

Source: Field survey.

It is essential to identify the needs of the Tribals in general and of women in particular. The needs are not merely of fuel and fodder but of rebuilding a community that has been destroyed. Community efforts needs to be mobilized and confidence created. People who have been deprived of their right have to view that as their need and have to understand their own capacity to change the situation. Education provides a clear perspective of life to women. Education plays an important role in making women self reliant. Education helps in the mental development of women and mentally satisfied and contented women is an asset to a family, society and nation and she can efficiently maintain a proper balance between physical health and mental health. An educated women can solve many problems of the society. It makes herself disciplined and gives her vision. An educated women is a guiding light for the children, family members, society and nation. She knows how to have a

happy family and balanced and health relations with others. Education gives us knowledge about value of life. It teaches us about how to accept and face the challenges of life. It helps women to play a leading role in decision making process at family level, and social, political and economic fronts. Actually illiteracy leads to poverty, exploitation and so many problems faced by the Tribal women in forest life. However education helps Tribal women face the problems and challenges in getting a sustainable livelihood and a decent life and then can understood what the effects of environmental degradation are and how it is to be protected. Education plays an important role in making them self-reliant. So we observed that due to lack of education, the tribal women are deprived from modern and civilized way of life.

Suggestions

- We observed that a big catchment already has been built by the Government in the Barmura Hill of Subal Singh Forest Range. But its very unfortunate that such a timing effort did not come to any use to the nearby inhabitants because of it inaccessibility. A proper and uniform distribution of its water, for irrigation facilities as well as for drinking and other purposes, if made, will be very effective in reducing the water scarcity problem faced by the inhabitants of the nearby villages.
- The need for decentralised planning water conservation and supplying water for drinking and irrigation purpose, the regulation of Government and the forest polices of the state should be in accordance with economic system and the need for ensuring their survival against every odds.
- To collect a store rain water. The rain water that falls on the roof can be collected, filtered and stored. Deep wells and ring wells can be set up in lunga region. Restore traditional system of ponds and lakes. An urgent and wide ranging programme for creating sources of drinking water in these areas must be implemented with all sincerity.
- The Joint Forest Management (JFM) involves the local communities in the planning of conservation programme. The Forest Department and the community should together take active roles in conserving forests. The JFM activities also aims at regenerating forest resources meeting the local needs, sharing expected benefits and also reduces dependency on forests.
- Waste land can be brought under vegetative cover with a reasonable effort. Waste land development through aforestation and free plantation with women participation should be popularized. Reuse of waste land can remove poverty, re generate and help in restoring ecological balance.
- Voluntary agencies should be involved in big way in case of imparting non-formal education and vocational training to rural tribal women for their self dependent employment.
- To organize institutional arrangements for the Tribal development and provide training to the newly created institutions for making arrangement for the Tribal women developments. Tribal women are very good weavers. Generally, they prepare their clothes with their handlooms industries and cottage industries should be established for economic self sufficiency of tribal women.
- Tribal women are still lacking of education. Tribal women should be empowered through literacy programmes and vocational training. So continuing education centre must be opened in this area. Education in the most powerful instrument of development of a democratic country. Therefore, all sorts of incentives should be provided to the tribal households for sending their girls to school.

- Only patta land distribution is not enough, Government should provide civic facilities, like water supply, roads, health centre, electricity, school, market and community hall etc.
- Majority of tribal women have no ownership of land. Joint ownership should be ensured.
- Majority of the political leaders, mostly males being the dominating force have faild to understand the female participants in JFMC. JFMC is an important means to empower women. But we observed that it is not women friendly. Hence the concerns of women have not been adequately addressed by the system. The active participation of women in political sphere is integral to the empowerment of women as well as the process of national development.

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15

Sacred Groves : Indigenous Traditional Way of Conserving Forest Diversity in Tripura

Maria Deb Barma
and
Sumita Bhattacharya

Abstract *India has a rich tradition of nature conservation since the time immemorial. The culture and religious beliefs of the tribal and indigenous communities is often reflected in their myths and folklores. Several folklores of North-eastern India reveal the reverence of the indigenous communities for the natural world. Community based conservation in North-eastern India is illustrated by the sacred groves based on religious beliefs and taboos. The indigenous people in Tripura pay worship to 14 deities belonging to the nature, spirit during Kharchi puja. Noatias also believe in power of the Nature deties and worship in the Kholooma (God of Tree) and Haichukma (spirits of Forest). Sacred groves are patches of virgin forest or natural vegetation, which have been protected by the local people for centuries for their cultural and religious beliefs and taboos that the deities reside in them. These groves were rich in biodiversity and play an important role in the conservation of biodiversity. Sacred groves are distributed over a wide across the globe particularly where the indigenous communities resides. In the course of time, considerable changes have taken place in the extent of the sacred groves, people's perception towards them and the religious beliefs and taboos, therefore resulted in decline of forest sacred groves. There is urgent need to initiate people's participation, for endorsing the indigenous traditional knowledge and conserve the forest diversity through this practice. This paper briefly deals with the distribution of sacred groves across the India in general and Tripura in particular, emphasizing that the tradition of sacred groves as potent tool for biodiversity conservation.*

Key words: *Sacred groves, Indigenous knowledge, Biodiversity conservation.*

Introduction

Nature worship is an integral part of human society. India has a long tradition of wise use and prudent conservation of all natural resources that are useful to people. Forests have been the lifeline for tribal and other forest-dwelling communities since time immemorial. This indigenous conservationism has often been endorsed to a spiritual respect for, and a practical understanding of the natural world (Vecsey 1980; Martinez 1996; Berkes 1999). The forest dwelling communities have indigenous forest knowledge, traditional skills, practices that regulate the community management of natural resources and different production activities. An excellent example of such traditional custom is the conservation and protection of small forest patches by dedicating them to the local deities by various indigenous communities of the world. Such forest patches are called "sacred groves". Sacred Groves, one form of nature worship, are considered as "Sacred Natural Sites" as per the definition provided by IUCN (Oviedo et al. 2005). Sacred groves represent long tradition of environmental conservation based on indigenous knowledge by the indigenous

communities. Sacred groves are patches of a virgin forests usually dedicated to local folk deities or tree spirits. These untouched virgin forests are protected by local communities because of their religious beliefs, traditional rituals and taboos that run through several generations. Gadgil and Vartak (1975) reported that sacred virgin forests date back to thousands of years when human society was in the primitive state and traced the historical link of the sacred groves to the pre- agricultural, hunting and gathering stage of societies. In India, the earliest documented work on sacred groves is that of the first Inspector General of Forests, D. Brandis (1897). After this, in the year 1973, Prof. Madhav Gadgil and Dr. V.D Vartak conducted floristic and ethnobotanical studies on the sacred groves of Maharashtra. Burman (1992) has reported the existence of sacred groves all along the Himalaya from the northwest to north-east, western Himalaya of Kumaun and Garhwal, and Meghalaya. Ramakrishnan (1996) has also reported sacred groves from different parts of India, known by different names given to them in ethnic terms. These sacred forests have rich biodiversity and play a significant role in the conservation of biodiversity. The importance and role of sacred groves in the conservation of biodiversity has long been documented (Kosambi, 1962; Gadgil and Vartak, 1976; Haridasan and Rao, 1985; Khan et al. 1997). All forms of vegetation in the sacred groves are supposed to be under the protection of the reigning deity of that grove, and the removal of even a small twig is taboo (Vartak and Gadgil, 1973). Many scholars have been working on conservation of sacred groves through socio-cultural practices in different parts of India (Gadgil and Vartak, 1975 and 1976). However, little information is available on sacred groves and conservation of the biodiversity in Tripura.

The state Tripura covering geographical area of 10,491 sq. km, is predominantly hilly. It is surrounded on all sides by the deltaic basin of Bangladesh except for a small part in the north-east which adjoins Cachar district of Assam, and Mizoram. The state is situated between 22°57' and 24°82' North latitudes and 91°10' and 92°20' East longitudes, with the Tropic of Cancer passing through it. There are 19 ethnic groups predominantly living in and around the dense forest having their own culture and socio-religious traditions. The indigenous people in Tripura pay worship to 14 deities belonging to the nature, spirit during Kharchi puja. Noatias also believe in power of the Nature deties and worship in the Kholooma (God of Tree) and Haichukma (spirits of Forest) which signify sacred groves.

Methodology

To explore the evidence of existence of sacred groves and its role in forest diversity conservation we conducted a review of academic journal articles. Apart from academic journal articles we have gone through personal communication with elderly Tribal persons of some part of the state Tripura and some valuable suggestions from Mr.D. Chakraborty, Chief Conservator of Forest, Government of Tripura.

Result and Discussion

Sacred Groves in Tripura

Ashaban Sacred Grove: The Ashaban sacred grove is situated in Raiyabari village in Killa beat of Udaipur Forest Division. These sacred groves are protected by the ethnic Jamatia community. They are protecting many patches of bamboo forest, which is locally named by them as Ashaban (Forest of Hope). The Ashabans are mainly protected by women. The whole women group is divided into 12 small units for their conve-

nience. Each day, one unit goes for protection duty in the forest. These bamboo forests have a method of extraction of bamboo in a systematic way. In this forest, bamboo has to be harvested after three years. The community managed the systematic extraction of bamboo.

Mama-Bhagina sacred groves: Mama-Bhagina sacred grove is located in Tekka Tulsi Reserved Forest. It is a hillock in Joysing para under the Shankar tilla beat office. These sacred groves is named after a Tripuri folk story that two fellows mama and his bhagina (A boy and his maternal uncle) were lost in the forest of Tekka Tulsi RF, and their spirits protect this forest area. People worship this area for a long period due to such belief.

Phuldangsai and Vanghmun sacred groves: Phuldangsai and Vanghmun sacred forests are situated in Kanchanpur forest division in North Tripura district. These are evergreen forest, which exhibit some sacred groves.

Another undisturbed forest been reported from Kabra Khamer in Ranirbazar of west Tripura district, where three to four hectares patches of the forest is protected from any kind of human interferences. No cultivation or plantation is done and nobody enters in this area. Old believers are protecting such areas. (Sharma 2009).

Table1: hamlets or para's having *Ashaban* forest along with the name of gram panchayat

Name of gram panchayat	**Name of para's/hamlet**
Killa	Twirupa Kami
	Fata Kolok
	Habukma
	Wanjuibasai
	Warung
	Tulsiram-1
	Tulsiram-2
	Tulsiram-3
Uttar Brajendra Nagar	Hare
	Sai mamua-1
	Sai mamua-2
	Muitolwng-A
	Muitolwng-B
	Padaram Bari
	Khoran Singh
	Tolabari
Thelakung	Sechuwai
	Noa Pitra
	Gargung Khala
Chaigaria	Champa-sarma
Kachigang	Twibaklai
	Wak Warai
	Kachigang
South Brajendra Nagar	KalamKai -1
	KalamKai-2
	KalamKai-3
	KalamKai-4
	Pitra
	Chalita Bari
	Thaipong Hathai

(Adopted from Sharma 2009)

Rowa Sacred Grove: Rowa sacred grove is situated in the north district of Tripura. In these forest betel leaf and gurjan tree were protected by the Marak community. Earlier the sacred grove was protected by the community, later it has handed over to Government of Tripura. In the year 1988 that sacred grove forest area was converted to Rowa Wildlife sanctuary by the Government of Tripura. (Personal communication with Mr. D. Chakraborty, CCF, Tripura)

Importance of Sacred Groves: The traditional Hindu society symbolizes individual species as objects of worship, based on accumulated pragmatic knowledge and their identified value for one reason or the other. The sacred groves are multifaceted social institutions and symbolize the dynamic social forces linked with access and control over resources. They attain a great heritage of diverse gene pool of many forest species having socio-religious attachment and possessing medicinal values. Sacred groves are ecologically and genetically very important. They are important repositories of floral and faunal diversity that have been conserved by local inhabitants in a sustainable manner. They are often the last refuge of endemic and rare species in the geographical region. The groves are often associated with ponds, streams or springs, which help meet the water requirements of the local people. The vegetative cover also helps in the recharging the aquifers. The vegetation cover of the sacred groves improves the soil stability of the area and also prevents soil erosion.

Threats to Sacred Groves

Belief and taboos are the constructive tools for conserving the sacred groves, and erosion of belief and taboos has led to deterioration of groves (Vartak and Gadgil 1981,

Tiwari et al. 1998b, 1999). It has been seen that religious beliefs and taboos that were fundamental to the protection of sacred groves are being disappeared over the years due to various reasons and thus the present status of sacred groves is rather precarious. These systems and their rituals are now considered mere superstition. Various anthropogenic pressures due to rapid urbanization and developmental activities, exploitation of resources and increase in human population have threatened many sacred groves. Encroachment has led to the shrinkage of some of the largest groves.

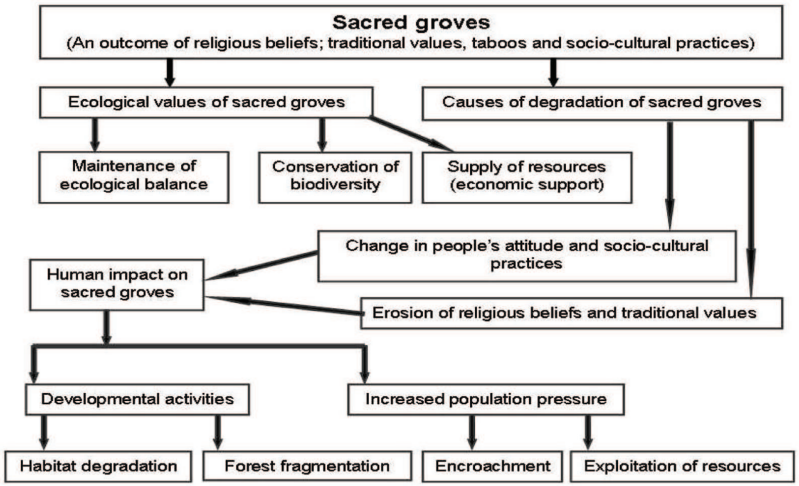

Figure1. Relationships between ecological values, religious beliefs and traditional values, and causes of degradation of sacred groves (modified from Khumbongmayum et al. 2004)

Present status: Apart from those existing sacred groves there are few places in Tripura, posses rich forest diversity and can be conserved by local community and government. Sacred groves did not enjoy protection via federal legislation in India. However, the introduction of the protected area category com-

munity reserves under the Wildlife (Protection) Amendment Act 2002 has introduced legislation for providing government protection to community held lands, which could include sacred groves. It is a preliminary survey of such rich areas so that a concrete proposal can be initiated. Few examples of future potential sacred groves sites are:

Central catchment area: The central catchment forest area is situated in Chhamanu. The vegetation of the forest is mixed which is rich in biodiversity.

Chhabimura: Chhabimura is situated in Amarpur, the area is rich in evergreen forest and ancient archaeology.

Conclusion: Sacred groves are found all over India especially in those regions where indigenous communities inhabit. Sacred groves are age old traditional nature conservation practices adopted by the local communities throughout the world. Perhaps this is the first independent approach by the rural people to protect the nature from overexploitation long before the term "democracy" coined. They are protected and managed by local people on religious grounds and traditional beliefs. Wherever the sacred groves existed, the indigenous traditional societies, which have a spiritual relationship with their physical environment, sustain them. Though, scared groves are also found in Tripura, their documentation is inadequate. Except Ashaban sacred grove, there is no true sacred grove documented in Tripura. Therefore, the need of the hour is to aware people about its importance, involve people in its conservation and management and exploring its potential in livelihood improvement.

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16

Tribal Life and Forest Resource in Context to Tripura

Moutusi Sarkar

Abstract

Tripura is a small hilly state of North-eastern India and a part of richest reservoir of biodiversity. It was a princely state and it was ruled by the Maharajas of Tripura. After independence, Tripura merged with India on 15th October 1949.

Total population of Tripura at present is about 36, 73, 917 and one third of the population is tribal people. Altogether nineteen tribes are recognized throughout the state. North-east India has a much higher proportion of tribal population than that of the country as a whole. The Tripuri, Jamatia, Reang, Uchai, Garo, Chakma, Mog, Lusai, Kuki, Halam, Noatias etc. belong to the tribal community of Tripura. They are the original inhabitants of Tripura. They are accustomed to forest life since prehistoric age. Tripura is rich in forest wealth. Forest occupy the hills and are practically absent in valley areas. All the hills are mainly covered with Sal, Garjan, Bamboo, Karoi, Jam, Gamair, Chamal, Sonal etc. and other kinds of trees. The hilly areas are mainly occupied by tribal communities for

a long period in their history they live. They have a historical relationship with each other. All the forest wealth provides the tribal people with enough supply of their basic needs. Socially and economically tribal communities living in remote areas are totally dependent on the forest resources. In short forest wealth of Tripura provides livelihood to thousands of tribal people.

In the present day context, forest land based on traditional pattern of livelihoods of tribal people all the north-eastern states increasingly becoming unsustainable. Tribal people are forced to look at alternative means for supplementing their livelihoods. The rapid growth of market based economy has destabilized the age old tribal and nature relation. Due to increase of population and requirement of infrastructural needs the forest depletion rate is very fast. The result is loss of different species and, environmental hazards which also caused great changes in the lives of the tribal people. The level of literacy among tribal people had always been a matter of concern.

Key Words : *Tribal, Life, Forest, Resource, Jhum.*

Introduction

India is a country of great geographical extent. It is a big country with different languages, religions, beliefs and faiths, social customs and usages of resources from region to region. India is a country with mixed culture. North-East India was commonly called the land of the seven sisters comprising of seven states but now Sikkim is also added to the family. The north-eastern region forms a distinct geographical unity in the country and unique in many ways. The North-Eastern states have vast natural forest resources. Physiographic expressions, climate and soils of this region have provided favorable condition for luxuriant growth of natural vegetation. The forest of North-East India are not only important for sustenance of forest dwellers but also plays very important role in the socio-economic cultural life of the people, a home more than 200 tribal communities.

Tripura is a landlocked small hilly state of North-eastern India and part of richest reservoir of biodiversity. It was a princely state and it was ruled by the Maharajas of Tripura. The rulers of this princely state have done many welfare works. After independence, Tripura merged with India on 15th October 1949.

Tripura is situated between 22º 56' N & 24º 32' N Latitude and between 91º 10' E & 92º 22' E Longitude. It is bound on the north by the Sylhet District of Bangladesh; on the South by the District of Noakhali and Chittagong of Bangladesh; on the east by the District of Cachar of Assam and the Mizoram and the west by the District of Comilla and Noakhali. As Tripura is predominantly a hilly country, about 60% of it's land is hilly while remaining 40% is plain land.

Hypothesis

The tribes are the autochthonous people of the land who are believed to be the earliest settlers in the Indian peninsula. The ancient and medieval literature mentions a large number of tribes living in India. Forest are precious resource given by nature and it is opened termed as multipurpose resource.

The tribal life and forest resource both are naturally interrelated to each other. The relationship between both of them have to be conserved as present day condition is creating problem in the life of tribal people and forest resources.

Aims and Objectives

The main objective of the present matter are to study :-

(i) The historical relationship between the tribal people and forest resources.

(ii) The challenges and opportunities the tribal people face in the present day context in dealing with forest.

With the development of society the man has tried how to establish a close relationship between socio economic activities and natural environment. The main purpose is to study the problems in connection with the socio economic condition of the tribal people of Tripura which is directly or indirectly related to the forest resources and highlight those prospects for the development and management of tribal life and forest resources of Tripura.

Methodology

The present study has been undertaken on the basis of secondary sources of information from books, news papers, websites etc. The different geographical field survey in different villages of Tripura helped to collect information about the condition of tribal life in relation with the forest resource.

Tribal Population of Tripura and Forest

At present, according to 2011 census report, the total population of Tripura is about 36,73,917 out of which tribal population is 11,66,813 i.e one third of the population is tribal people. Altogether 19 tribes are recognized throughout the state. North-East India has a much higher proportion of tribal population (23.00 %) that of the country as a whole (8.08%). The Tripuri, Jamatia, Reang, Uchui, Garo, Chakma, Mog, Lusai, Kuki, Halam, Noatias etc. belongs to the tribal community of Tripura. They are original inhabitants of Tripura. The Tripuris and Reangs are believed to be the earliest inhabitants of the state; others are supposed to be the later migrants. The Garos, Khasis, Mundas, Araons and Santals are non-indigenous com-

munities who came to Tripura only one or two generations ago as the plantation labourers. The majority of the tribes are either cultivators or agricultural labourers. The proportion of workers, both male and female among them is higher than the general population of the state. The tribal population of the state is concentrated more in the rural areas than in the urban areas. Socially, economically and educationally the tribals are backward. Their life and culture are at preset suffering a change of social environment. They are accustomed to forest life.

Tripura is rich in forest wealth. The abundance of natural vegetation in Tripura is directly related to the physical and climatic condition. Heavy and well distributed rainfall in combination with sufficient heat and good soil cover is responsible for luxuriant vegetation which overspreads the surface territory. The forests in the state are tropical evergreen, semi evergreen and moist deciduous forests and sizeable area is covered with bamboos. Bamboo forest (Melocana Bambusoides) occurs widely in the hilly tracts and forms impenetrable jungle in association with other plants. The Muli varieties of bamboo are widely grown in Tripura but the Bari and Barak varieties of bamboo which are in great demand do not grow well in Tripura. The bamboo plantation of Tripura has a high potentiality since it can be utilized for paper pulp, and important raw materials for paper and pulp industry. Today, bamboos are utilized for construction of houses, fencing and other purposes. Some bamboos are also used for umbrella handles, the making of which is an important cottage industry. The total forest area is about 6292.681 km^2 (60%) from where reserve forests is 34.20 % and proposed reserve forest is 4.85% and unclassified forest is 20.93%. All the hills are covered mainly with Sal, Garjan, Bamboo, Karai, Jam, Gamair, Chamal, Sonal etc. and other

kinds of trees.

The hilly areas are mainly occupied by tribal communities for a long period in their history they live. The forest and tribal community have historical relationship. All the forest wealth provides the tribal people with enough supply of their basic needs. Socially and economically tribal communities living in the remote areas are totally dependent on forest resources. Forest wealth provided the tribal people their food, shelter, clothes, medicines and their employment also.

The Practice of Jhum Cultivation and Its Effect

About 80% of these tribal people lived in the forested areas, rather the migration patterns of the pre-independence period ensured that most of the tribal land was dominated by the non-tribal population. The tribals those who practiced shifting cultivation or Jhum cultivation were termed as Jhumias. The term Jhumia was not the name of a specific community but a generic term used for tribals dependent upon shifting cultivation as a primary source of livelihood. And the nature of Jhum cultivation was such that it was primarily dependent on an interface with forestry for its survival. Under this form of cultivation more appropriately called 'Slash and Burn' cultivation. Hills slopes are cleared of their vegetative cover which is set on fire .The ashes are used as manure. Several crops are grown and vegetables are sown. The crops mature at different times of the year, Jhum fields are abandoned after the crops are harvested and Jhumias move to new sites after harvesting is over. However by 2001 census it is seen that 30% of the tribal population is still dependent fully or partially on Jhum for their survival. The number of people dependent on Jhum increased chronologically from 1968.

Thus the nature of dependence on forests seems to be

increased in the last few decades. However the scale of livelihood problem can not only be measured by this. It is also to be kept in the mind that the Jhumias are the poorest people in the state. Keeping this in mind it is important to note that under no circumstances can Jhum along fulfill the needs of the tribal people. Thus we see that Jhum cultivation has an intimate relationship with forest use not only in terms of habitation and cultivation of track inside forested areas, but also the forestry sector provides important supplementary income and inputs in the daily life of tribal people.

However due to increase in population it is not possible to maintain that the gap between the two successive cropping period and intervening follow period and which has reduced from 10-12 years to 2-3 years only. The land utilization and cultivation was environmentally sustainable before, due to repeated cultivation on the same piece of land without allowing enough time to get back its natural fertility. The nutrients and fertility status of the land gets depleted. Because the farmer does not get adequate food grains, he clears a new patch of virgin forest and the process continues. In this process large areas of forest get degraded and waste lands expands. Shifting cultivation therefore has been blamed to be the main cause of forest depletion which gave rise to soil erosion. From the late nineteenth century restrictions being imposed on Jhuming in forest lands by declaring more and more forest areas as Reserved forest and restricting the rights of the Jhumias of carrying on Jhuming.

Different Problems of Tribal Inhabitants and Prospects

i. The tribal people of Tripura possess small and uneconomical land holding because of which their crop yield is less and hence they remains chronically indebted.

ii. Only a small percentage of the population participates in occupational activities in the secondary and tertiary sectors.

iii. Literacy rate among tribals is very low. Lack of literacy among tribal people has been identified as a major development problem.

iv. A good portion of the land in tribal areas has been legally transferred to nontribal. Tribals demand that this land should be returned to them. In fact, tribals had earlier enjoyed considerable freedom to use forests and hunt animals. Forests not only provide them materials to build their homes but also give them fuel, herbal medicines for curing diseases, fruits etc. Their religion makes them believe that many of their spirits live in forests. Because of such physical and emotional attachment to forests, tribals have reacted sharply to restrictions imposed by the government on their traditional rights.

v. Tribal government programmes have not significantly helped the tribals in raising their economic status.

vi. Banking facilities in the remote tribal areas are so inadequate that the tribals have to depend mainly on money lenders.

vii. About 90% of the tribals are engaged in cultivation and most of them are landless and practices shifting cultivation. They need to be helped in adopting new methods of cultivation.

viii. The unemployed and the underemployed have no secondary source of earning by developing animal husbandry, poultry farming, handloom weaving and handicrafts etc.

ix. The tribals, therefore need to be protected against leading isolated life away from town and cities through constructing a network of new roads.

x. In Tripura, the main problems of the tribals are poverty,

indebtness, illiteracy bondage, disease and unemployment.

Challences and Opportunities the Tribal People Face in Present Day Context in Dealing with Forest

In the present day context forest land based traditional pattern of livelihood of tribal people of Tripura increasingly becoming unsustainable. Tribal people are forced to look at alternative means for supplementing their livelihoods. The rapid growth of industry and market based economy has destabilized the age old tribal nature relation. Due to increase of population and requirement of industry/ infrastructural needs the forest depletion rate is very fast in most part of the state. People are now travelling long distances to collect even the fire wood. The main survival strategies being practiced were Jhum cultivation and bamboo collection. Jhum was precious system of cultivation that yielded barely enough to survive at present day.

Specifically in Tripura, the most important strategies adopted for Jhumia rehabilitation is the raising of rubber plantations, horticulture being conceived to provide a lucrative alternatives. In some areas tribal people now have to depend on wage labour to earn bread and butter.

The level of literacy among schedule tribes had always been a matter of concern which has now been subsidized and addressed by government through different schemes. Some of the young people in those areas have engaged themselves in non-agricultural sector. Some young tribals those who are educated now are thinking of generating activities based on locally available forest resources.

Conclusion

Government of India took up several measures to improve the worst condition of the tribal people of Tripura. Reserva-

tions of seats were provided and the interests of the tribals were protected. Reservation in government jobs were also given, loan has been sanctioned to the tribals with low interest rates. The government of Tripura has undertaken various welfare measures to improve quality of life style of tribals. The government has taken steps to safeguards the interest of tribals by creating Tripura Tribal Areas Autonomous District Council (TTADC) comprising the areas of tribals are in majority. The system of pre-education with stipend has been introduced and the government service with quota system has been taken up. The tribal land was protected from the non tribal people by making new laws. The state government has taken various schemes for the economic progress of the tribal people. A number of rehabilitation programmes were taken up by the government. In some sectors recently the tribal populations were engaged in economic activities forming by SELF-HELP groups in Tripura. But unfortunately tribal people leaving in far-flung remote areas were unable to take the benefits of such programmes. Therefore from the study it can be concluded that some more way out for the upliftment of the tribal people and forest resources are necessary. Suggestions and recommendations are made for more socio-economic development of tribal community and to protect forest resources are given below:-

i. Education: - Lack of education among the tribal people is the main constrains for not able to increase their incomes.

ii. Lack of motivation in other occupation like secondary and tertiary activities.

iii. More financial assistance is required like loan from Block Level Offices for the primary activities like different types of agriculture.

iv. Rehabilitation for traditional practice by rubber plantation and horticulture like tea, coffee, fruits.

v. Government support is required in order to improve the economy.

vi. Make them understand the importance of forest to maintain the ecological balance.

vii. The sustainable use of forest.

viii. Practicing social forestry, agro forestry, community forestry, commercial farm forestry and also urban forestry.

ix. Self awareness of the tribal people for their own forest resources protection through 'Man and Biosphere programmes'.

Forest conservation does not mean the denial use but rather the proper use without causing any adverse effect on our economy and environment.

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Indigenous People and Climate Change Adaptation: A Review With Reference To North East India

Nandini Gupta

Abstract

Climate change is the biggest challenge before the global society impacting the ecology, economy and society in diverse ways. Indigenous peoples are some of the most impoverished, marginalized and vulnerable peoples in the world and they are also the most affected people by climate change impacts and its uncertainties. Various studies forecast that climate change will affect particularly terrestrial forest ecosystems. This means that rural communities in highly bio-diverse, but fragile mountain ecosystems like those in North Eastern Region of India will be among those affected most by climate change. North Eastern Region of India is critical from climate change perspective as more than two-third of population in this region is basically rural and depends on climate-sensitive natural resources such as agriculture, forest biodiversity and water availability. However, indigenous people should not be looked upon as just 'vulnerable people' to climate change. Indigenous people are ecosystem peoples who have sound knowledge and intimate relationship with their environment. The environmental changes associated with variations in weather and climate have not gone unnoticed by communities that are experiencing change firsthand. Indigenous people have been observing the effects of climate change first-hand for several decades. They have observed changes in temperature, in the amounts of rainfall and snowfall, and changes in seasons. Every society requires robust knowledge, both scientific and indigenous systems, to pursue strategies for adaptation in order to cope with the challenges associated with global warming and climate change. Risks of climate change are already visible in agriculture, forestry, water resources, soil, flora and fauna, and thus in livelihood of rural people. Accordingly, climate change adaptation has become a necessity. Addressing and adapting to the multiple risks due to climate change - temperature and precipitation variability, drought, flood and extreme rainfall, cyclones, sea-level rise and associated environmental health risk , are serious public policy concern today. This paper seeks to review the role of indigenous people in climate change adaptation in India with specific focus on north-east India.

Key words*: Climate change adaptation, Indigenous people*

Introduction

Globally there is increasing acknowledgement of the relevance of indigenous knowledge as an invaluable knowledge reservoir which presents developing countries, particularly India with a powerful asset in climate change adaptation and environmental conservation. Various studies forecast that climate change will affect particularly terrestrial forest ecosystems. This means that rural communities in highly bio-diverse, but fragile mountain ecosystems like those in North Eastern Region of India will be among those affected most by climate

change. North Eastern Region of India is critical from climate change perspective as more than two-third of population in this region is basically rural and depends on climate-sensitive natural resources such as agriculture, forest biodiversity and water availability. Indigenous people have been experiencing local changes in their climatic conditions for millennia. They have an intimate familiarity with the natural rhythms and processes of their ecosystem (Vogt et al. 2002). Communities are not just passive observers but they actively adapt to the new conditions resulting from changing climatic conditions (Salick & Byg 2007; Macchi 2008). Indigenous people are coping with loss of biodiversity and adapting to climate change through numerous strategies such as weather forecasting, migration, irrigation, water conservation techniques, land reclamation and livelihood adaptation to name a few (Macchi et al. 2008). Through the use of their indigenous knowledge, local communities are able to construe and react to the impacts of climate change in creative ways. A concoction of indigenous knowledge and new technologies to deal with climate change impacts may aid communities to effectively respond to impending climate changes (Ishaya and Abaje, 2008). This knowledge is obtained via observation, and is often based on cumulative set of experiences handed down from generation to generation. Indigenous knowledge has been sustainably used in observing the environment for a long time and in turn has generated a vast body of knowledge relevant for responding to different climatic changes (Pareck and Trivedi, 2011). This paper attempts to review the role of indigenous peoples in climate change adaptation with specific focus on north-east India.

Climate Change Trend in North East India

A significant change in seasonal rainfall has been observed

mainly in the hill states of Nagaland, Manipur, Mizoram, Tripura and parts of the Barail Hills in southern Assam. The summer monsoon rainfall is found to be decreasing over this region significantly during the last century at an approximate rate of 11 mm per decade (Das 2004, Mirza et al., 1998). Analysis of long-term temperature data for the region points to a distinctly rising trend in surface air temperatures. The annual mean maximum temperatures in the region are rising at the rate of +0.11°C per decade. The annual mean temperatures are also increasing at a rate of 0.04°C per decade in the region (Das 2004).According to IPCC report (2007), several districts of Assam were badly affected by a drought like situation consecutively for two years in 2005 and 2006 as a result of climate change. The year 2005 saw prolonged dry periods in Mizoram with many springs and streams drying up accompanied by large scale landslides (ICIMOD, 2008). Rainfall occurring earlier or later has adversely affected sowing and harvesting of crops and harvestable grains have been damaged.

Indigenous Knowledge and Climate Change

The crisis of climate change provides an exceptional opportunity for indigenous people and their knowledge to be effectively incorporated into societal discourse regarding climate change and stewardship (Cobb, 2011). Indigenous knowledge exists in close and organic harmony with the lives of the people who produced it (Agrawal, 1995). The production of indigenous knowledge always comprises continuous innovation, adjustment and adaptation to suit local or specific conditions (World Bank, 2002). Indigenous knowledge acts as a tool for managing climactic change and vulnerability. For instance, indigenous knowledge used in the form of weather forecast strategies, agricultural practices, crop varieties, building tech-

niques, water storage methods, and more significantly indigenous knowledge can help communities to maintain their quality of life even in the existence of climate change impacts (Kirkland, 2012)

Objectives

Objective of this paper is to assess the relevance and potential of indigenous knowledge in north east India with respect to climate change adaptation in the current scenario of climate variability. The focus of the study is on indigenous knowledge of north east India (known by terms such as traditional knowledge, local knowledge and traditional ecological knowledge) with regard to the sectors of agriculture, water and forest. This study also aims to highlight the importance of documentation of local knowledge and its use in policy to combat the numerous cascading impacts of changing climatic conditions.

Study Area and Background Information

Northeast India lies between 21°57' and 29°28' N latitude and 89°40' and 97°25' E longitude, comprising eight states, namely, Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim. Its total area is about 0.26 million km2, accounting for about 8% of the total land area of India. Nearly 70 % of the total area is hilly and shifting cultivation is the chief land-use practice in the hilly regions. North eastern India is home to about 39 million people and can be viewed as a mega-cultural landscape with over a hundred linguistic ethnic groups, each with their own cultural tradition, yearly calendar of rituals, nature-linked celebration, and associated music and dance forms. The region is home to nearly 225 ethnic tribes who are primarily dependant on the natural resources for their livelihood. It is a region of high biological

diversity. The ethnic hill communities are not only closely associated with and dependant on nature, but they also worship and protect the nature.

Methodology

The study was based mainly on secondary data. Secondary data involved information from published material, policy documents, and grey literature. This study relies on the review of literature related to weather forecasting, agriculture, water and forests. Methodology included review of published research on traditional knowledge and climate change adaptation. A traditional practice may be considered as a climate change adaptation strategy if it enhances the resilience (i.e., the capacity to cope and adapt) of ecological and economic systems and improves livelihood of local people in times of climate fluctuations and monsoon variability. The practice should also meet the general requirement of contributions to sustainable development.

Findings and Discussion

Climate change is likely to impact all natural ecosystems as well as socio-economic systems in northeast India. The Indigenous knowledge found in indigenous communities in Northeast India is an amalgamation of strategies, skills, rules and techniques gained through shared adaptive man-environment interactions to live and survive the natural way of life. Here we discuss the indigenous knowledge in the context of climate change adaptation among different tribal communities of northeast India.

Indigenous Knowledge Strategies Used to Cope Up with Climate Change in Tribal Communities of Mizoram

A study by Chinlampianga(2011) shows how indigenous communities of Mizoram have successfully used their indig-

enous knowledge to implement adaptation practices .His study is based on the observations and interactions with focus groups in three districts (Aizawl, Champhai and Saiha) of Mizoram to find out how the tribal communities adapt to the climate change impacts. He identified fifteen bio-indicators related to weather forecasting and climate change. The indicators pertain to distinctive features of birds, insects, fishes, plants and clouds related to weather, draught and natural calamities. Weather indicators are mostly living organisms and are mainly based on the recognition of unique situation, assessed with the behaviour of insects, birds, animals, the location and pattern of cloud, wind, the sun, the moon, lightening etc.

Prediction of rain: Tribal communities follow behaviour of many animals and flowering pattern of plant species for the prediction of rain. If peach (Prunus sp) flowers grow from the basal region to the terminal region of the tree in flowering season, it indicates good rain and high crop production. Behavioural pattern of Bamboo Partridge (Bambusicola fytchii),Field Cricket (Gryllus pensylvanicus),Winged termite (Reticulitermes sp), Corn field ant (Lasius alienus) and Common frog (Rana temporaria) are used to predict rainfall of the region. Colour, direction and location of cloud in the sky also indicate weather condition. If reddish cloud is seen at sunset on western horizon, rain will come in four days and if the sky is full of reddish cloud appearing after a long rainfall, it indicates rain will not come again in that particular season.

Prediction of flood: Behaviour of Bug species used to predict flood. If a particular Bug species of the region found in the forest during summer, it is indicative of heavy rainfall and possible flood.

According to Chinlampianga(2011) the accuracy of the

set of the indicators is about 60-75%. According to the stability and changing pattern of these indicators, tribal communities of Mizoram schedule their activities relating to the agriculture and farming system as a whole.

Indigenous Knowledge Strategies used to Combat Climate Change Impact in Tribal Communities Living in Tripura

S. Acharya(2011) has conducted a study in Tripura (North, west, south and Dhalai district) on indigenous knowledge of ethnic tribes of Tripura regarding weather forecasting and climate change assessment. The study shows that on the basis of phenology of plant species and behaviour of animals, tribal communities of Tripura are able to predict weather condition.

On set of rainy season: It is predicted by the larger sized leaves of Premna esculenta Roxb., increased length of inter nodes of Cassia fistula L. and increased length of the corolla tube in Costus speciosus Smith. The beginning of rainy season in Tripura is also signalled by the unusual chirping of the Black throated sunbird (Aethopyga saturata), orange bellied leaf bird (Chloropsis hardwickii) and grey headed canary flycatcher (Culicicapa ceylonensis)

Prediction of upcoming rain: Ripening and early rotting of fruits of Abroma angusta L (reported by halam tribes) and early unusual flowering and increased length of inflorescence of Abutilon indicus (L.) (Reported by Jamatia tribe).

Prediction of adverse weather condition (storm and flood): Occurrence of adverse weather condition can be predicted by sudden drooping down of petals of flowers of Cassia tora L (reported by Tripuri tribes) and unusual secretion from glandular cells of leaves of Drocera burmanni Vahl(Reported by Halam tribes). A typhoon or flood is imminent when insects start incessant chirping, spiders spin short and thicker waves

and when earthworms come out from the ground and scatter in the streets.

The report (Acharya, 2011) shows that indigenous farmers of Tripura successfully use indicator plants and animals in weather forecasting and climate change assessment to plan their cropping activities.

Indigenous Knowledge Strategies to Assess Climate Change by Tribal Communities Living in Manipur

Manipur state is rich in both cultural and biological diversity. There are more than 30 ethnic groups. The Meitei, Naga, Kuki and Pangals are the major ethnic communities of the state.

i) Climate assessment through indigenous knowledge by Meitei community of Manipur

A study by Singh (2011) shows 10 plant species which are used for weather prediction by the Meitei communities of Manipur and the author discussed the significance of such indicators in the context of current global environmental change.

Prediction of wind and storm: Flowering pattern of Century plant (Agave americana) and Mango (Magnifera indica Linn) tree are used to predict winds and storms and their direction in a given year. The storm is expected to blow from the opposite direction from where greatest numbers of flowers of Century tree are positioned. Extraordinarily large numbers of flowers in Mango tree signifies more wind /storms and heavy rainfall in that year.

Prediction of rainfall: Flowering pattern of the Deccan hemp (Hibiscus cannabinus Linn) used to predict rainfall in a season. If Deccan hemp bears large number of flowers then it indicates rainfall of that year will be good. Staghorn fern (Platycerium wallichii Hook), a very rare epiphytic fern is also an indicator of rainfall. If the colour of the vegetative parts of

the fern is dark green, it is an indicator of imminent rainfall.

Prediction of flood: Rumph's fig tree (Ficus rumphii) used to forecast flood. If crows construct nest on top branch of Rumph's fig tree it signifies flood may occur. When the nest is made on the lower branches of the tree there may be strong winds and scanty rainfall in that year.

Prediction of famine: Famine is predicted in the coming years if Bamboos (Bambusa spp) bear flowers.

ii) Climate change adaptation practices among the Tangkhul Naga community of Manipur

According to the Asia Indigenous Peoples Pact (AIPP) Report Tangkhul Naga community of Manipur adapted certain strategies to cope up with climate change impacts. With the experience of higher frequency and intensity of environmental stresses due to climate change, the communities are gradually shifting their reliance for food security on shifting cultivation. They are improving their management plans, practices and enforcement of rules for regulation of shifting cultivation along with the introduction of new measures such as village grain banks. Major portion of the village territories are set aside for shifting cultivation and the Village Council attempts to maintain the shifting cycle of about 15-16 years to ensure proper rejuvenation of the soil. Based on their judgment of the climatic trend, the community decides their major crop, which they call as the mother crop. This crop is usually drought/moisture stress resistant, weed or pest resistant varieties.

Due to high level of dependency on fallow forest resources for their livelihoods, strict code of conduct is enforced. The code of conduct includes regulated activities such as seasonal hunting, providing sanctuary for animals, collection of fodders and grazing etc. As part of the management plan,

strict zoning of forestland and maintaining of green belt surrounding the settlement area and along the waterways are strictly observed.

Indigenous Knowledge Strategies Used to Cope with climate Change by Tribal Communities of Arunachal Pradesh

The State of Arunachal Pradesh is considered as one of the megabiodiversity centres as well as a major abode of cultural diversity. The people of Arunachal Pradesh represented by 26 major tribes and 110 ethnic groups.

i) Adi tribes of Arunachal Pradesh & their indigenous knowledge to cope up with climate change

A study conducted by Singh et al(2011) in 14 villages of east and upper Siang districts of Arunachal Pradesh to record indigenous knowledge of Adi tribes relating to bio-cultural resources and their interactions with climate change and livelihood sustainability. Adi people are rich in indigenous knowledge that plays a pivotal role in coping with weather anomalies and any abrupt climate change. According to them bamboo flowering is the indication of drought and rapid increase of rat population which destroy paddy crops. An insect called Tari if flies during sunset then a good rainfall is predicted and people adopt tall varieties of paddy for cultivation.

ii) Apatani tribes of Arunachal Pradesh and their indigenous knowledge of climate change adaptation

The Apatani tribes are characterized by their unique land-use practice, rich indigenous knowledge of resource management and conservation to cope with climate change impacts. The Apatani eco-cultural landscape in the Eastern Himalayas illustrates the utility value of indigenous knowledge systems in the face of global climate change as highly economical and ecologically efficient. The Apatani cultural landscape identi-

fied by the 'Wet-Rice Cultivation' system which combines rice, millet and fish cultivation in the form of 'sedentary agriculture' in the valley land is not only highly productive but also energy efficient. Wet Rice Cultivation by the Apatanis of Arunachal Pradesh is energy efficient better than most of the western agricultural systems, which yield only 1 or 2 units of food energy per unit of energy input compared to more than 10 units of energy harvested per unit energy input. Apatanis follow Recycling of crop residues and use of organic wastes of the village for sustaining soil fertility. The nutrient washout from the surrounding hills and rainwater harvesting during the monsoons is critical for a sustainable yield in the Aptani valley. Fish culture and multiple cropping by Apatanis also increase the ecological sustainability (Ramakrishnan, 1992).

Indigenous Knowledge Strategies to Cope up with Climate Change by Tribal Communities of Sikkim

The Sikkim Himalayan agro-ecosystems are experiencing different levels of climatic variation over several decades in the form of erratic rainfall/snowfall events, prolonged dry spells or droughts, warmer winters, unpredictable monsoon, disappearance of local springs, emergence of new diseases and pests in crops/fodder trees etc. High levels of impact from climatic change is recorded for paddy, maize, wheat, oil seeds, cardamom and ginger production, drinking water sources and springs and fodder trees. Applying several approaches and indigenous knowledge system, Sikkim farmers routinely make land use and management decisions by adopting agro-forestry practices to overcome and manage climate variability. Thereby they create systems that are more resilient by choosing crop varieties which are resistant to drought or pests and maintain the integrity despite stresses from internal and external fac-

tors (Sharma and Rai, 2012). Another report (Jha & Jha, 2011) shows how Lepcha communities of Sikkim predict adverse weather condition through their indigenous knowledge system. Lepchas living in high reaches believe that harsh weather and consequent famine are indicated well in advance by wolves (Canis lupus chanco). Wolves at these times do not breed in anticipation of such conditions. Lepchas believe that if birds are silent, rain and storms are due. Alternatively if the birds are singing loudly and flocking together happily on the ground, good weather will continue.

This study examined the role of indigenous knowledge in climate change adaptation in north east region of India. It is evident that the people of North east India are confronted with a host of problems emanating from climate change stresses. Findings indicate that use of indigenous knowledge to adapt with climate change is in practice in North east India. Large numbers of tribal communities are successfully applying their indigenous knowledge to cope up with climate change.

Blending Indigenous Knowledge with Scientific Knowledge for Successful Climate Change Adaptation

All the case studies discussed in this study suggest that, local experts of indigenous knowledge should meet with scientific experts (meteorologists, agricultural scientists, extension staffs, and policy makers) to develop harmonized adaptation strategies which bridges between their systems of interpretations. It is certain that indigenous knowledge and western science have commonalities that can be cultivated in order to bring forth a new integrated approach to environmental management and restoration. Successful integration, however, will require a thorough and thoughtful synthesis where concepts are considered within their cultural context and not as bits of

knowledge or information to be inserted into the prevailing scientific framework (Berkes et al., 2000). This integration can be helpful to farmers and livestock communities to manage their livestock and crops and to minimize risks during the period of unfavourable weather and maximize opportunities during favourable season (Ziervogel and Opere, 2010).Scientific knowledge on climate change is useful but rarely sufficient for local adaptation. Every society requires robust knowledge, both scientific and indigenous systems, to pursue strategies for adaptation in order to cope with the challenges associated with global warming and climate change.

Conclusion and Recommendations

Indigenous people in North-east India offer local observations and techniques for adapting to and mitigating climate change. Indigenous knowledge will help to address food and nutritional security in the face of climate change in North east India. It can be concluded that the indigenous knowledge system in north east India is an amalgamation of knowledge, culture and development. Hence there is an urgent need to study, characterize and record all the information from the diverse ethnic communities of north east India before the traditional culture is completely lost under the forceful influence of modern societies. Elderly tribal people are depositories of information on climate change history hence they can contribute to participatory programmes on mitigation and adaptation to climate change. It becomes evident that indigenous knowledge and perceptions must be incorporated into the climate change forum. Indigenous and other traditional peoples are only rarely considered in academic, policy and public discourses on climate change, despite the fact that they will be greatly impacted by impending changes. By capitalizing on the collective wis-

dom of formal science and traditional ecological knowledge, we shall be able to address the problem of climate change in the north east region of India.

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18

A Study on Faunal Diversity and Its Utilization by Indigenous People of Tripura

Dr. Nupur Datta
and
Tapasi Saha

Abstract

The rich biodiversity of the state is the source of food, shelter, clothing, constructional materials and medicine for the indigenous people of the state. Diverse flora and fauna, wild animals are available in Tripura because of its unique bio-geographical location and zoo-geographical position. Literature shows that there were large population of Rhinoceros, elephant, tiger, leopard, langur and monkeys in Tripura. Tripura has the highest number of primate species found in any Indian state. Indigenous people of Tripura has their own beliefs and customs. The old history of Tripura and contemporary mythological books accounted vast number of animal product for their food, clothing, health care and economic growth. They believed that eating of the wild animals generate good physique and energy. It is commonly believed that some species of wild animals has curative functions for some diseases like- few edible snails cure measles, pox, some used cockroaches for urinal problem of children. The dead spiders are used by rubbing on the ear-scars for remedy etc. These practices in ancient period are of special

importance for the wild life and nature lovers to look back the trend of animals captured, killed and used thereby threatening the survival of wild life. Hopefully modern society came to know the interaction of forest, wildlife and mankind is the soul of healthy living.

Keywords : *Fauna, Diversity, Food, Human ailments Medicines.*

Introduction

Tripura is a state of rich natural biodiversity. It was formerly an independent Tripura Kingdom and was merged with independent India on 15th October 1949 by the Tripura Merger Agreement. It is the third smallest state in the country constituting 0.3% of the country population. Tripura although has small geographical area, about 10,169sq.km. , does not deprive the state in being one of the richest areas with regards to the floral and faunal diversity and biological resources. The state during its early period was rivery, marshy and low land with fertile land to rear all kinds of life. There was deep forests with abundant wild life where all kinds of deer, birds, cranes, flamingoes, tigers, elephants were prominently seen (Raj Ratnakar-6:4-18).Tripura myths and folk tales contain relationship of human with animals, birds, and wild life. The old history of Tripura and contemporary mythological books accounted vast number of animal products used for their economic growth and mainly for food, clothing, healthcare and other economic growth. Geographically it lies in a strategic zone as it falls in between the Indo-Malayan and Indo-Chinese biological realm. Thus Tripura stand at the gateway to floral and faunal confluence. So unique flora and diverse wild animals are available in Tripura because of its unique bio-geographical location and zoo-geographical position. This rich

diversity of living creatures formed a support system for indigenous people and other communities for their growth and development. Living creatures of forests were the source of food, shelter, constructional materials, medicines for them in the state. Indigenous communities, known in India as scheduled tribes form about 30% of Tripura population. The tribal has rich cultural heritage and has its own beliefs and customs. Several diverse ethno-linguistic groups are found in this state which has given rise to a composite culture.

Materials and Method

The main objectives of the study are-

1. To know detail about floral and faunal resources of Tripura,

2. To know about utilization of faunal resources as food,

3. To know about utilization of faunal resources for cure of several human ailments by indigenous people,

4. To protect all the time tested beliefs and practices, and correlate with the modern medicinal techniques.

For this study necessary information of bio diversity, specially faunal diversity of Tripura has been collected from different reference books, internet encyclopedia. Information about utilization of faunal diversity by indigenous people were also collected from some valuable books. Beside this, some field level practical survey was done mainly at three area- 1.Maharani,- where Jamatias are dominated, 2. Nityabazar,- where Molsom i.e. Halam communities are dominated and 3. Holakhet- some Marak families who are basically under Garo communities and 4.Hadrabari-where also Jamatias are dominated. Information were also collected from some Tripuri families who are residing in Udaipur town. Information were collected mainly from the aged member of the family verbally

which they told depending on their experiences. It is not known whether any scientific test and scrutiny have been done or not to prove these beliefs. But these are all time tested practices which they follow generation after generation.

Results

Faunal diversity:- In Tripura, there are 289 species of aquatic flora and fauna of which 78 are fish species. There are 118 species of macro aquatic fauna and 69 micro aquatic fauna are yet known. These include fishes, amphibians, reptilians, prawn, aquatic insects, protozoans, crustaceans, rotifers etc. The state has nearly 341 species of birds of which 58 are migratory in nature. Of the land animals, Tripura is endowed with 90 species of land mammals from 65 genera and 10 orders. Tripura has the highest number of primate species found in any Indian state. Out of 15 non- human primates of India 7 are found in Tripura including the rare spectacled monkey and several endemic and endangered species viz. Hoolock Gibbon, slow Loris, Capped Langur, Phayre's Langur, stump tailed Macaque and pig tailed Macaque. Other endangered and threatened mammalian species are elephant (Elephas maximus), sloth, bear (Melursus ursinus) , Indian wolf, Hog Badger, Binturong (Arctictis binturong), Leopard (Panthera pardus),Clouded leopard (Neofelis nebulosa), Marbled cat, Leopard cat, Rhinoceros, Pangolins, Porcupine (Artherurus assamensis), Sambar (Cervus unicolor).. The wild buffalo (Bubalus arnee) is extinct now.

Utilization of fauna as food :- Wild deer, Antelopes, pigs, bison, cows, dogs, buffaloes, deer, monkeys, snakes, lizards rodents, were hunted for food by the tribal people. Even big mammals like elephant, tigers, are also hunted for food. They believed that eating of these animals generate good physique

and energy. Some invertebrates like snails, bivalves, prawn, lobsters, grasshoppers, also have been taken as food.

Utilization of fauna for cure of human ailment by indigenous people :- Animal products are used for medicinal purpose to cure human ailments from ancient period. Large number of animals were in prescriptions for medicines. Fried mice were considered as medicine for smallpox, spiders and toads were considered as effective remedy of whooping cough. Few edible species of snails are used for measles and pox. Some are believed that snails are also good for eyesight. Dead spiders are used by rubbing on the ear scars for remedy. Jamatias are believed that oil of jackal used for arthritis, bile and oil of python used for paralysis, oil of crabs are used at the biting site of centipede (sindrai). Skin of Monitor lizard boiled in water and used this for jaundice. Liver of goat and buffaloes are used for night blindness. It was commonly believed that ash of burnt shell of snails and bivalves, mixed with coconut oil is very useful for some skin diseases. Tripuries are believed that roasted cockroaches and fire flies are used for urinal problem of children. Garos believed that feeding of fireflies with banana or other fruits is very useful for eyesight. Soup of goat intestine is used to overcome common cough and cold. Meat of toad is used to promote growth for ill developed children. After long sickness cooked Cuchia fish is commonly used to gain strength. Bones, claws, skin and almost all parts of body of tiger is of great demand for medicinal purposes. Civet secretion has high demand for the medicinal use. Slow Loris, slender Loris are killed for the use of their eyes in traditional medicines. Pangolins (Manis pendactyla) flesh is believed to cure many ailments.

For these reason animals were captured, killed and used

for medicines thereby threatening survival of wild life. Beside these traditional societies also have played an important role in preserving their bio-diversity. They value bio diversity as a part of their livelihood as well as through cultural and religious sentiments. Apart from the economic importance there are several cultural, moral and ethical values which are associated with the sanctity of all forms of life.

Discussion and Conclusion

Historically humans have always taken what they needed from the earth itself and from its plants and animal species with no regard as finite or not. It has only been since the middle of the 1980s as species started becoming extinct at a record rate that threats to bio diversity become recognized as a major concern. Tripura has been listed as one of the 26 endemic centers in India. Social changes and progress has been a major concern of sociologist today. Education now as a means to modernize social system has to penetrate to all the sections of people for bringing attitudinal changes in the population as well as habitat. The rich bio diversity has been instrumental in providing humanity with food security, health care, and industrial goods that has led to high standard of living in the modern world. The diversity of life on earth is so rich that if we use it sustainably we can go on developing new products for generations. For this reason we must realize the importance of biodiversity as an important resource. So biodiversity sustain the bodies we live in, effect the life we lead and the societies we form.

So, it has been suggested that it is necessary to correlate the indigenous time tested beliefs with modern and scientific methods for the cure of human ailments. It is also necessary to develop awareness that the interaction of forest, wild life &

mankind is the soul of healthy living in modern society.

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19

The Journey of Forest Rights Act 2006 and It's Impact on North-Eastern Region

Piyali Dhar

Abstract

The concept of decentralization has been introduced in many developing countries to understand local management of natural resources, particularly forests. Starting from Forest Policy 1988, to Forest Rights Act, 2006 forest resource management in India has followed the continuous process of decentralization (Ghate,2009).Therefore, The Scheduled Tribes and Other Traditional Forest Dwellers Act, 2006 (implemented since 2008) is undoubtedly a historic legislation which helps to redress the injustice of forest dwellers in the country since, it's colonial legacy. Because, this act provides the Gram Sabhas(grass root democratic institutions under the Panchayat Raj System)to identify the forest rights and the means of livelihood to the forest dwellers, including ownership of forest land of individual as well as communities. It also aims to empower the communities for the "responsibilities and authority for sustainable use, conservation of biodiversity, and maintenance of ecological balance"(MoLJ,2007). Thus, Forest Rights Act 2006,encourages local management of natural resources to identify the forest rights and the means of livelihood to the forest dwellers.

Hence, over the years , North-eastern India has gained worldwide attention for its diverse and extensive forest areas. According to official estimate the N.E region has 163,799 km square forest which is about 25% of the total forest cover in India. Therefore, forest management cannot be isolated in North-East India , because it is one of the two mega- biodiversity zones in India and become the foundation of peoples sustain. So, the present paper deals with the historical journey of implementation of Forest Rights Act 2006.This paper also explores the impact of FRAs 2006 on North-Eastern region which change the top-down centralized style of governance of forest management.

Introduction

Forest is the common property resource to rural households in general and to the scheduled tribes and other traditional forest dwellers in particular. In India, forest landscapes covers 21.23% of the country and affect the livelihoods of around 250-350 million citizens, or population. So there is a long relation between forest and forest dependent communities, interlinked economically, culturally and socially. But before 1988, the Indian Forest Act continues colonial legacy in forest resource management . Though,from National Forest Policy 1988, to Forest Rights Act 2006 has followed the continuous process of decentralization, to identifying the forest rights and to involving the community in forest management. Because, a forest policy has to address two fundamental question , one that relates with the maintenance of ecological balance, and taking care of forest products by people and second that relates with the active involvement of communi-

ties in forest management mechanism. Thus, forest management cannot be isolated in North-East India , because it is one of the two mega- biodiversity zones in India and become the foundation of peoples sustain. According to official estimate the N.E region has 172,529 sq km forest (Survey report of Forest Survey of India 2013) which is about 65.83% of its geographical area in comparison to the national forest. This reflects the importantance of forest resource management of the north - eastern part of the country.

Methodology

This paper basically based upon two main research approaches. First, an initial review of literature and second is based on perceptions and opinions gathered through various groups or representatives of FRAs 2006.These include officials in the Ministry of Environment and Forest, Ministry of Tribal Affairs, Ministry of Law and Justice etc.

Journey of FRAs Act 2006

The focus on the subject of forest management and forest policy formulation has directed with the concerns for environment and sustainable development. In India the policies before 1980's were aimed at expanding government control over the forest resources of the country. Whereas the decentralization of forest management began with the acceptance of people oriented forest policy in 1988.The National Forest Policy in 1988 recognized for the first time the relation between forest resources and tribal communities. Thus, the new forest policy recognizes the relation of communities with forest.

Table-1: Phases of Forest Governance during Post Independence Period

Phases	Major Forest Policies	Highlighting Points
Phase-i (1947-1970)	1.National Forest Policy (1952)	*Commercial exploitation of forest for industrial development.
Phase-ii (1971-1987)	*1.Wild Life(protection) Act(1972)* *2.The ForestConservation Act(1980)*	* Conservation of forest resources through powerful * No place for legislation. forest dwellers and tribals in protection and management of local forest resources
Phase-iii (1988 Onwards)	*1. National Forest Policy(1988)2. Joint Forest Management(1990)* *3.The Panchayat Extension to Schedule Area Act(PESA-1996)4 Bio-Diversity Conservation Act (2002)*	* Emphasis on participation of forest dwellers.* Increasing accessto forest products.*Enhancing livelihoods.* Giving power to.the village assemblies to identify community resources. * Recognizing traditional knowledge in forest management.

Here , the forest policies up-to 1988 were guided by a rigid, centralized, commercial point of view .But the forest policy 1988 was the first step towards decentralized forest management to alleviate the century long social injustice of forest dwellers environmental stability and maintenance

of ecological balance. It also gave priority to villagers needs and accepted their first "claim" on the resources. Another most common and major operational form of decentralized management of forests in India called as Joint Forest Management (JFM; 1990) which recognized organizational systems to regenerate forest produces through sustainable utilization; mitigate the livelihoods of forest dependents communities; sharing expected benefits. However, JFM(1990) has been criticized for its typical top- down approach; asymmetric power relationship between the state functionaries and the people; power imbalances within the communities; inadequate benefit- sharing provisions(Sundar 2001, Conroy et al.2000). Then, The Panchayat Extension to Scheduled Area Act (PESA) of 1996, gave power to the Gram Sabha in scheduled areas over community resources, especially over Minor Forest Products (excluded Bamboo and Tend) and Bio- Diversity Conservation Act, 2002 added management rights and recognition of traditional knowledge, to the right of product use.

Thus, under these background Forest Rights Act 2006 (FRA,2006) implemented to promote peoples participation, efficiency, equity, accountability and empowerment of communities at the grass root level. Basically, The Scheduled Tribes and Other Traditional Forest Dwellers Act, 2006 or FRA , 2006 is undoubtedly a historic legislation which helps to redress the injustice of forest dwellers in the country since, it's colonial legacy. Because this act provides the Gram Sabhas(grass root democratic institutions under the Panchayat Raj System) to identify the forest rights and the means of livelihood to the forest dwellers, including ownership of forest land of individual

as well as communities. It also aims to empower the communities for the "responsibilities and authority for sustainable use, conservation of biodiversity, and maintenance of ecological balance"(MoLJ,2007).

Recognition and Restoration under the FRA(2006)

Rights under FRA, 2006 which are claimed by village community (i.e. the whole Gram Sabha rather than individuals) such as right of access, use disposal of non-timber forest produce(NTFP) and rights over the products of water bodies and grazing grounds, are claimed by forest dwellers. Therefore, proper implementation of the FRA will lead to a number of benefits for the claimants. They include the following:

1. Ownership rights to forestland under possession (up to 13th December 2005) by claimants such as tribals and other traditional forest dwellers.

2. Right to dwell perpetually in small houses constructed on forestland to those living in them.

3. Right to settlement of old habitations and unsurveyed villages.

4. Right to habitat and habitation for primitive tribes.

5. Right to conversion of forest villages into revenue villages.

6. Right to conversion of pattas or lease or grants issued by the state government on forestland to titles.

7. Right to rehabilitation if illegally evicted or forcibly displaced.

8. Right to protect, regenerate, conserve or manage any community forest resource that forest dwellers have been traditionally protecting and con serving for sustainable use.

9. Right to access to biodiversity and community rights to intellectual property and traditional knowledge related to biodiversity and cultural diversity.

10. Community rights to intellectual property related to forest diversity, cultural diversity, and any other traditional right customarily enjoyed by forest-dwelling communities, excluding the right to hunting.

11. Other community rights to use or entitlements, such as fish and other products of waterbodies, grazing, and access to traditional seasonal resources for nomadic or pastoralist communities.

Forest Administration in North - East India

Basically, both tribal resource management and administrative control over forests differ in the N.E with the rest of India. In Assam, Tripura and the Imphal valley of Manipur most forests are controlled by the Forest Department. Nagaland and Mizoram are governed according to their customary law under Article 371 A and 371 G. Though Arunachal Pradesh and Sikkim has two third of tribal, but the constitution does not recognize their customary law and the state does not have the Six Scheduled. Basically the FRA's provisions have the potentiality to radically transform forest governance. But several pressures are come from various stake holder like, (a) Urban Middle Class;(b) Industrial Commercial Group;(c) Official Bodies;(d) Traditional Poor Communities to administer community forest management.

Forest Rights Act 2006 - Ground Realities in North - East

North - eastern states are the founder of forest management among other regions. But personal interests of

forest dwelling population have clearly over taken by community interests compared with rest of the country. Apart from that administrative level support towards community forest rights are also neglected.

Table:2, State Wise Status Report, on Implementation of the Schedule Tribes and other traditional Forest Dwellers Act, 2006. For the Period Ending 31st December, 2014(MOTA)

Sl No	State	Total Number of Claims Received up to 31.12.2014	Claims Received during the Current Month	No. of Titles Distrib uted	No. of claims for CFRs filed	No. of CFR Titles Distri buted	% of the Titles distrib uted over num ber of claims recei ved
1.	Tripura	1,82,617 (Individual- 1,82,340 and Community -277	Not Submitted	1,20,473 Distributed (1,20,418 for individual , and 55 for community)	277	55	65.97%
2.	Assam	1,31,99 (Indiv idual- 1,26, 718 and Community- 5,193)	-	36,267 Distributed (35,407 for Individual and 860 for Community)	5,193	860	27.49%
3.	Meghalaya	Not Submitted	Not Submitted	Not Submitted	Not Submitted	Not Submitted	Nil
4.	Manipur	-	-	-	-	-	-
5.	Mizoram	-	-	-	-	-	-
6.	Nagaland	-	-	-	-	-	-
7.	Sikkim	-	-	-	-	-	-
8.	Arunachal Pradesh	-	-	-	-	-	-

As the details given in MoTA status report of 31st December ,2014 out of 7 states, five of them have ex-

cused for implementation of FRA 2006. These states have claiming that the pre - existing rights regime is strong enough, and that the FRA is not applicable in their special situations. Some information on claims field and titles granted in only two of these states, Tripura and Assam, can be seen in the MoTA status reports.(December, 2014).It must be also noted that for the states of Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, and Sikkim the reasons for lack of implementation have remain unchanged since 2010 in all MoTA status report.

Tripura - Data published by Ministry of Tribal Affairs(MoTA, for the period ending December , 2014) Tripura stands first implementing FRA, 2006. But "the government of Tripura have not furnished updated information regarding the extent of forest land in respect of all titles have that been distributed".(MoTA 2014). Here it is noticed that, out of 1,82,340 claims, individual claims approved and distributed-1,20,418 (66%): and community claims approved and distributed-55 (19%).So the personal interests of forest dwelling population have clearly over taken by community interests compared with rest of the country as well as N.E Region.

#Assam - Data published by Ministry of Tribal Affairs(MoTA, for the period ending December , 2014) "the government of Assam have not furnished updated information regarding the extent of forest land in respect of all titles have that been distributed".(MoTA 2014). Here it is noticed that, out of 1,31,911 claims, individual claims approved and distributed-35,407 ; and community claims approved and distributed-860. According to, state officials disputes in setting claims get converted into law and order

problem which adversely affects the pace of implementation of the Act.

Arunachal Pradesh - Territorial boundaries of land and forest belonging to different communities or tribes are identified. But there is no scope for any dispute over the possession of land, forest, and water bodies among the tribes. Therefore, FRA does not have much relevance in Arunachal Pradesh.

Meghalaya - According to, MoTA Meghalaya already claim that 96% of forest land is owned by clan\ community \ individuals implementation of the act has, therefore, limited scope of FRA 2006.

Manipur - Tribal communities holding ownership of forest land in Non - Reserved Forest Area. Therefore, minimal scope is there to implemented FRA Act.

Nagaland - State Govt. of Nagaland has informed that the land holding system and the village system of the Naga people is peculiar in that people are at land owners. There are no tribes or groups of people or forest dwellers in state of Nagaland. Hence, The FRA, 2006 may not be applicable to state of Nagaland. However, a committee has been constituted to examine the applicability of the Act in Nagaland as per provision of Article 371(A) of Constitution of India.

Sikkim - The government of Sikkim has not sent any report regarding the progress of implementation of the Act in the state so far. Because, in Sikkim, there are no forest dwelling STs and OTFDs in true sense of terms. Most of the STs of Sikkim hold revenue land in their own name and they are not solely depend on the forest of their livelihood.

Challenges

The necessary institutions to support and facilitate the process of recognition of rights under FRA 2006 are not in place, or not functioning as they should in north-eastern region. However two state viz. Tripura, Assam are going to forward. But Mizoram, Manipur, Meghalaya, Nagaland, Sikkim, Arunachal Pradesh need to work out strategies as they possess no blue print of the FRA so far. Hence some problems and challenges are try to identified, which are as follows:

1. Forests represent one of the most valuable resources in N.E India. Throughout northeast India Indigenous Community Institutions(ICI) continue to play a vital role in managing village society and natural resource use. So there is no need to strengthen ICIs to allow them to function effectively and interact without side actors.

2. Traditional community resource management rules and regulations require review and updating to respond to changing land, forest and water needs.

3.North - East India is a region , where rural communities are heavily dependent on forests for income. Therefore ,throughout North - East India, much of the forest land has been legally held by communities and clans. But in recent decades there has been growing privatization of these communal land. So, all community and clan forests need to be mapped, demarcated and registered with Autonomous District Councils (ADCs) and concerned government department to assist communities to develop management plans and activities.

4. Claims of Other Traditional Forest Dwellers (OTFDs) are not recognized in most north - eastern states, partly due to the wrong interpretation that they require to have occupied land for three generations, which is difficult in finding as evidence.

Recommendations

Basically FRA 2006 covers all forest land irrespective of the category of forests and ownership of land. As far as the northeastern states are concerned, Nagaland and Mizoram requires their adoption of the law by the state legislature as per the constitutional provisions. While Mizoram has notified its adoption in 2010, Nagaland is in the process of examining the law. Assam and Tripura has been implementing the law. Manipur, Meghalaya, Arunachal Pradesh feel that the FRA is not so relevant because of the prevalent customary community ownership of forest land. In Sikkim the forest department is acting as the nodal agency for implementation of FRA 2006. So, here are some measures given to implement FRA 2006 in a new manner to developed forest mechanism in North - East India.

1.MoTA in association with state tribal/social welfare department and civil society networks, needs to launches fresh campaign on a mission mode across the north eastern states. This should include mass awareness programmes using training session, workshop, seminar etc.

2.Strengthening national, state and local process of implementation of CFR to improve disaggregated information and a mechanism for verification of state level infor-

mation.

3.Clear instruction should go from MoTA to all northeastern states, directing that forest, revenue and district administration officials be instructed urgently provide all necessary records and evidences to Gram Sabhas to facilitate CFR claims.

4. MoTA should issue a circular to all states, asking them to ensure that CFR claims and other title related issues are strictly follow customary boundaries.

Conclusion

This overview shows that, FRA 2006 represented major paradigm shift in approach towards grass root level decentralization in management sector, forest rights relating to tenure security providing relief from persisted physical and psychological threat of alienation from the land to ST and OTFD, livelihood in terms of agriculture on as is where is basis and the ownership of minor forest product including rights to collect, trade and process the same and traditional customary and development rights. Therefore, FRA 2006 is very promising in near future in terms of every respect.

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20

Medicinal Plants: Tripura Scenario

Dr. Pritikana Saha
and
Dr. Gautam Chel

Abstract

All we know that Tripura remains in the 8th biogeographical region of India having the high plant diversity index of 5.23. In Tripura the number of medicinal plant species is found about 266, out of which many have the potent trade values. Medicinal Plant Board of Tripura identified about 25 plants which are cultivated and conserved through the schemes provided by National Medicinal Plant Board. The state board implements those schemes through the various Joint Forest Management Committees located in different parts of the state. Those committees employ forest dwellers which are mostly tribal population. Besides their dependency on these plants for health-care services, tribal population gets best practice also in their livelihood as the production of those plants is labour-intensive. On the other hand it helps in providing conservation of medicinal plant species for perpetuity and posterity, which is a long heritage of our country. In this backdrop we have surveyed some of the economic aspects of the medicinal plants and depict the scope and prospect of cultivation and conservation of

medicinal plants. The overall scenario is described along with some recommendations.

Introduction

Each and every population of a geographic region tries to fulfil its basic needs from the locality. Health care system is also no exception to this. This requirement along with the constant updating of knowledge for health care makes the Traditional Medicine (TM) for each region. The interregional mixing of this knowledge mutually improves each other's knowledge bank.

Tripura is located in the 8th bio-geographical region of India (Chauhan, 2008). 6292.681 sq. km forest area constitutes 59.98% of total geographical area of Tripura. Plant diversity index of Tripura was as rich as 5.23 (Mazumder, 2001). Blessed with high rainfall, humidity and nutrient in soil, the potentiality of the forest was also estimated by its productivity index as 9-12 cubic meters per hectare per annum (Economic Review, Govt. of Tripura, 2013-14). The medicinal plant species found so far in Tripura are ~ 266 (68 tree species, 39 shrubs, 71 herbs and 88 climbers) (Resource Base, Department of Forest, Government of Tripura, 2015). Among them, the Medicinal Plant Board of Tripura has identified ~ 25 plants valuable and easily cultivable, hence tried to promote them in the national market. In this context the present paper elaborates the present scenario of this sector. Interviews with the government officials and cultivators of the medicinal plants helped the authors to make the suggestions.

Medicinal Plants and Tribal Population

According to WHO, about 80 per cent of the population of some Asian and African countries presently use herbal medicine for some aspects of primary health care (Balick & Cox,

1997; Wikipedia: Herbalism). From time immemorial tribals of Tripura also use some plants as medicine, as there was no other alternative system for their health care (Pal, 2005). Most of them were found in the forest of Tripura. These plants formed the non-codified system of medicine and this is our tradition. Actually Mother Nature keeps them in her lap. Having in close proximity the life of the tribal people and the forest are harmonised in such a way that these people lean onto the forest not only for livelihood but also for essential health care and cure beside having other utilities infused in the way of life. Many of these plants were subsequently codified but there are some other plants, which are yet to be codified. Not only for this, medicinal values of the plants are now-a-days saleable because of their less side effects when properly used on the bio-system and have easy biodegradability, so eco-friendly.

Formation of MPBT

Tripura State Medicinal Plants Board had been constituted in 2002 (Tripura Biodiversity Board). This was done for the in situ and ex situ conservation of the medicinal plants of the state; as well as for cultivation and promotion of the medicinal plants. Since then MPBT has been working under various schemes of NMPB through almost thousand JFMCs and different division of the territorial forest and more than two thousand SHGs. JFMCs were constructed taking mainly the forest dwellers that are in most of the cases tribals. Thus tribal population gets a large benefit from these schemes.

Activities of MPBT

Since 2008, MPBT implemented the following schemes for tangible benefits of the society through community participation. In all these schemes moderate amount of mixed plan-

tations were done. As for example about 600-700 ha land was used for the cultivation of medicinal plants. There are nursery beds in almost all forest divisions. In addition to that there are six central nursery beds also. The plants Agar, Amla, Arjun, Ashok, Baherah, Bael, Gandhaki, Haritaki, Kalmegh, Lemongrass, Nageshwar, Neem, Sajna and Shatamuli were cultivated in the direction of commercial production. Different sites were chosen in this regard *e.g.* Kalmegh plantation in Shibbari Beat of Manu Forest Division and Shatamuli plantation in Jawharnagar Beat of Ambassa Forest Division. Not only are these, to add more value to these products 3 numbers of distillation plants are going to be established shortly.

Medicinal plants are the main source of our TM from time immemorial. But now-a-days medicinal plants become converted to economic plants, because there is a ridiculous shift of the trend to prefer TM to allopathic medicine even in the advanced countries. The World Health Organization (WHO) estimates that about 80 percent of the world population - 4 billion people use herbal medicine for some aspect of primary health care (DSIR report, 2004). This is also reflected by the rapid-growing business and scholars expect to a turnover of US$ 5 trillion at 2050 (DSIR report, 2004). Indian share in the world trade, at present, however, is quite low.

The medicinal plants suitable for cultivation in Tripura and income generation from their commercially important parts are Bael (*Aegle marmelos*) - green fruits, Kalmegh (*Andrographis paniculata*) - dried whole plant, Agar (*Aquilaria agallocha*) - dried wood, Shatamuli (*Asparagus racemosus*) - dried tuber, Amlaki (*Emblica officinalis*) - dried fruit, Gamar (*Gmelina arborea*) dried root, Gandhaki (*Homalonema aromatic*) dried rhizome, Sajna (*Moringa*

oleifera) - green fruit, Ashok (*Saraca asoca*) - dried bark, Arjun (*Terminalia arjuna*) - dried bark, Baherah (*Terminalia bellirica*) - dried fruit, Haritaki (*Terminalia chebula*) - dried fruit (Bhattacharjee, 2014). Lakhs of rupees may be earned from most of these plants by five to fifteen years. A concrete example is Agar (*Aquilaria agallocha* and other species). In the genus Aquilaria at least fifteen species are known of which eight of them are able to produce agar-wood. The demand of Agar-wood now spreads to the whole world for its quality oil and resinous wood, especially in the Middle East. One litre of Agar oil was sold as much as Rs. 5,00,000 to Rs. 7,00,000 in the International Market in the middle of the year 2011(Munal, 2011).

By the initiatives of MPBT, Rs. 378250 was generated from 1513 kg Gamar seeds during the period of 2008 to 2011 and Rs. 33209 from 984 kg dried Kalmegh during the period of 2011 to 2014. Besides a considerable amount of Gandhaki and Shatamuli were also cultivated in the recent past. For adding values to the plant products, three distillation units are to be established shortly in Kailasahar, Bagafa and Teliamurah forest divisions. The Board through JFMCs marketed some of the medicinal plants in different agencies and companies. Some of are Oushadhi, The Pharmaceutical Corporation (I.M.) Kerala Ltd. (A Govt. of Kerala undertaking); Madhya Pradesh State Minor Forest Product (T&D) Cooperative Federation Ltd.; Shree Baidyanath Ayurved Bhawan (Pvt) Ltd. *etc.*

Efforts from the part of MPBT were also taken for increasing awareness among the rural people especially the forest dwellers and tribals in cultivating medicinal plants. To increase the awareness among the common people, the Board took part in the Arogyo Mela (Health Fair) in the past. It con-

ducted many workshops among the cultivators and members of the JFMCs. Not only these a national level workshop on "Importance of traditional medicines in health care management" was also conducted by the board in 2014 leading to the formation of the "Tripura Kaviraj Sangha". In a separate building the highly valued "Panchakarma Therapy" was introduced by the Board to show the glimpse of our great traditional system of medicine - Ayurveda. Above 5000 patients were experienced this treatment and rupees fourteen lakhs of revenue was generated by this way.

Constraints for the Development of Medicinal Plants Sector in Tripura

There are many constraints to overcome for the development of medicinal plants sector in Tripura. The production-side constraints include shortage of quality planting materials for constant supply to industries, lack of scientific planning of practices for best cultivation of medicinal plants, disjointed land holdings which reduces large scale production of uniform quality products and lack of organized farming and insufficient research and extension facilities. Whereas, demand-side constraints comprise lack of organized marketing, no or low value addition, poor market intelligence, inconsistent prices, limited capacity of market players and low market power of the existing collectors and growers (Nair, 2007). Besides, the geographical position of the state along with a long international border plays a deleterious role in this sector.

Challenges in Medicinal Plants Sector in Tripura

According to WHO the national challenges in this field are to introduce the TM products in the national health care system by developing and implementing national TM policies and programmes; to promote the safety, efficacy and quality

of TM or Complementary Alternative Medicine (CAM) by expanding the knowledgebase on TM or CAM, and by providing guidance on regulatory and quality assurance standards; to increase the access i.e. availability and affordability of TM or CAM, with an emphasis on access for poor classes; to promote rational use of therapeutically sound and appropriate TM or CAM by providers as well as consumers (WHO, 2002).

Beyond these national issues which are also valid for the state, Tripura has also had its own challenges, such as guaranteed constant supply of the raw materials for industrialization; codification of absolutely non-codified medicinal plants; stabilization of marketing processes; adoption of modern and scientific know-how for maximum cost-effectiveness in cultivation; composting and vermicomposting for assurance of waste-management. A long international porous border with Bangladesh also crops a problem of the trans-border activities.

Recommendations

From this study we have understood that the following initiatives are to be taken as early as possible for the proper growth in this field. Prioritization of the medicinal plants for conservation and cultivation are bare necessity. It should include the endangered plant species like Aquiloria melacensnis - Agar (Tree), *Elaocarpus prunifolia* - Ban jalpai *(Tree), Michelia montana* - Champa sundi (Tree), *Pterocarpus santalinus - Rakta chandan* (Tree), *Rauwolfia serpentina* - Sarpgandha (Herb) (Resource Base, Department of Forest, Government of Tripura). We should also think for their conservations. Policy making for industrialization and value addition near cultivation area are essential. The quality control laboratory along with full-fledged Ayurvedic and Homoeopathic

Colleges are to be established shortly. Many of the therapeutic agents used in the Panchakarma Clinic are now brought from branded companies. We can produce those indigenously. That can not only help the patients in terms of money but also generate human resource as more and more patients will be able to come to the clinic. Mixed culture plantation for the prevention of diseases, soil degradation are to be considered for the best utilization of forest land. Though the steps for increasing general awareness were already taken, steps for home-remedies should also be needed for popular discussion. In this regard essays on TM are to be introduced into school curriculum.

Now it is unfortunate to tell that in presence of modern allopathic system of medicine (considering its benefits as well as adverse effects) this vast system of TM became CAM. In spite of this huge tradition, we ourselves made it alternative because of our idleness for research and inactive mentality.

Acknowledgement

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21

Tribal Life and Forest Resource

Pritilata Debbarma

Abstract

Tripura is the smallest state among the eight sisters, situated in the North East India. It is very beautiful state. It is covered by hills, rivers, paddy fields, green forests, varieties of fruit trees, scented flowers, forest vegetables, herbs, and flora and fauna. Though Tripura is very small state, it is very rich in forest resources, which attracts people from other states as well as from other countries. Once upon a time Tripura was a kingly independent small kingdom. 184 kings ruled over the land thousands of years. The indigenous people of the land are now known as tribal. On October 15, 1949 Tripura merged with India and became the part of India. It is recorded that 19 tribes, which are known as Tripuri, Reang, Jamatia, Noatia, Murasing, Uchoi, Rupini, Kalai, Chakma, Mog, Garo, Lushai, Darlong, Molsom, Kaipeng, Hrangkhol, Halam, Bongcher, Korbong are all of the origin of Sino-Tibetan language family. Most of their livelihood was dependent upon the 'Huk' i.e. 'Jhum cultivation'. Tripura's weather is very favourable to grow trees, bamboos, various kinds of essential greens plants. Forest re-

sources are the friends of the tribal people.

Keywords: *Handicrafts, Varieties of Forest Vegetables, Wild Animals, Birds, Trees and Herbs etc.*

Introduction

The state of Tripura, with a geographical area of 10,491.69 square kilometer is predominantly hilly (60%) and is surrounded on three sides by a deltaic basin of Bangladesh. The state is situated between 22o57` & is 24o32`N and 91o10` & 92o20`E with tropic of cancer passing through it. The State is situated in the South- Western extremity of North- East region of the country. It shares border (1001 km in perimeter) with Bangladesh, Assam and Mizoram. International border with Bangladesh is 856 km.

The forest in the state are mainly tropical evergreen, semi evergreen, and moist deciduous. Sizeable area is covered with bamboo brakes which virtually form a "Sub climax" resulting from shifting cultivation from time immemorial.

Handicrafts

Bamboo plays a very vital role in the economy of the state as it serves the artisan and non- artisan users of the state.

Availability of Bamboo

A total of 19 species of bamboo are reported in the state. Species of bamboo found in Tripura: Wasur (Barak, Bamboo balcooa), Wasur milik, (Bari, Bambusa Ppolymorpha), Wandal (Mritinga, Bambusa tulda), Wathwi, (Muli, Melcanna baccifera), (Paora ,Bambusa teres) Rupai (dendrocamus longispathus), Wamwlang (Dolu, Neohueaua dullooa), Wamillik (Makal, Bambusa pallid), Pecha (Dendrocalamus hamiltonii), Kalangshi (Kailyai Oxytenanthera nigrociliata), Wasur sa (Kanak kaich, Bambusa offinis), Lanthi bans (Dendrocalamus strictus), Watolok (Tetua, Bambusa spp.), Ish (Bambusa spp.), Wakobor(Jai ,Bambusa spp.), Sairil/Wadu Bamboo (Melocalamus

compactiflorus), Bosai (bambusa spp.).

(An artisan with her wife, Sri Sushil Debbarma and Smt Surjya Laxmi Debbarma)

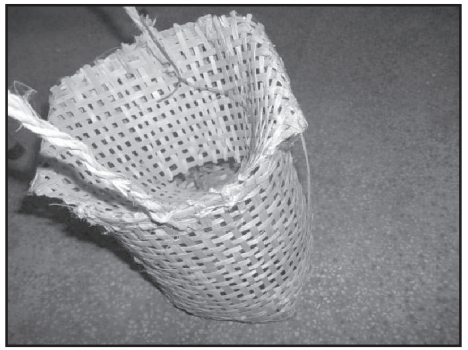
A Handicraft is one kind of art which tribal people, very skillfully, make their useful household articles from bamboo. Like "ura"(baskets),

"Langa"(Carrying basket),

"Khutruk"(one kind of big basket with cover to keep cloths & valuable articles etc.),

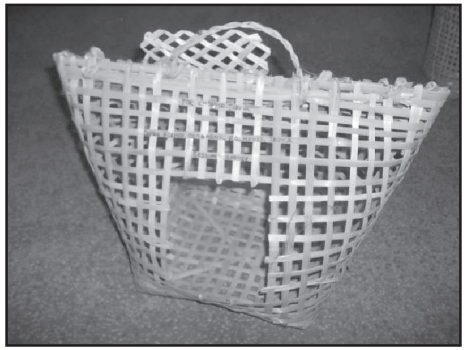
"Dingra"(big size of langa for keeping jum product, like paddy etc.), "Twising"(to carry water pot and fire woods etc.), "Kasleng"(A small langa shaped pot to carry seeds while sowing), "Khutwidula"(to keep jum cotton), "Aa-dula"(keeping fish), "Sudam"(catching fish),

Choka"(One kind of fish trap),



"Sising"(One kind of fish trap),

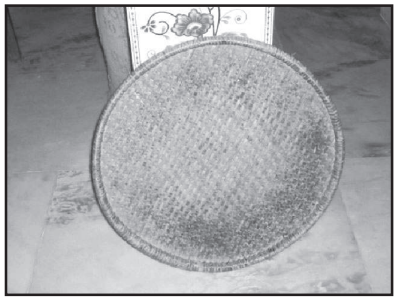
"chakhwikhok" (making eatable soda),



"Takhuk" {for keeping hens(cage)},

"kapai"(preventing ox, cow etc from eating),

"Yakhung" (used to dry paddy etc by spreading in the sun shine), "Dalak" (used to spread rice while making wine, or spreading seeds etc. to keep in the sun shine), "Chokam" (used to level uneven tilled soil in the paddy field),

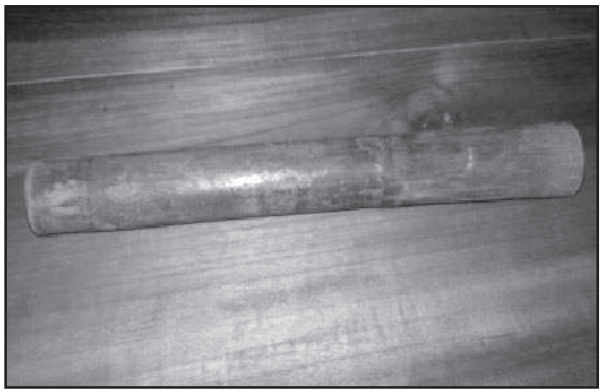


"Bailing"(for winnowing paddy or rice),

"Khwtwidula" (Cotton Basket)

"khumdula" (flower pot),

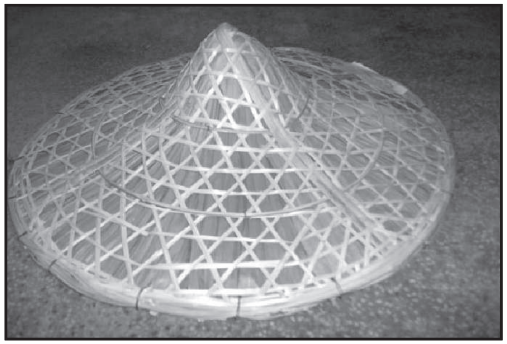
"Mosodula" (chilly container), "Uaying"(cradle)and "Phuta"(washing rice and keeping vegetable), " Lakhuk and Patala"(umbrella) and etc. Now a days so many things are made by bamboo like tea pot, soap cage, partition wall, pen stand, many decorative articles etc.



"Mutari" (for grinding mosdeng and gudok etc.)

"Swikong Thong" (Pen Stand)

"Khum Khali"(Flower basket)



"Patala" (Hat made with bamboo)

"Dapa" (Hukka)

"Yamphra" (a small bamboo mat)

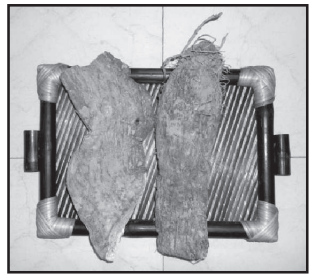
"Hatrai" (Pot seat)

There are so many household articles made of bamboo, which are, "Dangdal"(to dry cloths), "Majang"(to keep bedding etc.), "Gairing"(tong house), "Uasung"(to keep dry fish, dry chilly, dry seed etc.), firewood, fencing, and also we see during ritual time bamboos are using from birth to dead. That is why we can say forest is the friend of tribal people.

Ri Thanti" (Set of cloth weaving)

Forest Vegetables

Varieties of forest vegetables were lure the people. It is natural vegetable without harmful manure. It is found that so many kinds vegetable like "Muya"(bamboo shoot), "Thorai"(one kind of jangle vegetable). "Orai"(one kind of lief), "Gantha", "pachol", "kereng muithaipek", "Gandiri", "thalik muikhum", "Muikhumchok", "Muiching", "Chapok", "Buphang muikhumu" (fungi) "Muikhumu haplok", "Samsata", "Baikang", "Tokhrung", "Gonga"(one kind of potato), "Thabolong"(one kind of potato), "Laiphang"(jangle banana tree), "Muitu", and "Khamka" etc. Instead of jangle vegetable there are find varieties of "Huk" or "Jum" vegetable like "Sobai",(long been), "Lubia"(long been), "Chakumura"(pumpkin), "khakulu" (white pumpkin), "Milok"(guard), "Muimasing", "Thaichumu", "Banta"(one kind of spices), "Khundrupui"(one kind of scented spices), and varieties type "Tha" (A kind of Potato species), etc.



"Tha" (A kind of Potato species)

Wildanimals

Most of the Tripura is covered by jangle once upon a time, according to latest estimates, there are 90 mammal species in Tripura from 65 genera and 10 orders. These make up for about 19, 48 & 100% of the total species, genera, and orders of thebland- mammals record for India, respectively. Seven primate species have been documented in Tripura out of a total 15 found in India. Of these primates, slow loris and stumped tailed macaques have become rare. Phayre`s langur ( locally known as `chasma Bandar`) , has a very restricted distribution in India, and is found in Tripura. "Mosok"(one kind of jangle ox), "Mwsa" (tiger), "Mayung" (elephant), "Mwkhwra" (monkey), "Mothona" (Bison), "Mwsle (paithon), "Mwswi (deer), "Gong" (bear), "Uak" (boar), "Maswndwi" (porcupine), "Muphuk"(Comodo Dragon), "Swikur" (hyena), "Makhwmai"(A big type of mouse), 'Marwk', and "Hoolock" (Gibon)etc. Tribal people were very fond of hunting due to availability of wild animals.

Birds

Among birds we find so many type of birds, borok dopha people are very related with such birds name by "Tokthu" (dove), "Toiathu", "Tokthunta" (Woodpecker), "Pharwk" (pigeon), "Tokphua", "Tatatayung", "Toling" (eagle), "Sikrwk " (vulture), "Chwrwi" (sparrow), "Baila" (one kind of sparrow), "Topepe" (a small birds), "Akatak" (Parrot), "Sarwksa", "Tokha" (crow), "Tokbiring", and etc.

Trees

Blessed with rainfall, humidity and nutrient rich soils, the forests of Tripura are in very high productivity zones. Excellent silvicultural condition prevails for forest production. Contribution of Forestry Sector to Rural Economy while the

annual revenue from forests in the State is around Rs. 300 lakhs, the subsidy that flows to the rural economy on account of free removal of only five items of forest produce has been conservatively estimated to be Rs. 12,926 lakhs, which is about 5.57% of State Domestic Product (SDP). This does not take into account edible fruits, tubers, medicinal plants and many other non-timber forest produce.

List of Tree Species having high Timber Value

1. Aquiloria melacensnis - Agar
2. Pterocarpus marsupium - Andaman padak
3. Artocarpus chaplasa - Chamol
4. Diospires ebonum - Ebony
5. Gmelina arborea - Gamar
6. Dipterocarpus turbinatus - Garjan
7. Albizia procera - Koroi
8. Swietenia mahogany - Mahogomy
9. Dalbergia latifplia - Rose wood
10. Pterocarpus santalinus - Red sanders
11. Santalum album - Sandal wood
12. Michelia Montana - Sundi
13. Shorea robusta - Sal
14. Tectona grandis - Teak

Fast Growing edible plants with nutritional values

1. Drum stick
2. Tree bean
3. Bak phool
4. Thaipong (jackfruit)
5. Kamaranga (Starfruit)
6. Amlai (Gooseberry)
7. Thentrwi (Tamarind)
8. Tha Bolong (Ban Alu)

9. Satmuli
10. Sonal
11. Ban Tejpata.

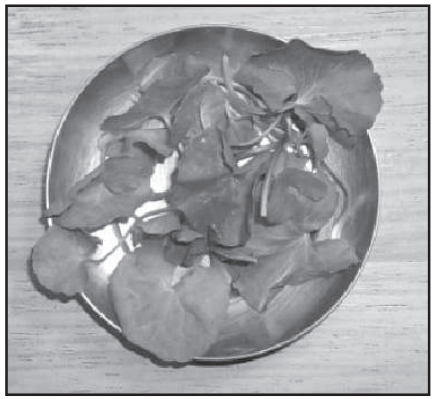
Herbs/ Medicinial Plants Resource

Tripura has one the oldest, richest and most diverse cultural traditions associated with use of medical plants. There are large number of village based herbal medicines practitioners who have traditional knowledge of home remedies of ailments and nutrition. Besides the above registered medical practitioners of modified system of Indian medicine (such as Ayurveda) use medical plants. The herbal medicines used by rural people including tribal have not yet been documented compiling an exhaustive inventory of medicinal plants in the state is the need of the hour. So far about 266 species of medicinal plants (68 trees, 39 shrubs, 71 herbs and 88 climbers) have been identified and documented. Some of the available medicinal plants are Manswndwi, Porkha,

Wswndwi,

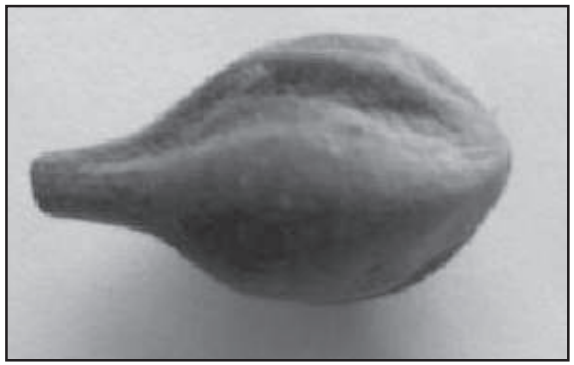
Neem,

Pathorkuchi,



Samsota (Thangkuni)

Chirota



Boira.

22

Achieving Sustainable Livelihood of Tribal Families Through Bamboo Silviculture in Tripura

Pusparwng Hrangkhawl
and
Pankaj Debbarma

Abstract

Bamboo forests have been an integral part of culture and livelihood of the tribal families of Tripura. It is apparent that features of bamboo like fast turnover time, resilience and other special characteristics have greatly attributed to this status in the tribal life. Beginning from the subsistence level up to the commercial level, few tribal families have managed to find out means of sustaining their livelihood without threatening the local ecosystem. With even a minimal knowledge of silviculture and traditional know-how they have been able to overcome the forest dynamics in order to enhance their productivity and minimize the turnover time. This paper analyses the present state of bamboo forests belonging to the tribal families in Tripura and the way they are being utilized for livelihood, social development and economic upliftment. This paper further provides some directions to be considered in order to achieve effective and sustainable use of bamboo resources.

Keywords :*Bamboo forests, Livelihood, Tripura, Tribal, Silviculture, Economic upliftment.*

Introduction

Approximately 20.17% of India's total forest area, or 13.96 million hectares, is made up of bamboos (Bambusoideae) (ISFR 2011), an important subfamily of the grasses with about 1200 species in 90 genera (GFRA 2005). It has been a major subsistence resource throughout India with almost 130 species spread across 18 genera, and especially in Tripura, with 2.46 lakh families being supported by the bamboo sector (NMBA). With over 20 species spread across Tripura and covering 3,246 sq km or 40.69% of Tripura's forest cover of 7,977 sq km (ISFR 2011), the bamboo dominates the forest cover.

The bamboo has also been an integral part of culture of the tribal people of this predominantly hilly state, with its use ranging from rituals to wedding, cooking utensils to food, cloth making to musical instruments, sports item as in koldong (a tribal sport) and so on. Going back to history, bartering used to be the means of exchanging commodities between two individuals and there was no concept of cash income. But after the advent of monetary system in the state the tribal people had to go searching for sources of earning money, mostly revolving around their traditional knowledge of farming and expertise in rearing livestock. It never came to the thought until three decades back that even bamboo can be used as a means of obtaining cash income and hence mitigating the problem for their livelihood and contributing in the economic upliftment of the tribal people.

In this paper, quantitative data collected from certain villages in the West Tripura district practicing silviculture of Kanak-kaich bamboo and producing them for commercial benefit are used to study the sustainability of livelihoods of tribal families. This paper also reflects that there has been a transition among large number tribal families of Tripura from conventional forestry to modern silvicultural techniques to earn cash income. Silviculture as we know is the art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands to meet the diverse needs and values of landowners and society on a sustainable basis (Indian Forest Management Handbook 2012). The study was motivated by three research questions: 1. What is the absolute and relative contribution of Kanak-kaich bamboo to household income and their livelihoods? 2. Who is engaged in the bamboo silviculture and why? 3. What recommendations for bamboo-based development and poverty alleviation can be drawn for the study area and beyond? To resolve the questions a detailed cultivation technique and its analyses is provided. The research can also be used to guide policies related to household allocation of forest / waste land, and issues like forest management, and poverty alleviation etc.

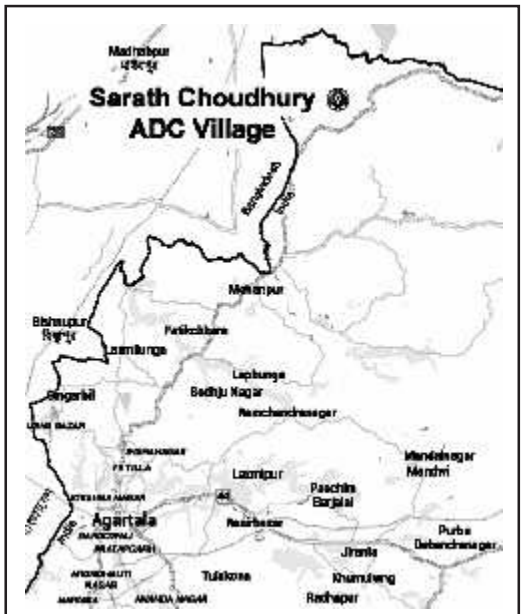


Fig. 1. Location of Sarat Choudhury ADC Village respective to Agartala, capital of Tripura state.

Planting of Kanak-kaich (Bambusa affinis), a species of bamboo, among the tribal community in Tripura for commercial purpose started as early as 1975 by late Sanadhan Debbarma from Maliamura village of Sarat Choudhury ADC Village, which is now being carried on his son Sunil Debbarma, in his fifties, who is also one of the largest suppliers of bamboo culms.

Sarat Choudhury ADC Village, which falls under Hezamara R.D. Block of Mohanpur subdivision, is located on the western foothills of Baramura hill range in the northern corner of West Tripura district (24.06-24.10° N, 91.41-91.46° E) very close to the India-Bangladesh border. Its population of 3,321 is made up of 100% scheduled tribe composed predominantly of ethnic Tripuri community. With a land area of 107.53 sq km Sarat Choudhury has a relatively very low population density compared to the state average (30.9 persons per sq km compared to 350 persons per sq km). The climate is subtropical monsoonal with hot dry summers and cool dry winters.

The ethnic people of Sarat Choudhury meet their basic needs through subsistence agriculture, and generate cash income mostly through the sale of surplus forest and agricultural products. The ADC Village has an official poverty rate of 38.5%. Agriculture is the main income source and contributed highly by forestry. With the implementation of MGNREGA and various other development programmes the education facilities and infrastructures like road, water supply, irrigation, etc have improved (Sarat Choudhury ADC Village Committee Report 2013-2014).

Sarat Choudhury's hilly and remote location, high ethnic

Tripuri population and poverty status, in combination with rich forest resources and upsurging bamboo sector makes Sarat Choudhury ADC Village an ideal site to study the role of income based on bamboo in the development and livelihoods of tribal families.

Bamboo in Sarat Choudhury

Sarat Choudhury is rich in bamboo resource, with a bamboo forest area of 300 hectare (Sarat Choudhury ADC Village Committee Report 2013-2014). Kanak-kaich bamboo or Bambusa affinis is the most widely cultivated bamboo in the ADC Village, and planted primarily for the production of raw materials for the nearby bamboo industries located at Katlamara and Bodhjungnagar, due to its properties like fast turnover time and resilience. The other species to be found in the study area were Thyrsostachys oliverii, Dendrocalamus hamiltonii, Melocanna baccifera, Bambusa balcooa, Bambusa pallida, and Bambusa teres.

Kanak-kaich bamboo is of grass family characterized with sympodial nature, the culms being solid & tufted, with full grown height of 5-7m and diameter 2.5-5cm, culm colour appearing pale green, and internode length of 30-60cm (Bamboo Information Center, India). The motivation behind the attraction of cultivating Kanak-kaich is its high annual return, resilience, fast turnover time, and easy to maintain. The Kanak-kaich can be cultivated in either of the method, firstly with rhizomes, secondly with nodes, and thirdly with fruits. It is harvested in March, and planted in April-May. The clump growth of Kanak-kaich tends to follow the arithmetic progression of 2n + 1, where n is the number of years com-

pleted after planting. The observation on arithmetic progression followed by B. affinis is based on the analysis done on data provided by local cultivators and hence could be held true only up to three year period, as the local cultivators tend to harvest by cutting off every culm in the field after three years, and thus the data for the fourth year could not be collected. Hence, when a rhizome is planted, after the completion of first year the bamboo clump will have a total of 21+1=3 culms, similarly after the completion of second years the bamboo will have 5 culms per clump, and after the completion of 3 years it will have 9 culms per clump. The uses and applications of Kanak-kaich is in manufacturing of javelins, fishing rod, umbrella sticks, poles, furniture, handicrafts, etc.

Fig. 2. Kanak-kaich (Bambusa affinis) clumps.

Methods

The Study Sample and Data Collection

Both primary and secondary data were collected to fulfil the objectives of our research. Secondary data were collected from publications by various authors, and reports and information available with various government and other organizations like Tripura Bamboo Mission, National Mission on Bamboo Applications, Bamboo Information Centre India,

Forest Survey of India, and so on. The primary data came from the samples used in this study, obtained from 7 villages (out of a total of 26 in the ADC Village) that were selected from Sarat Choudhury.

Fig. 3. The author with a local Kanak-kaich bamboo cultivator Surjyalaxmi Debbarma.

The sample selection was based on judgement sample selection method. Households from the sample villages were selected based on the criteria that their Kanak-kaich cultivated land should be approximately 0.4 acre (equivalent to local land area unit of 1 kani, where 1 acre = 2.5208 kani) or more. Many households other than the sample households were found to cultivate Kanak-kaich but the land area were less than 0.4 acre. The samples were selected with the help of the local guides possessing sound knowledge of the area, and hence we were able to obtain data from a total of 67 households. The average sampling intensity was 27% for the villages (see Table 1 for village names and sampling intensity).

Primary data were collected in 2015 using both structured and unstructured household surveys, focus group and prime informant interviews. Kokborok language was used to conduct the surveys, with data recorded in English. The annual surveys were based on the Sarat Choudhury ADC Village

Committee Annual Report for the financial year 2013-2014 (at times neighbours and/or relatives were present at the interviews, but had no significant on the result).

TABLE 1 *Village selection and sampling intensity*

Selected village name	Village No.	Total No. of households in village	No. of households selected	Sampling intensity (%)
Chandranath	1	25	5	20
Daodharani	2	29	9	31
Guchhamura	3	22	4	18
Maliamura	4	47	24	51
Mangaljoy	5	9	2	22
Rajendrapara	6	16	3	19
Sarat Choudhury	7	75	20	27
	Mean	**223**	**67**	**27**

TABLE 2 *Variance of implementing factors of Kanak-kaich cultivation*

	Model Scheme	Scheme of Sample Household
Espacement	1.25m x 1.25m	1.15m x 1.15m
Wage rate	Rs. 50 per Manday	Rs. 300 per Manday (MD)
No of culms per acre	2,564	3,060
Casualty replacement	10%	10%
Survival/Acre	2,051	2,448
Planting season	April/May	April/May

TABLE 3 *Cost of cultivation of Kanak-kaich on private / community lands in Tripura.*

Sl	Particulars of work	Unit	Cost in Rs per year			Total	Without Labour
			1	2	3		
1	Site preparation	4 MD	1,200	0	0	1,200	0
2	Fencing	2 MD	600	0	0	600	0
3	Digging of pits (3,366*)	Rs. 1.50 per rhizome	4,590	459	0	5,049	0
4	Cost of rhizomes (3,366*)	Rs. 8 per rhizome	24,480	2,448	0	26,928	26928
5	Planting / replanting (3,366*)	Rs. 1.50 per rhizome	4,590	459	0	5,049	0
6	Weeding cum soil working	4/3/2 MD	1,200	900	600	2,700	0
7	Cutting	Rs. 1.50 per culm	0	0	24,786	24,786	0
						66,312	26,928

* 3,366 = 3060+306

The sources of income of the sample families also included bamboo, other forest, crop, livestock, off-farm (e.g. household business, wage income, pensions, logging, agricultural subsidies from government or non government sources, etc), fish.

Financial Aspect

Even though a model bamboo plantation scheme was proposed for Tripura (NABARD 2006) to benefit the household cultivators for the cultivation of Kanak-kaich bamboo, the practical implementation by the sample households seems to vary significantly from the model scheme (see Table 2 for data on variance).

The variance of the two schemes were found mainly due to the following: 1. Not using of fertilizers/pesticides by cultivators, 2. Labour cost for digging and cutting etc. now locally being charged at Rs. 1.50 per rhizome, 3. No irrigation system being employed, 4. Site preparation being carried out mainly by the households themselves.

Fig. 4. Harvesting of Kanak-kaich bamboo.

Henceforth, based on the data on practical implementation of Kanak-kaich cultivation by the sample households through surveys, a practically feasible scheme that can be derived for better and efficient management of the bamboo silviculture has been shown in Table 3.

With the sample household taking full participation and interest in bamboo cultivation, the actual cost without labour for manual work except the cost of rhizome becomes zero as reflected in Table 3 where the cost of rhizome will be taken fully for totally new cultivation but for the next cultivation season the cost of rhizome will become zero as the cultivated land already has rhizome underground and that can be used to cultivate further in the household's other lands, and also the rhizomes can again be sold to prospective bamboo cultivators which is double the number that was planted at a good rate of approx Rs 8 to Rs 10 per rhizome.

The calculation for cutting for above table (Table 3) will vary as the number of culms in each category of bamboo increases every year as is reflected in growth period column of Table 4. The commercially acceptable quality of Kanak-kaich is divided into 4 different classes namely churi (Q1), lathi (Q2), marua-shib (Q3), and shib (Q4) and the respective prevailing market rates for the classes have been tabulated below in Table 4.

TABLE 4 *Quality classes of Kanak-kaich bamboo and their market rates*

S No	Quality class	Growth period	Height	Market rate
Q1	Churi	more than 3 years	more than 21 ft	Rs 22
Q2	Lathi	2 yrs	10-12 ft	Rs 10
Q3	Marua-shib	1.5 yr	6-8 ft	Rs 5
Q4	Shib	1yr	5 ft	Rs 2

TABLE 5 *Yield and returns*

Years	No. of surviving clumps	Yield of culms in field				Sale from harvest				Total sale
		Q1	Q2	Q3	Q4	Q1= Rs 22	Q2= Rs 10	Q3= Rs 5	Q4= Rs 2	
1	2,448	0	0	816	1,632	0	0	0	0	0
2	5,202	0	816	1,938	2,244	0	8,160	0	0	8,160
3	13158	0	1,938	2,856	3,876	0	19,380	14,280	7,752	41,412
Total						0	27,540	14,280	7,752	**49,572**

Feasibility Study

Anticipated Sale and Profit

From Table 5 it is very clear that the cash income through sale of bamboo culms is Rs 49,572 and also after a period of 3 years the cultivated field will be having a total of 23,562 rhizomes (2448 x 9 = 22,032 and 306 x 5 = 1,530 i.e. 22,032 + 1,530 = 23,562), whereas the field needs only 3,060 rhizomes to replant for fresh cultivation and 306 rhizomes for replanting, thus the rest of 20,196 (23,562 - 3,366 = 20,196) can be sold at Rs 8 per rhizome to earn Rs 1,61,568 in the form of cash. Hence, the total cash income through sale after the completion of three year period will stand at Rs 2,11,140 (1,61,568 + 49,572 = 2,11,140) just from 1 acre of cultivated land. So the total profit (sale of culms & rhizomes - cost of cultivation) in after the three year period will be Rs 1,84,212 (Rs 5,117 per month) without using wage labourers and Rs 1,44,828 (Rs 4,023 per month) if wage labourers are used.

Livelihood Needs for an Average Tribal Family

For an average tribal family of four people considering all the household members to be all adult at the maximum, the following table (Table 6) reflects the annual expenditure on household consumption based on 6 basic commodities normally required by a typical tribal family with the rates being considered at the prevailing market rates as found in the survey. Thus, for a period of three years the total expenditure will

be Rs 73,470 (Rs 24,490 x 3) and when we exclude this value from the overall profit in a three year period leaves a cash amount of minimum Rs 71,000 which will be of good help to acquire other minor necessary commodities, if required. Hence, the cultivation of 1 acre of Kanak-kaich stands feasible for an average tribal family with no other sources of income located in the rural area, and the profit margin will be higher if the harvesting is done only after a period of three years.

TABLE 6 *Livelihood needs for an average tribal family and the expenditure involved*

Sl No	Commodity	Daily Consumption	Annual Consumption	Market Rate	Expenditure
1	Rice	2.400 kg	876 kg	Rs 25 per kg	Rs 21,900
2	Dry fish	0.010 kg	3.65 kg	Rs 200 per kg	Rs 730
3	Salt	0.033 kg	12 kg	Rs 15 per kg	Rs 180
4	Edible oil	0.033 liter	12 liters	Rs 100 per kg	Rs 1200
5	Sugar	0.033 kg	12 kg	Rs 40 per kg	Rs 480
6	Total				Rs 24,490

Conclusion and Suggestions

Intercropping: The gestation period of B. affinis is short even then profitable intercrops like turmeric, ginger, chillies, etc. and various shade loving medicinal and aromatic plants can be cultivated if enough inter-rhizome espacement is provided during planting.

Rain-water harvesting: Considering the fact that the study area was found to lack good irrigation facilities and the land being comparatively drier than other areas, it would be beneficial to all the villagers and the cultivators if any form of rain-water harvesting technique is used to preserve rain-water.

Women empowerment: Cultivation of Kanak-kaich bamboo can empower the rural women-folk as the maintenance and harvesting can be totally managed by them itself.

Government initiatives: Any initiative by the state or central government towards setting up of bamboo-based industry like paper mill etc. will be a boon for the bamboo cultivators.

Wood-famine: As Kanak-kaich bamboo is more like a timber wood due to its several properties, and the turnover-time being comparatively very less compared to other trees and other species of bamboo.

Acknowledgement

Rakesh Debbarma and Joy Debbarma, local youths of Sarat Chowdhury ADC Village for guiding us in sample selection.

Sunil Debbarma, local resident of Mailamura village under Sarat Chowdhury ADC Village for sharing valuable information on bamboo plantation.

Surjyalaxmi Debbarma, local resident of Mangaljoy village under Sarat Chowdhury ADC Village, whose family rely only on bamboo plantation for earning livelihood, for providing various other valuable information.

Binarani Debbarma, local resident of Mailamura village under Sarat Chowdhury ADC Village, whose family after the sudden death of her husband were saved due to the bamboo plantation done just 2 years before his death, for being a solid example of how a family recovered from their misery with the help of bamboo plantation.

Sharmila Debbarma, Chairperson, Sarat Chowdhury ADC Village Committee, for providing us their Village Committee Report for 2013-2014.

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23

Protection of Forest Resources and Life Styles of the People Living in and around the Tekka-Tulsi Forest Range of Tripura: An Analysis

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and
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Abstract

Tekka-Tulsi forest range was full of natural resources with numerous types of plants and animals. It provides food, fodder-crop, fuel timber, bamboo, cane, building materials, income, etc. to both highland and lowland people of the specified region. Inhabitants of this forest range used to live happily in and around of this range. They depend on this forest land for their life, livelihood and cultural identity. But, the rights of tribal people and other forest dwellers over forests have been alienated through different policies of the state and commercial use of forest resources. The issue got further intensified in the post-independence period through strong forest legislations in the name of forest conservation, ignoring the basic survival rights of indigenous people. However, people are still not able to access community resource rights in this region. Due to increase of the population the whole demographic, socio- cultural picture of this range have changed rapidly. So, it is the right time to evaluate the socio-economic conditions of the people living in around this hill range.

Key words: Takka-Tulsi range, forest rights, life style, alienation.

Introduction

Tekka-Tulsi forest range is extended from 22º 30? to 23º29? north latitude and 91º 25? to 91º35? east longitude. Some people of these hamlets used to say there were two brother and sister namely Tekka and Tulsi killed in the hill top by the Tigers and the village people named after them, both the hill ranges as Tekka and Tulsi. Once the hill ranges of Tekka-Tulsi forest area was covered with thick vegetation and dense jungles. In the interior, the vegetation cluster was so thick that day light is obscured for many miles away. During rainy season the hill tracts through these jungles were covered with dense forest. The low grounds of this forest area were marshy and boggy, which were dangerous to traverse. Most of the tribal people are Tripuri, Mog, Uchai, Reang. This tribal people live with Bengalee family of state origin.

Study Area

The people of this valley used to live happily with traditional Jhum cultivation and other subsidiary activities. Under the form of slash-and burn cultivation method, hill slopes are cleared and after the cutting of jungles, it sets on fire rotationally. Though, it is a traditional method of farming and may leave forest areas unable to support plants, animals and many types of crops, these highland people used to grow several crops like paddy, cotton, til, mustered, mesta, maize, sesamum, vegetables, etc. Most families grow their foods for subsistence purposes, just to eat and live. Due to favourable geo-climatic conditions, they used to maintain their livelihood with this traditional method of cultivation. Shifting cultivation have been reduced significantly due to huge influx of refu-

gees, plantation of tea, rubber, fruits bearing trees and degradation of forest.

As a result their life styles and culture have also gone changes. The main emphasis of this study is to identify about the historical and ethnographic aspects of the people living in this area. It also attracted the researchers on the mode of production, road transport system, drinking water facilities, sanitary conditions, educational status, traditional cultures, and family culture of the people living in the Tekka-Tulsi forest range.

Objectives of the Study

The objectives of the study are as follows:

1. To find out the community rights to forests resources and judges the socio economic conditions of the people living in the Tekka-Tulsi Forest range.

2. To identify the reasons for occupational changes of the community people.

3. To review the implementation of different government scheme and projects in this region.

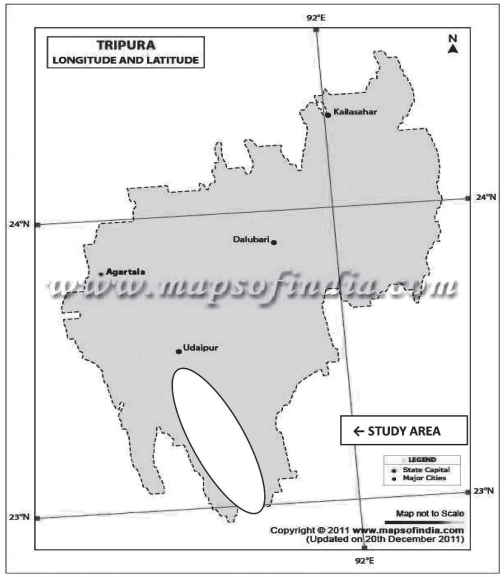
Methodology

The present study is followed by some methods, like to collect the secondary data & information from the government offices, forest department's reports, research papers, related journals were also followed, whereas, on the basis of primary data collection, a field survey was conducted on 40 randomly selected sample families located at Hrishyamukh and Jolaibari RD Block of South Tripura and then analysed the reports of observation. A questionnaire was prepared for this purpose to collect the necessary information from selected families of the specified forest area.

Location

Tripura is a hilly and tiny state. It is located in the north-east corner of India. It has an area of 10,491.69 sq.km. The south Tripura District lies to the south-west of Tripura state. The present study area is surrounded by Bangladesh in the southern part. The study area is characterised by a warm and humid tropical climate with five distinct seasons. Tropical monsoon climatic conditions prevail all over the study area. The soils of this forest zone are classified into Latarite soils, older alluvial soils, and younger alluvial soils. The hill ranges are drained by Gomati, Muhuri and Feni river. So the study area has three distinct physiographic zones: i) low hill ranges ii) undulating up land and iii) low-lying alluvial land. The Takka-Tulsi forest range is extended from Tulamura (Udaipur) to Amlighat (Sabroom).(Figure-1).

Figure No: 1



The total geographical distribution of forest land is shown in Table No. 1.The Tekka- Tulsi forest range is included in Reserved Forest area of Tripura. It is responsible for maintaining the traditional tribal life. The local people are fully depend on the reserved forest resources and their culture is developed in association with forests resources.

Table No. : 1, Classification of forests in Tripura-2011

Sl.	Status	Area km²	% of geographical area of state
1	Reserve Forest (RF)	3588.183	34.20 %
2	Proposed Reserve Forests (PRF)	509.025	4.85%
3.	Unclassified government forests(UGF) recorded as per rule of 16 of TLR and LR rules	2195.473	20.93 %
4	Total :	6292.681	59.98 %

Source: Department of Forest, Government of Tripura, 2011

Table No. : 2 indicate the share of forest area to the geographical area of the state. It is clear that only 6.9% occupies the reserve forest of study area. The total forest dwellers are living in this forest area and they enjoy the share.

Table No. : 2, Takka-Tulsi Reserve Forest area

Status	Area km²	% of geographical area
Total Reserve Forest area of the State	3588.183 sq km²	34.20%
Tekka-Tulsi Reserve forest Area	74.24 sq km²	6.9 %

Source calculated by the authors, 2015

Life Styles of the Forest People

The study is very significant to provide an identification of the people living in the Takka-Tulsi forest area. It is an attempt to find out the causes of the socio cultural changes of the people living in this territory. The study will also become helpful for creating awareness and understanding of the different aspects related to the life styles and their sorrow and sufferings of these people amongst local authorities, researchers and policy makers. The issues and challenges raised in the study may help all the stakeholders to become aware of their rights and to take an active role in this respect. It will be beneficial to all concerned to implement the governmental policies more

effectively and fruitfully to have better quality of life for the people of specified region.

Tekka- Tulsi forest range is situated in between Gomati River to Feni River from north to south and on the other side National highway - 44 to Udaipur-Srinagar road. It covers mainly the few villages under Hrishyamukh, Jolaibari, Bagafa and Satchand Block of South Tripura District (Figure-1).

Table No. : 3 have shown the period of research work to collect the primary and secondary data for fulfillment of the study. The primary data are arranged to identify the socio-economic conditions of the people living in the Tekka-Tulsi forest range.

Table No. : 3, Takka –Tulsi Forest Range

Period of survey	Nomber of families(Studied)	Study area
March 2015	40 families	Jolaibari, Hrishyamukh, Satchand RD Block, South Tripura

In the second step, systematically the primary data are arranged to study the socio-economic condition of the people and then the calculation is done by geographically.(Table-4)

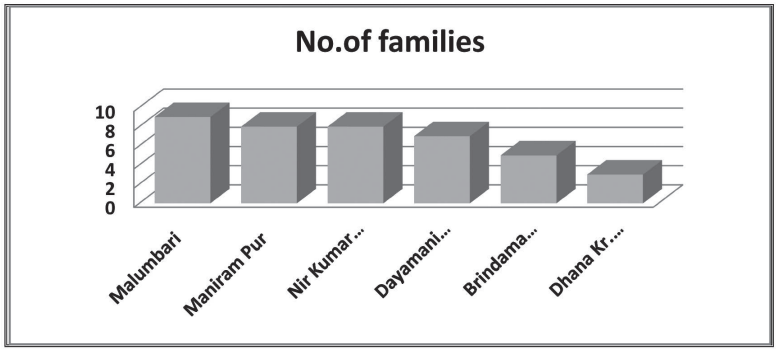
Table No. 4, Report of Forest Dwellers for the study of socio-economic condition.

Sl.	Habitations	Families	Drinking Water		Patta Land		Sanitation		Paddy land		Occupations		Jhuming	
		40	Well	Supply	Patta	Not patta	Kacha	Pucca	Paddy land	No land	Govt.	others	Yes	No
1	Malumbari	9	8	1	7	2	9	0	2	7	1	8	5	4
2	Maniram Pur	8	4	4	3	5	7	1	1	7	1	7	4	4
3	Nir Kumar para,	8	5	3	1	7	7	1	1	7	0	8	2	6
4	Dayamani Para,	7	1	6	1	6	5	2	2	5	1	6	6	1
5	Brindama Tilla,	5	3	2	3	2	4	1	3	2	0	5	3	2
6	Dhana Kr. Roaja Para,	3	2	1	2	1	2	1	2	1	0	3	2	1

Source: through questionnaire March 2015.

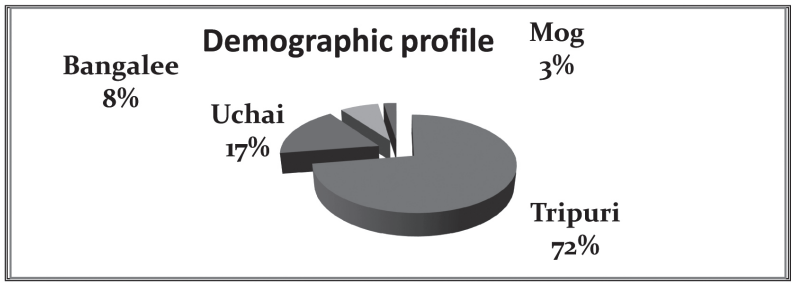
Analysis of the Study Area: From the figure No. - 2 it indicates the family size of the specified inhabitations. Total number of family member is not above 10 persons. The inhabitants are occupied a small area of the forest land and fully depend on forest resources. Every family has minimum three persons and actively engaged in forest-based work and collection.

Figure-2



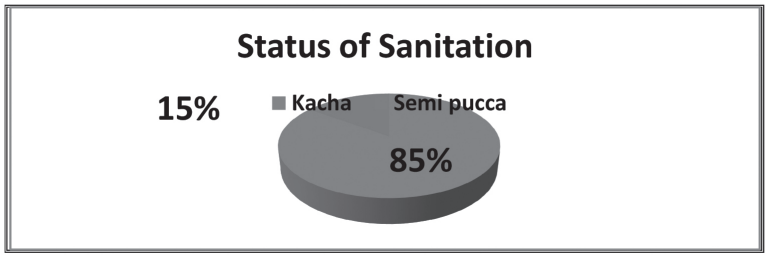
From the figure No. - 3 it is clear that the tribal families are more (80% approximately) than the non-tribal families. These tribal persons are actively adjusted to the forest environment. From dawn to dusk the people used their forest and developed the mental health and close relationship with the natural forest of Tekka-Tulsi forest range. Out of 40 randomly selected respondent families; 72% belongs to the Tripuri community, 17% belongs to the Uchai Community, 8% from Bangalee Community and 3% belongs to the Mog community people.

Figure-3



It is revealed that from the field survey, 85% of the respondent families does not have pucca sanitary latrine (Figure No. -4). It indicates status of sanitation is up to date. The people of the forest live in an unhygienic condition.

Figure-4



From the socio-economic study the forest dwellers built their houses where drinking water is available. Two types of drinking served the people of forest range. Most of the family depends on well types of drinking water which is associated with pond's water, stream water, charras water, etc. These are not hygenic, but the local tribal people are primarily depends on it and used in various domestic works. The drinking is obviously lack and not regular. So, it is a serious problem of the forest area now. (Figure No. - 5

Figure-5

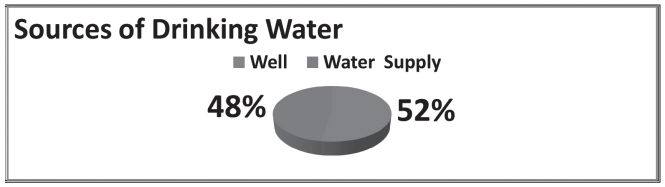


Figure No-6 (a) : Jhum Cultivation

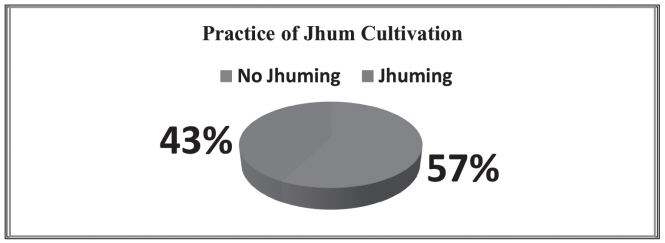


Figure No-6 (b)

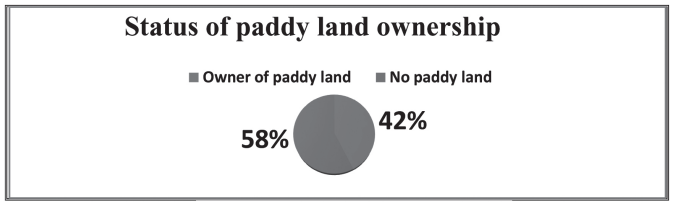


Figure No-6 (c)

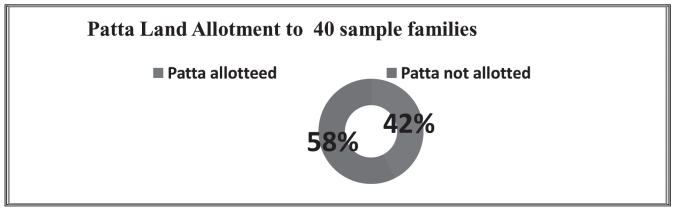
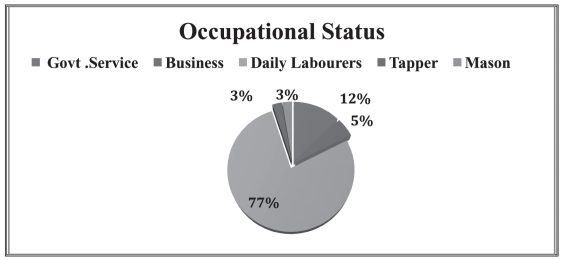


Figure No-7



The above mentioned figures is prepared on the basis of field observations (from 1-7).

It has been observed that 58% of the village does not have favourable land for Jhum cultivation, because most of the areas are under plantations, human habitations and used for construction purposes. They are to subsist themselves with other means of occupations like, weaving, handy works, REGA works, farming, brick crushing, stone crushing, cattle farming, country liquor making, poultry farming, tapping, etc. With the adoption of the Forest Rights Act, 2006 the state government

are now allotting the forest land to Jhmia people and it has been found that 58% of the families from sampled group have acquired the Patta Land in their names generally at the rate of 1 hectare per family. But most of the families are using the Patta land for Rubber plantation (Figure No.-6 a,b,c,). The tribal and non-tribal people are engaged in different types of occupations (Figure -7). They belong to the low income group of family. So, the standard of living is very simple.

Major Threats

1. A large number of Tribal families practice shifting cultivation (Jhum) in this forest range area. This forms a primitive agricultural practice. It is well rooted in cultural ethos of the tribal and is major cause of deforestation, land degradation and soil impoverishment.

2. Encroachment of forestland is a serious threat to this forests and its conservation is necessary in this regard. As per record maintained by the Forest Department, the position is alarming and needs special attention to tackle this problem.

3. Once there was a thick Sal forest all around the Tekka-Tulsi forest area and all the bridges in the state were made up of Sal pole. The Sal resin is used as medicine and detergent. It is also used as an ingredient of ointments for skin diseases and in the ear troubles. It is also used in the foot care cream. The powered seeds have insecticides properties. It used as the cleanser for washing hair. The leaves are used to make dish, bowls, small baskets and many more. Its dried and fallen leaves are used as fertilizers. The oil seed is edible and is known as Sal butter. Oil seed are export to Japan. Now from the observation it is seen that, sal forest land is absolutely vanished. It is harmful for the local tribal people of Tripura.

4. Forest fires are common and frequent in the valley

side area, the villagers, at the end of winter, set fire to get flush of new grass for their cattle. Forest fire has led to heavy degradation of forests. The hills get burnt due to Jhum cultivation. This causes immense harm to the catchments area of forest land. It also adversely affect already threatened many wildlife species.

5. The domestic animals like cattle, sheep and goat in this area cause heavy damage to the forest plantations and natural regeneration areas. There are no grazing grounds. The community lands for grazing purpose in villages have been encroached for other purposes. Thus grazing constitutes a threat to forest conservation in the part of the forest.

6. Due to increase of population adverse effect of unrecorded removal of forest produce is steadily increasing in this region. There is immense pressure on forests from low land peoples for basic requirements, as well as the miscreant peoples involved in illegal felling and smuggling of forest resources across the border continuously. This has lead to severe degradation of existing forest resources in the State. Hardwoods now have become rare phenomena in this part of the forest. Forests are also viewed as a source of livelihood by the millions living below poverty line.

7. Another big threat of this forest area is gambling. Some people are associated with the different types of gambling activities, which is destroying their hard earned money and property. Such type of gambling activities should be stopped immediately.

8. Flora species like fern, giant climber, orchids, etc. are rarely grown in this area which are not associated with the local people of the forest area..

9. Fauna like, Deer, Peacock, Chil, Jackle, Rabbit, Wild

Dog, Sajaru, Bhondar, etc. are now totally disappeared from this area. The migratory birds are also vanished in this reserve forest area.

Major Problems

1. One of the most important challenges of the people living in this area is acute shortage of water. Once the area was covered by streams and charras. But now most of these streams have become extinguished, as a result the whole forest area has dried up during summer season.

2. Forest people of this valley used to live in decorative bamboo made tong ghar. No traditional tong ghar have been found during the entire tour of the forest area.

3. Most of the time forest people depend on the local quacks. Fever, Malaria, Diahorrea, Stomach, whooping cough, rheumatic ache, etc. are common in the visited families. Children, even young male female persons are suffering from the health problems caused by malnutrition.

4. Traditional method of jhum cultivation is reducing slowly. Community farming has turns into commercial cash cropping. This trend is a grave danger for the maintenance of ecological balance and sustainability of the forest people living here.

5. From the field study it has been observed that common essential forest products like, fuel wood, different type of useful bamboos & canes, room sticks, vegetables, different type of useful leaves & creepers, medicinal plants, etc. have also become at the stage of great crisis for the people of this forest zone.

6. Sometimes the tribal people of this forest area are exploited by the money lenders, middleman, and businessman in many ways. Well connected roads are available here but move-

ments of the vehicles are very rare. As a result they are bound to sell their hard earned products to the middleman at a lower price. At the time of financial crisis they used to take loans from the local money lenders at a high rate of interest.

Suggestions

1. Demarcation, pillaring and fencing of Reserved Forest areas are most essential for the protection of natural vegetation. Because, it has been observed that forest lands are being encroached away by the local people.

2. Regular enumeration, estimation and valuation of forest resources are very essential, because forest resources not only generate government revenues; it also creates great indirect value to the eco-system.

3. A unified and integrated state forest policy should be introduced in the state of Tripura for the protection of forest, environment and ecological balance. In this type of policy all aspects and issues related to forest and environment may be incorporated.

4. Besides rubber cultivation fruits bearing trees like Jack-fruit, mango, papaya, kamranga, hartaki, amalaki, behera, banana, guava, sawarupha, ata phal, safeda, bedana, mossambi, litchi, should be encouraged.

5. Plantation like sal, segun, koroi, gamair, garjan, rongi, chamal, mehogoni,etc. should be encouraged. Moist-deciduous vegetation is better than the much publicised rubber plantation. It has been observed during the visit that all the rubber leaves have bloomed in huge numbers, but, admiringly other trees are not so bloomed like rubber in the hilly areas. It means rubber trees are capable to abstract necessary water from the water vapour present in the air. To prevent the effect of monoculture a balance with other vegetation is urgently required,

6. Strict action should be taken against the people those who are engaged themselves with the drainage of national forest resources passing towards Bangladesh through trans-border smuggling. Most of the Forest Guards, Border Security Force personnel, police and local citizen are hopelessly lacking in honesty, integrity and patriotism. Everyday many Bangladeshis cross the border for shopping, business, rickshaw pulling, manual laboruing, earning, treatment, smuggling, etc. The remaining part of the Fencing works of the international border should be completed immediately.

7. Setting up of a special forest task force by incorporating all stakeholders, for the protection of valuable forest resources in the Tekka-Tulsi forest area is essential. This task force not only protects and monitors the forest resources form the ground, but also from the sky through helicopters.

8. Cluster villages like Matai, Debipur, Sripur, Haripur, Krishnanagar, Abhoynagar, and many villages have been suffering from acute shortage of water during summer season. So, the villagers should be given training to harvest the rain water.

9. Special care and protection should be taken for the preservation of plenty of medicinal plants grown in this valley.

10. For the benefits of the common people restoration and conservation of wetlands, marshy lands and aquatics is also very essential.

Conclusion

The field survey revealed that forest communities are still intimately associated with their surrounding forest for their survival. For proper management of forest resources in this area, it is essential to formulate forest-based policy. It is impossible and inappropriate to make the forest dwellers life independent of forest products, because daily requirement of

minor products is relevant to the community people. The departments of Forest have become successful to enlist several forest resources from the common uses by the native villagers. This is helping to develop the knowledge base related to native forest biodiversity including the structure of floral and faunal communities. Such type of indigenous forest based social life is extremely essential through the sustainable forest policy of the government.

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24

Medicinal and Nutritive Value of Wild Edible Plants and Vegetables in Tripura Used by Tripura Tribals and Other Communities

Rupajit Das

Abstract

Tripura is one of the seven states in the north eastern part of India with a geographical area of 10,491.69 sq. Km. It is bounded on the north, west , south and south-east by Bangladesh whereas in the east it has a common boundary with Assam and Mizoram. The total population of this state is about 36,71,032 as per 2011 census report and about 11,66,813 persons i.e. 31.78% of the total population of the state belonged to tribal community. Out of the total area, about 6292.681 sq. Km are occupied with dense mixed type of forest. Socio-economic condition of the majority of tribals are below the normal level. Most of the tribals live comfortably and freely on the hills& hillocks and villages covered by the dense forest. Traditionally they are maintaining symbiotic relationship with the forest, and their food also comprises forest products. The objective of the study is to examine the medicinal activities and nutritive valuation of wild edible plants and vegetables used by tribal peoples of Tripura. The survey was conducted with the help of a semi-structured questionnaire and the guided field walk method. Information data were collected from tribal villagers and tribal vegetable sellers of unorganised markets of the tribal compact areas of Baramura and Atharomura hilly range and folk medicinal practitioners (kavirajes). Most of the tribals are consuming varieties of forest products as a substitute of rice and foods without knowing their nutritive values. It has come to the knowledge from literature survey that these wild vegetables have a good nutritive values providing rich sources of vitamins and minerals, and fair amount of fat, protein and carbohydrate. On literature survey and knowledge gathered from kavirajes it is also reflected that this wild vegetables have an excellent medicinal activities and high nutritive value.

Keywords : *Geographical area, symbiotic, relationship, medicinal practitioners, literature, wild vegetables , medicinal value, nutritive value.*

Introduction

Tripura is one of the seven states in the north eastern part of India with a geographical area of 10,491.69 sq. Km. It is bounded on the north, west , south and south-east by Bangladesh whereas in the east it has a common boundary with Assam and Mizoram. The total population of this state is about 36,71,032 as per 2011 census report and about 11,66,813 persons i.e. 31.78% of the total population of the state belonged to tribal community. Out of the total area, about 6292.681 sq. Km are occupied with dense mixed type of forest. Socio-economic condition of the majority of tribals are below the normal level. Most of the tribals live comfortably and freely on the hills& hillocks and villages covered by the dense forest. Traditionally they are maintaining symbiotic relationship with the forest, and their food also comprises forest products.

Objectives

The objective of the study is to examine and evaluate the medicinal activities and nutritive valuation of wild edible plants and vegetables used by tribal peoples of Tripura and other communities also.

Materials and Methods

The survey was conducted with the help of a semi-structured questionnaire and the guided field walk method. Information data were collected from tribal villagers and tribal vegetable sellers of unorganised markets of the tribal compact areas of Baramura and Atharomura hilly range and folk medicinal practitioners (kavirajes).). Most of the tribals are consuming varieties of forest products as a substitute of rice and foods without knowing their nutritive values. It has come to the knowledge from literature survey that these wild vegetables and plants have a good nutritive values providing rich sources of vitamins and minerals, and fair amount of fat, protein and carbohydrate and medicinal value also.

Owakre, Sapota, Yongchak, Tetai, Tree Bean

Scientific Name : Parkia javanica

Family : Fabaceae / Mimosoideae

Descriptions and Nutritive value :

Pods 30-50 cm long encapsularis 8-25 seeds. Seeds are sometimes use as a vegetables. They have a garlic flavour and a very strong odour. Due to the foul smell of the green seeds; they are sometimes referred to as the evil-smelling bean. The young leaves and fresh parts of the flower stalk can also be eaten raw.

Picture : Sapota/ Owakre/ Yongchak

Source : Bankumari, Baramura/ Ampi

The nutritive analysis of the fruits (Owakre) is given below :

Table No. 1 Nutritional value of Parkia javanica/ Parkia roxburgrii/ P spieciosa

Protein	-- 6.0-27.58 gm%
Fat	------- 1.6-13.3 gm%
Carbohydrate	-- 13.2-52.9 gm%
Crude fibre	--- 1.7-2.0 gm%
Energy	-- 91.0-441.5 Kcal
Calcium	-- 108.0—265.1 mg%
Iron	-- 2.2-2.7 mg %
Phosphorous	-- 115.0 mg%
Potassium	-- 341.0 mg%
Magnesium	-- 29.0 mg%
Manganese	-- 42.0 ppm
Copper	-- 36.7 ppm
Zinc	-- 8.2 ppm
Vitamin	–C 19.3 mg%

Tocopherol -- 4.15 mg%
Thiamine -- 0.28 mg%

Medicinal Value

This plant is known as an important medicinal plant in the herb industry using mainly seeds and bark, leaves and roots. The seeds are known to be hypoglycaemic (reducing blood sugar level) and is used traditionally for treating kidney pain, Cancer, diabetes, hepatalgia, oedema, nephritis, abdomen colic, cholera, dysentery, stomach aches and as an anthelmintic, also applied externally to wounds and ulcers. The seeds are also valued as a carminative and removel gastritis. Seeds of p. Specious contain cystine.

Gandhari / Gandrui / Gandiri / Gandhaki

Scientific name : Homalomena aromatic Schott. (another variety Alocasia odora)

Family : Araceae

Picture : Gandhari (Homalomena aromatic Schott.)
Source : Sutarmura under Bishalgarh Sub-Division

Descriptions and Nutritive Value: Sugandhi (Homalomena aromatic Schott.) is a rhizomatous aromatic perennial herb belonging to the family Araceae, is a high valued plant bio resources found to have grown wild in Tripura. There is extensive wild growth of this aromatic herb in the Baramura ranges and other part of Tripura like Sutarmura under Bishalgarh Sub-Division. This plant is shade loving with short, stout and tough stem, slow growing with an average height to 0.40 m -0.80 m, heart-shaped leaves with long petiole. Its aromatic rhizomes contain an essential oil used for blending most of the oriental perfumes and residue is used in incense making. Nutritive analysis of leaf and stem of Homalomena aromatic Schott.(Gandhari) is given below :

Table No. 2 Nutritional value of Gandhari / Gandrui / Gandiri / Gandhaki]

Moisture— 82.7 gm%
Protein— 3.9 gm%
Minerals- 2.2 gm%
Sodium— 9.0 mg%

Fat	——— 1.5 gm%
Carbohydrate	— 6.8 gm%
Crude fibre	— 2.9 gm%
Energy	— 56 Kcal
Calcium	— 227 mg%
Iron	— 10.0 mg %
Phosphorous	— 82 mg%
Potassium	- 550 mg%
Vitamin	–C 12 mg%
Carotene	— 10278 µg %
Thiamine	— 0.22 mg%

Riboflavin — 0.26 mg %
Niacin — 1.1 mg %
Fibre— 2.9 gm%

Medicinal Value

1) The plant is used by local people in various inflammatory condition and gastric disorders, jaundice, diarrhoea etc.

2) It has ulceroprotective property in animals as well as human beings.

3) The leaves and rhizomes of this plant are used for the remedy of joint pains and skin infections.

4) Its rhizomes acts as analgesic, antidepressant, anti-inflammatory anti-gastric ulcer and anti-microbial activities.

5) It strengthens the tendon and bones in the body.

6) It is used to treat pain and weakness in lower back and knees.

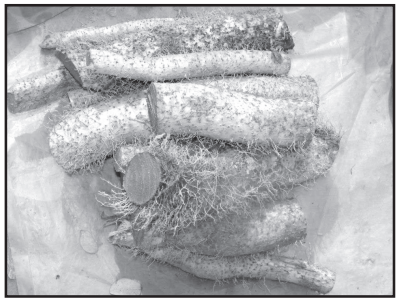
Saplong alu / Jangli alu

Scientific name : Dioscorea oppositifolia / Dioscorea sp.

Family : Dioscoreaceae

Descriptions and Nutritive Value

Dioscorea oppositifolia is somewhat weak, long, slender stems climb up other plants or objects turning clockwise with the vines about 10 ft. Long. It is tolerant to forest and can be grown in much cooler conditions than other yams. Tuber are fleshy, swollen and gradually increases in its diameter as it comes down deep into the soil. It is grown all over Tripura specially hilly area. Experts emphasize the need to supplement a yam driven diet with more protein-rich food in order to support active and healthy growth in infants.It is also rich in starch and can be prepared in many ways. These characteristic make the yam a preferred food and a well important food security crop.



Picture : Saplong alu (Dioscorea oppositifolia)
Source : Bankumari, Barmura Hill

Table – 3 Nutritive value per 100 gm Saplong alu Dioscorea oppositifolia)

Energy— 118 Kcl
Carbohydrates- 27.9 gm
Sugars— 0.5 gm
Dietary fibre- 4.1 gm
Fat— 0.17 gm
protein— 1.5 gm
Vitamin- A 7 µg
Thiamine— 0.112 mg
Riboflavin-- 0.032 mg
Niacin— 0.552 mg
Panthothenic acid— 0.314 mg
Vitamin B6— 0.293 mg
Folate— 23 µg
Vitamin-C 17.1 mg
Vit-E- 0.35 mg
Vit-K- 2.3 µg
Calcium 17 mg
Iron— 0.54 mg

Magnesium— 21 mg
phosphorus— 55 mg
Manganeze 0.397mg
Potassium- 816 mg
Zinc 0.24 mg

Medicinal value

1) It is traditionally used for antiseptics, ulcers and abscesses.

2) The root is chewed to cure toothache and aphthae.

3) The whole plant extract is used for syphilis and psoriasis.

4) It is used as an ingredient of an aphrodisiac to delay male ejaculation

5) The tubers of this wild yam are a source for the extraction of diosgenin,a steroid

Sapogenin. The extracted diosgenin is used for the commercial synthesis of

Cortisone, pregnenolone, progesterone and steroid products. Such preparations
Are used in combined oral contraceptive pills.

Chichiri or Kichiri / Pani kachu / Gabi-Gabihan

Scientific name : Monochoria hastana Linn. Family : Pontederiaceae

Descriptions and Nutritive Value

The plant is found in demy place of hilly range and a common weed of paddy fields. Leaves opposite, broader at the base and narrow headed at the apex or sagittate with fleshy sheathing petioles. Petiole are usually less than 30 cm long. This plant is available throughout the year .Rootstocks are

short,suberect or creeping,and spongy,elongated and covered with leafy sheaths.

Tender stalk and leaves are eaten as vegetables. Roots extracts yielded alkaloids, phenols, glycosides, tannins, flavonoids. An ethanol extract yielded n-hexadecanoic acid, 3-methyl-acetate-1-butanol etc.

Picture : Chichiri or Kichiri / Pani kachu / Gabi-Gabihan (Monochoria hastana Linn.).
Source : Bairagi para, Mohanpur.
The nutritive analysis of Chichiri is as follows :

Table 4 Per 100 gm of edible portion of Chichiri/ or Kichiri / Pani kachu / Gabi-Gabihan (Monochoria hastana Linn.).

Moisture— 81%
Protein— 10.8 gm
Carbohydrate— 4.6 gm
Fat— 1.03 gm
Energy- 42.8 Kcl
Phosphorous- 4.3 ppm
Potassium— 8.01 ppm

Magnesium- 2.552 ppm
Copper- 0.138 ppm
Calcium— 2.752 ppm
Iron— 1.68 ppm
Zinc— 0.330 ppm
Sodium- 3.760 ppm
Vitamine-C— 1.8 mg
Vit E- 29.0 mg
Carotene— 0.04 mg

Medicinal Value

1) Juice of roots are used for stomach and liver problems, asthma and toothache.

2) It is used for burns and scalds, general debility, fever, haemorrhage, cough, scurvy, dypsia, stragury, gastropathy, hepatopathy, odontalgia.

3) Tribal people also decoction of fresh roots used for nausea

4) Whole plant is cooked by tribal people and used in digestive disorders and for production of semen.

5) Young shoots used for gastritis and asthma.

Result and Conclusion

The study is to examine and evaluated the medicinal activities and nutritive valuation of wild edible plants and vegetables used by tribal peoples of Tripura. Most of the tribals are consuming varieties of forest products as a substitute of rice and foods without knowing their nutritive values. It has come to the knowledge from literature survey that these wild vegetables have a good nutritive values providing rich sources of vitamins and minerals, and fair amount of fat, protein and

carbohydrate. The use of wild vegetables and medicinal plants are most important for gastrointestinal disorders, diabetes, respiratory tract disorders, weakness or debility, sexual disorders including low sperm count and infertility in women, heart disorders, hepatic disorders(hepatitis, jaundice), menstrual problems, urinary problems, fever, skin infections, pain, animal and insect bites, anaemia, helminthiasis, edema, epilepsy, insanity, typhoid, cholera, rheumatism, obesity, bone fractures, hair loss and greying of hair, measles, pox, hernia, hypertension, tooth and gum infection, allergy, cuts and wounds etc. On literature survey and knowledge gathered from kavirajes it is also reflected that this wild vegetables have an excellent medicinal activities and high nutritive value.

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25

Influence of Forest Resource on the Changing Status of Tribal Women Traders-A Study of Road Side Market in West Tripura

Sharmistha Chakraborty
and
Bijita Sen

Abstract

Tripura like other state of north-east India are richly endowed by plants, vegetable and medicinal herbs like bamboo shoot, chubui, khargan pata, thankuni pata and many others which are not only subsistence forest products but also source of income and security to the tribal people. Large numbers of tribal women are engaged in collection of forest resource. Participation of tribal women traders those living in and around the forest are fully depend on selling forest resources which play an important role in their social as well as economic life.

This study is attempted to make an in-depth study with respect to tribal women traders to understand the importance of forest resources which influence the changing status of tribal women in society. Area of the study selected as west Tripura district. This study is mainly highlights the participation rate of tribal women in road side market of west Tripura district. How forest resources influence tribal women lifestyle and socio-economic changes vis-a-vas the attitude of their society towards tribal women traders. In order to collect field data, unstructured interview, discussion and observation method are followed. For interview of tribal women trader's unstructured questions were made. Discussion with groups and observation use to understand the changing status of tribal women traders. For secondary data different research studies, Government and Non-Government reports were reviewed. From each market case studies were made. Findings of the study highlights the problem tribal women faced.

Keywords *Forest resources, tribal women traders, road side market*

Introduction

Forest products play an important role in the life and economy of the people living in and around the forest areas. Tripura is among the smaller State in the North Eastern Region, with a total area of about 10492 sq. km. only, out of which about 60% area is hilly and forested. In Tripura an area of 6293 sq. km or 60% of the total geographical area of the state is under forest. Out of this, 57% is under reserve forest, 35% under unclassified Government forest and the remaining 8% is under proposed reserve forest. Forest provides a means of livelihood for tribal communities in Tripura. The present study give focuses on those forest products found in road side market which influence the status of tribal women traders in west Tripura district. Basically tribal peoples are selling forest product of the forest origin along with forest cultivated vegetables like bash karul or bamboo shoot, khamka, thankuni or samsota, kwiccha buduk, thaduk, komliha, dheki sag etc. women participation were found attraction of those tribal market which is found different road side areas. Though number of tribal women trader are very less then men but these minor forest products

directly as well as gradually improve their status in market area. In sociological view, status of women in a particular society reflects the overall social thinking, social justice and value in that society have (Rehana, 1992). Mainly two kinds of social status found in our society, namely ascribed status and achieved status, while the ascribed status is attempted by birth like, age, sex and kinship. Achieve status on the other hand is derived by the virtue of individual choice, ability and accomplishment (Harlambas, 1980). This study is attempts to highlight achieve status of tribal women trader denotes the position they holds in their society. It's often described in terms of their level of income, education, social involvement and role within the family and community.

Several Anthropologists have referred that pure tribal groups used to depends entirely on forest produces for their existence as a robust, vibrant and healthy group of people. But regular contact with urban areas has changed some part of their life style and they are not fully depended on forest products now-a-days but in the past forest having large impact on tribal population particularly on tribal women. The role of tribal women is substantial as well as crucial because they are seen as closer to forest then man.

Tribal Women Trader and Forest

Most of the tribal women traders bring their products form particular rural wholesale markets and also from selected tribal houses. In this process of trading, two types of vendors are found, primary vendors and secondary vendors. Primary vendors are those who collect the forest products mainly the natural or forest cultivated products are found. Secondary vendors buy these products in a huge amount and also in wholesale rate. In case of women vendors or traders, they always

came to road side market by collective efforts. Most of them are from same locality and collect almost same kind of products. Road side markets in urban areas, tribal women traders were popular because of the demand of forest products which are basically rare and not found in normal urban markets. Along with vegetables some forest timber products also available in those markets. In Agartala town areas road side markets are basically found near by tribal areas but non-tribal people are also interested on these markets for their different organic forest products.

Roadside Market and Tribal Women Trader

The most populous district of the state, west Tripura is located in the state of Tripura. West district has 7 sub-division and16 blocks, total population 988,192 (census, 2011). A networking of marketing infrastructure exist in Tripura which include primary market, assembling wholesale markets, regular market, municipal market and terminal market. Tribal women those are primary vendors are collects their products from near forest areas and sell in the village markets areas in wholesale rate. Some of them have permanent buyers, huge amount of vegetables are selling in minimum rate in those markets. Some of the secondary tribal women vendors' bye forest products collectively along with normal vegetables and sale in the urban road side markets. Road side markets are mainly considered as informal markets by the vendors. These markets have no permanent place. In west Tripura district, Agartala is the major market accessed by tribal women along with man for sourcing of inputs households commodities and selling uncommon forest products. Percentage of tribal women traders in the urban road side markets has found lower then man but in case of rural markets area more numbers of women participation found.

This study explores some of the essential problems faced by the women traders in road side markets.

Objectives and Methodology

Women are found isolated from participation in the economic activity mainly in the rural India. Within tribal communities women are consider as heard working and more active worker in the household activities, domestic and child rearing work. Tribal communities found little different from broader scenario, but the mindset and subordinating patriarchal system still alive within their society. This paper examines the following objectives, with reference to influence of forest on tribal women traders in road side market at west Tripura district.

i) To study the organic linkage between tribal women trader and forest resources.

ii) To study the influence of earning on the status of tribal women traders.

iii) To study the social attitude toward tribal women traders in road side market.

The research methods have been precisely qualitative in nature. It includes fieldwork, unstructured interview, direct discussion, participation and observation.

In addition, different books articles and publication were used for obtaining secondary data. Research study was mainly concentrated at seven road side market areas from west Tripura district i.e., (1) Lake Chowmuhani (2) Bijoy Kumar chowmuhani (3) M. B. Tilla (4) Advise chowmuhoni (5) Borkathal bagar (5) Kolabari (7) champaknagar market. From these seven markets four roadside markets are found in Agartala town. Only one market found as regular market but left six markets are weekly basis. An initial interview process was arranged with market committee member to know about the participation process

of tribal people in road side market areas. Purposively from each market tribal women traders were selected thus making of 58 respondents.

Results and Discussion

1) Social status: - The term 'Social status' comprises the position, power, abilities of women and privileges enjoyed by them in their society. It is known to all that the status of women in the society depend particularly upon the nature of its economy, attitudes of the society towards women, political participation of women, social and religious taboos, women own consciousness etc.

a) Age - In this study age has been categorized into four groups. Up to 35 years of age is named as young, 36-45 years of age is considered as mature, 46-55 years of age is considered as middle age and more than 55 years is considered as above middle aged. Of the 58 respondents, a majority 62.07% respondent are mature in age group. 24.13% of the women were of 'Young age group', 8.63% were found to be in the 'Middle aged group' and the rest 5.17% were in the 'Above middle aged group'.

b) Marital status; - 62.06% women were married and 17.24 % women were not yet married. 20.70% tribal women are widow.

c) Educational status: - Education plays a vital role of formulating the human status as it bears knowledge and virtue in men. Vivekananda says, 'education is the manifestation of perfection already in men'. Education is the most potent weapon in changing the status of women. But our present study shows a gloomy picture of education level among the tribal women traders of Tripura. Majority of the respondent are illiterate72.41%, but beside this they have very much knowledge

about the money calculation and profit percentage. Most of them are only functionally literate for signature purpose. 24.14% respondents were going to school but only up to primary level. Only 3.45% respondents were educated up to secondary level.

2) Economic status: - Economic status comprises of the position, power, abilities of women and work done by them. Here the question of due recognition of their work in terms of its importance to the economic share of the family or country on the basis of certain universal economic features are taken in to contribution

a) Annual income of tribal women trader: - In this study income found 51.72% of the respondents had medium level of annual income followed with low 43.10% and high 5.18% level of annual income respectively. This trend might be due to reason that, the respondent spends a particular amount for resave the vehicles. But with these incomes they feed their families.

b) Source of family income of the Tribal women: Family income of tribal women traders measured in the study for understanding the economic condition of that particular sector in society. There is no doubt about the fact that the tribal women traders have a great and visible role in the socio-economic activities which help to develop the tribal society as a whole. Along with women traders other family member income also helps to their better livelihood. 65.51% respondents found family income through cultivation. But no respondent found those have small family business and cultivation along with trading. 20.69% respondent families were totally depended on road side market trading. 13.80% respondent families have their own small business in their locality.

c) Effect of forest products on up gradation of their demands influence on personal income of the tribal women traders: - It is important that tribal women traders collect those products along with normal vegetables which are very rare, seasonable and forest resource. Sometime tribal traders bring there own collected forest products and sell in the market. Among 58 respondents 84.49% women traders feel that their earning make them more self dependent. 15.51% women traders believe that because of the rare forest products they were mostly demandable in the market areas.

d) Decision making role in personal matters: - Almost 76% tribal women traders have low decision making capacity before they participate in trading business. But 24% respondents have high influences on decision making. After participation in roadside markets respondents were facing much competition with tribal men and non tribal. They have raise decision making capacity from 24% to 94.82% and only 5.18% tribal women have low decision making capacity. From this study it's observed that forest products help tribal women to achieve new demanding criteria in urban as well as rural roadside markets in west Tripura.

e) Decision making in family matters: - Most of them shared that before participation in the market area to sell forest products along with normal vegetables that they have low value in family decision making matters. But after their involvement and profitable income now a day they have more decision making capacity.

Other Findings

- 72.41% of rural tribal women traders belong to joint family and 27.59% of tribal women are from nuclear family.

➢ Cooperation of family members is found among the tribal women traders. Almost 75.86% respondents shared that their family members helped and shared household works to save their time. Many of the respondents came in urban areas along with their husband or relatives. 6.89% respondents feel that few members in the family support them to go in their work but 17.25% not given any answer.

➢ 65.51% tribal women traders have high political knowledge. Some of them actively participate in political activities. No respondent found to be ignorant about politics. And 34.49% respondents have basic political knowledge.

➢ Collective participation found among the women traders because of distance from their livelihood. They reserve vehicles for coming to urban market areas. Only those women traders face transportation related problems. It is found that some women traders mainly coming from taidu and ompi have come in groups. Like group a coming on Monday leaving Tuesday another group comes on Wednesday, it's an alternative process. Beside all these they earn a good livelihood.

➢ Mostly tribal women have in depth knowledge about different forest herbs and how this product helps to live healthy. One of the respondent told that most of the forest products are cooked by boiling. Sometime dry fish or natural khar(soda) mixed with these. They also explain the preparation of food by forest products.

➢ One of the respondent share traditional processes for cure stone problem in the human body by rare seasonal forest fruit name as sattukore.

Suggestions or Appeal

1. Tribal women traders require more transport facilities to reach the market areas because now they have to reach the market by hiring vehicle which is very expensive.

2. Normally tribal women traders are coming from rural areas with forest products, some of them have to stay at night. Immediately a night shelter home should be arranged for these traders. It will give them shelter and security.

3. Government may think to arrange a market for indigenous forest products which will helpful both economically and socially.

4. As the traders are women there should be good sanitation.

Conclusion

Tribal women are collector and direct user of the forest resources to sustain livelihood but due to poor literacy level, poverty, ill-skill in technical knowledge and lack of control over land and other resources from economic perspectives. Tribal women have indigenous knowledge which is passes by generation to generation. Now a day because of modernization new generation of tribal population has not found so much serious about their traditional indigenous knowledge. At that time tribal women traders were introduce some healthy organic forest resources and share the process of cooking save the food value with taste. Demanding image of tribal women traders are mainly found because of their honest and informative conversational skill and practice.

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Role of Forest in Socio-Economic Conditions of Tripuri Community of Tripura

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and
Tapanjyoti Malakar

Abstract

Tripura, a small hilly State full of dance forest in north-eastern region of the country is home to 36, 73,917 persons as per 2011 census. Tripura does not comprise a single or sub-tribe, but comprise 19 different types of tribal communities. Among all the Tribal communities, Tripuri is the Major in number. About all sides of Tripura are living the Tripuri community. According to 2011 census report their total population is 5,43,843 .Most of the Tripuris living in West District Khowai and Sadar Sub-Division. Besides these they are also found to live scattered in small groups in other places also.They take all kinds of green Wild vegetables from forest, meat, fish, dry fish and egg etc. Dry fish and oily fish (Sukti and Sidal) are favourite to them. Bamboo sapling is one of the favourite food items of Tripuri. The economic condition of Tripuri is generally based on forest and its surrounding. Their principal demands are fulfilled from the forest resources. The main requirement of food is produced by the primitive method of cultivation, i.e. jhum cultivation. They have almost abandoned the traditional dress and instead they have adopted modern dress also. They have mainly four types of traditional dances. In this paper we try to find how

impact forest on their social and economic position.

Keywords: *Tripuri community, Social Activities, Economic Activities,*

Source and Methodology

Objectives of the Study

1. To Know about the Tripuri community of Tripura,
2. To Know their social life,
3. To know how forest and social activities are depend on each other,
4. To know their economic activities of daily life,
5. To find out the role of forest in Socio-Economic conditions of Tripuri community of Tripura.

Source of the Study:- The study relates to find out the role of forest in Socio- Economic conditions of Tripuri community of Tripura. So The Major source of the study is Books, Journals, Internet. The impact of the forest on them can be study by interviewing.

Methodology

Analysis and Analytical methods are adopted.

Preparation of the Tool

Many books, journals, Periodicals were referred. Tripuri People of different areas were interviewed.

Introduction

The North eastern region of India is composed of seven hilly states. Tripura is one of them. It is in the farthest corner of the country and three-fourths of its boundary has run with Bangladesh. The total area of this state is 10,477 SQ. km and the total population of this princely state is 36, 73,917. A good number of populations of this hilly state are tribal. The territory as it stands now situates between 22.56 and 24.32, North

longitude and between 91.10, & 92.21 East longitude with an area of 10.477 SQ. Km. (length 183.5km. with 112.7km) 60% of the total area consists of hilly land while the remaining 40% constitute flat land. Tripura is situated by picturesque hills and valleys, dance forests and lush fields.

In the British officials record Tripura was usually known as 'Hill and Tipperahs' and wines as independent Tipperahs.

According to 2011 census the total population of Tripura is 36, 73,917 and out of this Tribals are 9, 93,426. The tribal populations in the state have been classified into the following nineteen categories- (1)Tripuries, (2)Reang, (3)Jamatias, (4)Noatias, (5) H alam, (6)Chakma (7)Mog, (8)Lushai, (9)Kuki, (10)Garo, (11)Chaimal, (12)Khashi, (13) Bhutia, (14)Munda, (15)Orang, (16)Lepcha, (17)Santal, (18)Bhil, (19)Uchai.

Among all the tribal communities Tripuri is the largest in number .The total population of Tripuri according to 2011 census is 5, 43,843.

We have been inquisitive so long about Tripuri community and cherished always a desire to know its origin, history, and development and socio economic conditions and how their everyday life depends on forest.

Tripuries

The original tribes of Tripura are Tripuri, who used to be known as "Pancha Tripura" that is five Tripuris during Manikya monarchy, till its merger with Indian Union. The five branches are old Tripurai (Tipra), New Tripurai or Noatia, Jamatia, Reang, Halam. Within these five main brances of Tripuris there are smaller sub-branches like-Murasing, Uchui, Rupini, and Kolois etc. These branches have their many brances that are having

their little characteristics. Although before Independence they formed the majority, the ratio of Tripuris population to the total population has declined since the 'fifties'

Social Activities

Though tripuris have been divided into different groups, their social customs, behavior nearly same. Simplicity is there in their living also. In the jhum dependable society marriage ceremony, religious practice etc. have similarity. Their social life is bold and united also. Only the economic condition is responsible for their social division. Their marriage ceremony is in their society only. Their social life is same. By their family it means father, mother, husband, wife brother son and unmarried daughter. The position of women in tripuri community is just behind the man. For selecting Bride some qualities are seen, few qualities among them are weaving, separation of seeds from the cotton etc. More over the health beauty and quality of doing home work is also observed. On the other hand the character, health, bamboo work, household work jhum collection of groom is observed. At present in remote villages the jhumias family selects their traditional work during marriage.

The village of Tripuri is fully separate from the Hindu Bengalis village. The feature of the Tripuri village is very simple. The Tripuri community generally formed a village on the tilla or a hill. From the ancient time the tripuri people have inhabited the high hills and remote forest and have coexisted with singing springs, wild animals and birds zigzag rivers.

The easy going life and the self-subsistence economy provided them with ample scope for imagination, speculation curiosity, drinking, smoking, singing, dancing and gossiping.

Now-a-days the typical tripuri`s food habit, of course is of some variation. The Tripuris of hill areas have simple items

of diet. Whatever they take and cook them need use less and less spices excepting salt, Chilli and turmeric. Sometimes they used onion and ginger. Out of the items referred to they produce chili, turmeric and egg but salt and onion they buy from market. They take all kinds of green vegetables; meat, fish and eggs. Most of the green vegetables are collected from forest and also they grow in the jhumfild. For meat they hunt wild pig, wild hen etc. from the jungle. Cows, bulls and buffalos are reared only for milk and plough. Dry fish and oily fish (Siddle and Sutki) are favourite to them. The Tripuris have another famous item known and called as 'Godak'. This godak curry is prepared in the green bamboo pipe which collects from forest. Well prepared godak is so tasty and flavorful that one happening to relish will never forget.

Bamboo Sapling is another favourite food item of Tripuris. Bamboo sapling curry is prepared is both bamboo pipe and cooking pot. They also prepare a special type of curry with alkaline substance out of the ashes of burnt bamboo and mustard plant. Sour curry is also prepared by them with a kind of sour vegetable fruit which they produce profusely in the jhum. They also procure and preserve the fat of wild boar used frying vegetable and cakes. The fat is also used with medicine as a curative measure for chronic pain in any part of the body.

Economic Activities

The economic conditions of Tripuri Communities are generally based on forest and its surrounding. Their principal demands are fulfilled from the forest resources. The main requirement of food is produced by the primitive method of cultivation, i.e. jhum cultivation. In the past the Tripuries used to live on jhum cultivation. Now many of them have adopted plough cultivation. Gharchukti was a kind of house tax; it's lev-

ied to the shifting cultivators. For each house owner previously their headman was to allot the jhum area. The traditional economy of the Tripuri consists of gathering of leaves, tubers, vegetables, roofs of various bamboos and other trees from the jangles, hunting of wild animals birds, catching fishes from the rivers, lake chara or water areas near their habitation. All these vocations indicate their habit of food gathering. Their main crops are paddy, maize, pumpkin, cotton, cucumber, gourd, jungle potato etc. Agriculture is their main source of lively hood. The Crop cultivated in three types of land namely-(i) Up-land, (ii) Intermediate land and (iii) Low land. Again as producers they practice jhum cultivation, till the plain tracts, near domestic animals and birds, maintain fisheries and practice a bit of cottage industries.

Food Gathering Activities

Various vegetables both leafy and root or tubers grow in the monsoon fed forests of Tripura. In the lean days of winter some vegetables also grow beside the streams or rivers. Tripuri people collect these leaves and roots according to availability. Food- gathering activities of the Tripuri mainly consists of collection of fruits, roots, tubers, leaves, etc. from the nearby hillocks or jungles, hunting animals and birds in the fills and forests and fishing in the neighbouring revulets. It may be noted that the collection of fruits, roots, tubers, or leaves etc. is mainly done by womenfolk of the Tripuri society, but in case, roots lie too deep into the soil, they may take the help of malefolk. Of course, it is not uncommon that sometimes the adult males and boys extend their help and co-operation in food gathering activities of the women.

Strenuous activities like plucking fruits from trees or collecting honey from hives are done by man boys only. It is

significant to note that the food gathering pattern of the Tripuries are mostly common to all other tribes of north -east India. Various foods they collect from the jungle to fulfill their food requirement in olden days. They collect bamboo, banana, various types of vegetables, fruits and leaves of herbal medicine roots, honey, oil sees etc.

Collection of Honey

The collection of honey by the Tripuri jhumias is also very interesting. This is done in the months of June and July. When a Bee -hive is detected on a tree, several man mostly young boys go to remove it. One who is expert in climbing, climbs up the tree and drives away the bees with help of a burning troches made of dry bamboo and leaves.Others on the ground also help in driving out the bees by burning troches and when the hive is completely free from the bees, the climber removes the hive by a bomboo sliver or a takal and places the pieces in acontainer which is mostly aloin cloth.The hive is then distributed equally among the members of the homey gathering party.

Wild Products including Medicinal Plants

Other wild products which are collected by the Tripuris are raichuk (soft top cane), Samasta (Ceatella asiatica), thalik baling (wild bana, musa rosea), ganga (wild root), muitu(arum), muia(bamboo sapling), banskurul(bamboo shoots) etc. It is important to note that roots and tubers are collected during the winter season, when there is a scarcity of food grains. Besides these roots and tubers the Tripuris collect some medicinal plants which are mostly known as folk medicine. Among them worth mentioning are- Abromangusta, Aegle plants marmeloes Bakopa momeleria,Terminalia aruna, Mucuna prurita,Zingiber officinales, Pipar niagrunm,Ipomia aquatica, Ozalis corhiculata etc. It is very interesting to note that even today; the jhumias

do not bother for the treatment of any disease. They have a great belief and reliance on their folk medicine which is available in forest.

Hunting

The next important food gathering activity of the tripuri is hunting of birds and wild animals. Hunting may be individual or group concern. Generally the adult male tripuri practice hunting. Almost all animals except certain species like tiger, monkey, crow, etc. are hunted for food. Of course, the Tripuri do not always hunt birds or animals for food gathering purpose but for protecting the jhum crops against them. The weapons generally used in hunting are deshi weapon, spear with bamboo handle, cutter, bow and arrows and pieces of stones. Generally the hunts are wild hogs, deer, porcupine, wild cocks, tortoise and hen etc. Sometimes the prey is brought within the shooting range of the hunter by group chasing when the hunter hits the animal, the other members rush to the animal and kill it with the weapons they have with them. Sometimes the prey is surrounded from every side and all the members attack it simultaneously and kill it. The Tripuri, especially jhumia start practicing it from childhood. The elder teach and impart training to the youngsters regarding the hunting operation. The youngsters never miss an opportunity of joining any hunting expedition.

Food Production

Although the Tripuri are mainly concerned with the food gathering activities and their economy certres round it, yet they are not averse to the primitive type of producing food articles by jhum cultivation, yields of which are not again sufficient enough for their subsistence. Naturally so,the jhumias are mostly dependent on food- gathering which is supplemented

by jhum-yielding-crops. It is fully true that the Tripuri produce food crops by an incipient type of agriculture on the slopes of hills and jungles, which is a very common primitive practice of food production in North eastern India, south East Asia and also in some other parts of India and outside. This kind of food-production is called by the primitive peoples of Tripura and also of North-eastern India by the name jhum which is means shifting cultivation, i.e. the area under cultivation is shifted from one selected field to another, the primary reason being the loss of fertility after at least two seasons' productions.

Jhum Land Selection

While making the selection of a jhum-fild, the jhumias alaways take into account such factors like a virgin site bearing bamboos and bushes on the hill slopes and secondly the selected jhum field must be in the vicinity of the dwelling place for the purpose of keeping constant watch over the field and making all sorts of provision for the protection of the crops. Of course, the liberty of selecting jhum field has been presently very much restricted by the forest department which actually allots plots of land to the to the individual Tripuri families for jhum cultivation.

The selection of the jhum-land is completed by the jhumias during the months of November and December. But the final selection of the land for jhum cultivation is, however closely associated with some magic religious beliefs and practices. The Tripuri jhumias believe in the existence of the Goddess of the jhum deity also known as BruaDebta is worshipped at the very site which has been preliminarily selected for jhum-cultivation. In the olden times Tripuri Sardar or Chowdhuri used to call a meeting of all families residing in the villages. In that meeting it was generally decided where jhum for that year

would be done. Then the Sardar with the villagers would visit the forest area where jhum would be done and distribute the plots of land demarcating with bamboo sticks among the villagers. This distribution was generally done on the basis of total family members of each families of the Tripuri community. The choice of land generally been completed within the month of Agrahayan (November-December).

First of all, a small area of the selected field is cleared and made clear. Then three short bamboo pieces are planted in the ground generally, the bamboo pieces are planted in a horizontal now at a distance of twelve inches from one another. These bamboo pieces are supposed to represent the Goddess of the jhum-field. In the next stage, the owner of the jhum-field, keep in his hand-splitted two halves of a bamboo piece. He then drops down two halves of a bamboo pieces with the Chanting of the following spells:

"Hima louming hai pui ah
Shipar ar jir rang rung
Rikhu thang khu akong rang rung
Tanga mao jit te rel jun woa
Ar dai nabul, sing lai-a-detai
Chong khel rilmok takhel rilmok
Nisug khaowar ah Omong
Chandi Sakhi ah Omong
Satya, satya, tin satya khatka
Khupate khatka thalate deo"

(Translation: I shall cultivate this plot of land. It is really a wonderful place. Let there be a plenty of crops. Oh bamboo! Let your head be seen by the birds the Moon and the Sun and the root penetrate deep in to the soil. Please make correct for a forecast in the presence of the Moon, the Sun and the Chandi).

Tools

As regards tools and implements it may be mentioned here that previously the only tools used for jhum cultivation were: the digging stick and a chopper. By the digging stick holes are dug out in the jhum-field for sowing seeds and the chopper is used primarily for cutting plants bushes etc. But now-a- days the Tripuri jhumias rarely used any digging stick and even the chopper used by them is made of iron which is locally called takkal. Other iron tools used in jhum -cultivation consists of cekhras (sikles). Besides this cutting and digging tools baskets made of bamboos and canes are also used for carrying and holding seeds to be sown.

Preparation of the Jhum -Field

For the preparation of the jhum-field the jhumias, first of all clear the field by cutting down all plants bushes which are left in the field to be sundried for several days. This practice however requires to be followed only in the case of few jhum- fields to be cultivated. For sowing seeds second time in the same field, there is hardly any need for any clearance on such a wide scale whatever may be the case, when it is found plants and shrubs are fully dried, fire is set for burning for two to five days and two to three days are required for cooling down, burnt ashes are considered to be good manure for the fertilization of the soil, which would promote bumper production.

Conclusion

So, we can say that from the prime stage of Tripuri communities socio and economic conditions basically based on forest. Although today, it has taken a new dimension due to shortage of cultivable land, increase of population and with the advent of various modern implements of settled cultivation. As a result, landless hill people have come to the plains in search of livelihood. Diversity of occupation for the survival is found common to them

now. Some of the Tripuris leaved forest and started to live in urban areas and also working several Government designated post but their roots still in forest.

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Non Timber Forest Products and Tribal People of Tripura

Soma Datta

Abstract

Nineteen comminities of tribal population of Tripura are closely associated with forest for their culture, tradition,food habits etc.Forest products have immense value in the livelihoods and are the main source of income for marginal communities. Abundance of vegetables, fruits, roots, stems, seeds, and others growing in forest and available in the local market which posses high nutrititive value and ensure economic potential for the tribals who collects and sells in the market. Non-timber forest products (NTFPs) is non-wood, alternative and secondary forest products of biological origin extracted from forests.

Much information is available on NTFPs,but literature on how tribal people interact with these natural resource is scanty. Present attempts have been made to highlight some important NTFPs like vegetables,fruits,medicinal plants etc and paper is based on secondary data ,interview with tribal people of different market of west district of Tripura.

Keywords: *NTFP,Tribal people of Tripura,Medicinal plants.*

Introduction

The forest covers about 6294.278 km2 i.e. 59% of the state geographical area, along with 587.633 km2 are Proposed Reserve Forests and 2116.874 km2 unclassified Government Forests (UGF). It is bordered by Bangladesh (856 km) with three sides in the North, West and South, and in the east by Mizoram (109 km), in the north-east by the state of Assam (53 km).

Tripura is the home of nineteen different tribes apart from Bengali population. The rural people as well as tribes are still now dependent on nature for food, healthcare and shelter. Non Timber Forest Products play a vital role in the life and economy of Tribal people and also provide nutritional security.Non-timber forest products (NTFP's) refer to medicinal plants, food, resin, fibre and others kinds of non timber products collected from the forest (Chamberlein et. al., 1998). Gathering NTFPs from local forest for getting cash income or used by indigenous people themselves can be traced thousands of year ago (Ticktin 2004, Freed 2001). To collect and use NTFPs is a key issue related not only to living standards improvement and traditional culture of indigenous people but also conservation of biodiversity and sustainable development of concerned regions (Baird and Dearden 2003). Traditional markets not only provides a major venue to indigenous people for getting cash income from their produce but also are important sites for spreading traditional knowledge on plant use and conservation (Williams et. al., 2000, Mertz et. al., 2001). Forest is an important renewable, natural resource, which greatly influences the socio- economic development in any rural community (Ghosal 2011). Evidently, it plays a leading role in enhancing the quality of environment by influencing the life supporting

system. Forests are also intrinsically involved with our culture and civilization .Non-timber forest products refer to all biological materials other than timber, which are collected from natural forests for human use. A study was conducted by Chaudhury(1986) who recorded over 500 plants as being significantly used by the tribal as food, dyes, tannins, drugs, narcotic, drinks, housing instruments, weapons, fibres and medicine etc. NTFPs may provide local job opportunity to two million people every year and contribute significantly to rural economy as more than half of the products are consumed by the tribal living in and around the forest area to meet their basic needs (Jana 2008; Rout et al. 2010). Thus, the non-timber forest products play a significant role in the livelihood of forest dwellers, communities living in the vicinity of the forest, as wel1 as people at large in the immediate surrounding areas. Non Timber Forest Products play vital role among the tribal people and provide a source of income and substance living (Hegde et al. 1996). NTFPs like fuel-wood, medicinal plants, wild edible vegetables, house building materials etc. are an integral part of day-to-day livelihood activities, especially for tribal people (Sarmah et al. 2006). Non-timber forest products (NTFPs) or non-wood forest products (NWFPs) have been considered as minor forest products in many countries. Production and consumption of NTFPs have never appeared as resources of great economics and ecological importance at macro level, but contribute a minor share to the national economy in comparison to commercial timber. However, at micro level, tribal people living in and around forests for centuries have recognized NTFPs as important forests resources. Some important studies from ethnobotanical point of view have been made at certain places (Maheshwari 1990, Sikarwar 1997,

1998, Jain 2000, Jain and Patole 2001 and Jain and Vairale 2007).

In the present study region, the trading process is still keeping a traditional style. There are a limited number of species collectors and vendors (primary and secondary) usually do not bother about accurate quantification of their NTFPs. Their aim is only to get expected returns, so the traders can complete their trading process easily without any measurement. The road side selling NTFPs happen to be more in Lake chowmuhani Market followed by Bijoy kumar Chowmuhani, Advisor chowmuhani (important road side market in Agartala).

Methodology

Study Area

A set of questionnaire was made for the study by visiting different local market and traditional medical practitioner(Ochai) of different places of West district of Tripura was collected as primary data. Questionnare was divided in two major head -in Part 1: name, age,family member, monthly income,other profession etc.,in Part 2,questions were restricted only for collecting information regarding NTFPs. After getting information,data was compilled in a sheat. Photographs of market and sold products were takenwith the help of Digital camera(Nikon Coolpix). The different places for data collection were Mandai, Champaknagar and tribal dominated market of Agartala like Lake Chowmuhani, Bijoy kumar Chowmuhani, and Advisor Chowmuhani. Secondary data were collected from Medicinal Plant Board of Tripura, different Books and journals, Tribal Cultural Research Institute, Arnya Bhavan(Dept. of Forest) Govt. of Tripura.

Findinges and Discussion

Researcher concentrated around Bamboo, Arjunflower, thatchgrass, edible vegetables,medicinal herbs. From the present study it was revealed that :-

- A good number of villagers have knowledge of exploring NTFPs.
- Majority of the people like to collect the NTFPs having high prices.
- Mostly poor and unemployed men and women collect and sell NTFPs in large quantities. There were two types of vendor, one was primary vendor another was secondary vendor. Primary vendors keep one part of the produce for them own pur pose and rest part in the market.
- The income generated by the sale of NTFP's is used for buying their everyday needs
- The collectors have high experience to recognize NTFP's by leaves, flowers or by smelling.
- According to them, the NTFPs are not easily available in the forests, now-days as the collect able quantity of NTFPs is decreasing day by day. Some of the products have reached the verge of extinction.
- They assemble in the market place unorganisedly twice in a week at Bijoy kr. Chowmuhani and seven days in a week at Lake Chowmuhani. Lake chowmuhani market is very much popular to all the people of tribal as well as non tribal also.
- Large quantities of NTFPs along with agricultural vegetables also are sold in Agartala market (Lake Chowmuhani) followed by Bijoy kr. Chowmuhani,Advisor chowmuhani.

- Traders coming from far distance for selling edible vegetables like 'Muia' and 'Kurul'(Bamboo shoot),Banaloo,Chubui, Bagduga, Banbegun, Makhna, Jal samuk which is very tasty and have high demand to tribal and non tribal of Agartala.
- Broomsticks are one of the important NTFP in Tripura,sold in market in large quantity. It is made from inflorescence of Thysanolaema maxima, locally called Arjun flower.It has high profitable market in the state and outside the state.
- Bamboo species generally eaten by the tribals of Tripura are- Wathwi muia(muli),Wanol muia (Mritinga),Wamilik muia (Rupai). Barak also eaten by them. Rural Housing,posts, walls, roof structure, roofing material, scaffolding, fencing and gates,agricultural implements, baskets, food grain containers, rain shields, head gear and other functional products are made up of bamboo.Handicraft items like toys, morra, win nowing trays, handfans, mats, wall panels, screens, umbrella handles,fishing rods, agarbatti sticks are also bamboo product.
- Various types of medicinal plants are sold in markets like

i.Aegle marmalos (Bel).
ii. Clerodendron viscosum (Bhaitphul)
iii. Cajanas cajan (Khokhlaing)
iv. Centella asiatica (Perup)
v. Clerodendron viscosum

vi. Ficus hispida (Mayungmai) (Bhaitphul)
vii. Terminalia chebula
viii. Aloe barbadensis (Ghrita (Bukhala buthai) Kumari)
ix. Averrhoa carambola (Kamranga)
x. Basella alba (Puisag)
xi. Boerhavia diffusa (Punarnava)
xii. Cajanus cajan (Arhar)
xiii. Cassia fistula (Badar lathi/Shonalu)
xiv. Dillenia indica (Chalta)
xv. Dioscorea bulbifer (Ban alu)
xvi. Moringa oleifera (Sajna)
xvii. Typhonium trylobatum (Kharkon)
xviii. Chenopodium album (Bethuya sak) etc.

From this investigation it may be concluded that the NTFPs play an important role in improving the livelihoods as well as meeting the needs especially as food, medicine, poverty reduction etc. of the rural tribal communities .Non-Timber Forest Products are integrated components of the forestry sector and have been widely recognized as potential resources for promoting sustainable livelihoods, conservation and capacitating development organizations. It plays a crucial role in the livelihoods for rural people, particularly for those dwelling in the forest and its vicinity. Thus, on the one hand, the systematic harvesting of NTFPs will increase employment opportunities among forest- dwellers and on another hand, it may also reduce their over dependence on timber collection which might be efficient to resolve the problem of dry-deciduous forest degradation. Sustainable collection, use and commercializa-

tion are the main drivers in the promotion of NTFPs for community development, poverty reduction and livelihood socio-economic improvement in the tribal communities.

This paper reveals that a large number of the poor are involved to generate income, food and medicine from NTFP's. The district harbours a diversified NTFPs and the population possesses a sound knowledge on plant resources. Despite their potential, the contribution of NTFP's to local economy is still negligible.

NTFP's of the study area are broadly species of medicinal importance, edible species, industrial useful species, It showed that NTFP's collection and selling for extra income has its greater effect on the rural tribal economy. Hence there is an urgent need of sustainable management practices along with cultivation programmes. At present, medicinal plants are largely being over-exploited. It is therefore high time to explore and promote other NTFP's by not excluding medicinal plants. Sustainable collection, use and commercialization are the main drivers in the promotion of NTFP's for community development, poverty reduction and livelihood socio economic improvement.

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Tribal Life and Forest with Special Reference to the Hrangkhawls of Tripura

Synem Hrangkhawl

Abstract

Forest plays a vital role in the life of the tribal in Tripura. It encompasses every aspects of the tribal life. Forest acts as the live house of the Hrangkhawls of Tripura. The Hrangkhawls live in the hilly and forested area. Forests are the sources of their subsistence economy, culture, history and religious heritages. Without the forest these factors have no meaning and value in their lives. Forest is indispensable with the life of the Hrangkhawls. Their religious beliefs and rituals promote in the conservation of forest. They also depend on forest products and resources for their livelihood and for various purposes i.e., for construction, household utensils, games and sports, and also for healing of the sick. The shifting cultivation is practiced among the Hrangkhawls and has been the main source of livelihood. In shifting cultivation they plant for one or two years in one place which helps in rejuvenating and retaining fertility of the forest. The Hrangkhawls hold the forest with high regard and reverence as it is the base of their socio-economic sustenance. The life of the Hrangkhawls revolves around the forest and dependent on forests for all socio-economic needs.

Introduction

Tripura is a tiny state of north -east India. It lies between 91* 10' and 92* 21' east longitude and 22* 56' and 24*32' north latitude. Bangladesh surrounds it on three sides and shares 839 km of international boundary with it. On the Indian side Assam flanked Tripura in the north and Mizoram in the east. It is a small hilly state, covering an area of 10,477 sq.km and accounting for about 0.32 per cent of the total land mass area of India. The state consists of about 40 percent of the plain land and 60 per cent hills and small hillocks. The forests in the state are mainly tropical evergreen, semi-evergreen and moist deciduous. The Tropics of Cancer passes through the state and have a typical tropical climate.

Demographic Setting

Tripura though a small state, is densely populated. The tribal and non- tribal constitute the major ethnic group, making the bulk of the population of the state. The non- tribal i.e. the Bengalis constitute mostly those who migrated to the state at different periods of time. The tribal who are mostly indigenous consists of many tribes and were once majority in the state but now are minority. The tribes are as follows as per the notifications of the Government of India---, (i) Tipras (ii) Riangs (iii) Jamatias (iv) Noatias (v) Lushais (vi) Uchais (vii) Mogs (viii) Kukis (ix) Chakmas (x) Khasis (xi) Garos (xii) Halams (xiii) Bhutias (xiv) Bhils (xv) Mundas (xvi) Orangs (xvii) Lepchas (xviii) Santals and (xix) chaimals. Thus, there are 19 tribes in the state. The Tipras constitute the largest tribe.

The Hrangkhawls

The Hrangkhawls belong to the Kuki-Halam tribe. Previ-

ously the Hrangkhawls were recognized under the Kuki community but later under the broad umbrella of Halam in Tripura. The Halams are a Kuki tribe native to the state of Tripura. It is said that the Kukis had lived in Tripura even before the Tripuras came in to conquer the land. The name Halam was coined by the Tipra Raja. Members of the Kukis who submitted to the authority of the Tripura Raja came to be known as Halams. The Halams are divided into 15 sub-tribes.

i) Molsom ii) Kaipeng iii) Hrangkhawl iv) Bongcher v) Darlong vi) Ranglong vi) Dab viii) Bong ix) Chorei x) Longhai xi) Morsephang xii) Korbong xiii) Saihmar xiv) Sahkachep xv) Thangachep.

'Hrang' means 'brave/courages', khawl to 'win over enemies', therefore Hrangkhawls are known as 'brave warriors'. The Hrangkhawls lived in hilly and forested areas where all their needs are available. They are concentrated in four districts of Tripura i.e., Khowai, Sipahijala, Dhalai and North district. Forests are the sources of their subsistence economy, culture, history and religious heritages. Without the forest these factors have no meaning and value in their lives. Forest is indispensable with the life of the Hrangkhawls. The Hrangkhawls hold the forest with high regard and reverence as it is the base of their socio-economic sustenance. The life of the Hrangkhawls revolves around the forest and dependent on forests for all socio-economic needs. They find the sacred within the landscape and the cycles of nature. They view themselves as being entrusted by the Creator with the care of the earth.

Following are the socio- religious and economic aspects where forest plays a vital role in the in the life of the Hrangkhawls:

The Social-Religious Life and Forest of the Hrangkhawls

1. Birth: When the child is in the womb of the mother, rituals are performed for safe delivery and healthy baby called sungsan. Bamboo or rabol raw is used to built a small alter for sacrifice to appease the Spirit. As soon as a child is born the umbilical cord is cut with a sharp sliced bamboo or ngaithim, then it is wrapped with banana leaf and thrown in the forest. To make the child sleep mezeng or cradle is made of bamboo. When a child attained around 6-12 months the priest goes to the forest and performed rituals called Thing kap and Parsen Pai for the good health, speech development and over all well-being of the child.

2. Marriage: During the time of marriage the place where marriage is to be solemnized is decorated with bamboo and the bride and groom are made to sit on bamboo paired tied together. Thwibwl or a bamboo is used for serving zu (rice beer). Toi or Bamboo shoot and Changlong or banana stem is cooked with pork which is the favourite dish and banana leafs are used for serving food to the guests.

3. Death: When a person dies, the Ochai (priest) built Maicham and killed chicken and offered as sacrifice to the death and also sanctifying the village which has become impure due to death before any auspicious occasion. Tolai made of bamboo is used for carrying the death body to the funeral pyre. Funeral pyre is prepared with wood and bamboo.

4. Festivals: Festivals play an important role in the life of the Hrangkhawls. Most of the festivals are village level affairs were the whole village specially the Ochai and the elders play an important role. They act as an agent in binding the bonds of the tribe and are observed by the whole village. Some of the major festivals of the Hrangkhawls are: Khawser, Kumvwi,

Khawkhar,and Bu-thar pham.

Khawser

This is celebrated in the month of November and December. The Hrangkhawls stay in their respective Jhum for 2-3 months and this is celebrated when after everybody return back to the village after the harvest. Sacrifice is made by the priest to the gods for the good health and harvest of the people.

Bu-thar pham: It is basically a thanks giving celebration. The whole village gather together to and made sacrifice to the gods for the bountiful harvest. They decorate the play with flowers and bamboo. A red clothe is bamboo pole called sentur and below the sentur is the Khambar or gain container where they put some grains and pig is sacrificed as thanks giving.

Khawkhar

Right after Bu-thar pham, Khawkhar is observed. During this the priest and the khandols (representatives of local customary body) come together, taking the responsibility to clear the village boundary and purify the village.

Kumvwi: This is celebrated by individual household and not village level celebration. A particular family offer feast to the whole village.

In all these celebrations, the village priest play a very important role in performing the sacrifices, during these festivals, forest resource like bamboo and banana leafs are the main materials used for performing the sacrifices apart from other green leafs, snails, cotton, sesame, turmeric.

5. House Construction : The Hrangkhawls lived in inn chor made of bamboo, soon or thatch is used for roofing and other natural resources. They also make Kaireng or a house in the Jhum. In the house of rich person, five to six bamboos are bind and put at the centre of the house where they hang the legs

of wild chicken and heads of wild animals which they have hunted during the year.

6. Utensils, Weaving Materials and Others : Bamboo and other forest products are extensively used for making utensils- bu khe, tui um, jakhep, mwrswk bwl, curry spoon. Baskets like Bem, samtisomna, tuikok, and weaving materials called Rabu-Rakol. Sum sarel made of wood are also used for grinding rice, ralwi is used for cleaning rice. Musical instruments like Khong (drum), Tui thwi (made of bamboo), Daangdul, Rosem and thwikang are used by the Hrangkhawls which are made of wood and bamboo. Household furniture like lukham, char (bed made of wood and bed).

7. Folk Tales and Folklores : The folktales of the Hrangkhawls involve mainly animals, family life, love and romance, heroism, etc. There is a forest-men-animal relationship in every story. The stories also give importance to the fact that the Hrangkhawl people probably being dependent on the forest had a close relationship with nature and animals.

i) - The Story of Khothir and Hrangchal :- Long ago there lived a man who was very intelligent and possessed some magical knowledge and wisdom. One day, his son-in-law was worried about what to have during lunch with his fellow workers (Rwlawm). . . . When she found Hrangchal, her happiness knew no bounds. She was so happy to see him alive. So finally, Hrangchal married Nukrui and they both lived a happy and contented life ever after.

ii) - Story of the Chemsormonpa:- Once upon a time there was a man named Chemsormonpa, who lived by the riverside. As he was engrossed completely in sharpening his Chemkubar (heavy dao/knife) . . . ."You wretched hnathiel, if you ever happen to have an issue, you will produce your issue

from your rib." Thus, it is said that the hnathiel still produce its issues from its rib as cursed by the lobster.

iii) - Folk Song: One of the many folk songs related to forest: Kum sul suk wai arlet ta, o mol khow ngai ngaknu a chang ta, o bozar khom sukwai arlet ta (The season is changing, the hills, mountains and trees are turning into a young lady). Here the forest is even personified into a female. Therefore one can comprehend how interwoven is forest with the life of the Hrangkhawls.

8. Folk Medicine : Knowledge of plants and their medicinal uses played an important role in healing the sick. The medicinal herbs used by the Hrangkhawls are found in the forest these are: pa ui dwk- used for stopping blood flow, nim, amla, etc.

9. Naming of Seasons and Forest : The Hrangkhawls name the seasons by the changing phenomenon in the forest. The six seasons are: Phalbi - Spring, Sal - Dry season, Fur - Summer, Zar - Harvest - onset, Favang - Autumn, Bolzoi - Harvest - end. For e.g., until the while black berries start blooming they can still clear forest for Jhum cultitivation, therefore, the black berry flower serves as an indicator for clearing of forest. Again when lots of mango flower blooms, the Hrangkhawls predict that there will be heavy storm/strong wind. When the trees bear a fruit it indicates that summer is here.

Economy and Forest Resources

The Hrangkhawls collect edible leaves, roots, stems and timbers from the forest. The forests are the live house of the Hrangkhawls. Jhum has been the main source of livelihood. In shifting cultivation they plant for one or two years in one place which helps in rejuvenating and retaining fertility of the forest. In Jhum, mixed cultivation is done were both rice and other

cash crops like sesame, cotton, chilli, corn, pulses, and other vegetables like pumpkins, yam, green leafy vegetables, etc. Wild fruits are also available in the forests (thwi chang, berries, bananas, etc), other forest resources are broom sticks, thatch.

Most of the landless and marginalized families depend on forest resources for their livelihood. Wild leafy vegetables, changvui and changlwng (banana flower and stem available throughout the year), bamboo shoot and other seasonal vegetables are the main source of income of the Hrangkhawls. Timbers and bamboos are used for firewood, construction purpose and also for commercial. Forest is the store house endow with resources in order to meet every need of the people.

Socio-religious practices of the Hrangkhawls which promote the conservation and management of forest: Forest occupied a prominent place in the life of the Hrangkhawls. Integral to traditional forest management is the use of elaborate taboos, myths, folklore and other culturally-controlled systems which bring coherence and shared community values to resource use and management. The Jhum cultivation which is the main stay of the Hrangkhawls promote in preserving the fertility of the soil and growth of bamboo, as a particular forest is cleared off and cultivated for one or two year and after 5-6 years gap the bamboo and other vegetation starts growing, the same place become suitable for plantation again. Thus Jhum or shifting cultivation and the growth of bamboo is intimately relative. The religious beliefs too promote in preservation of the forest. The village elders along with the priest select the site by performing sacrifice to Tarpa. They do not cultivate where the priest after performing sacrifice finds that certain spirit or Tarpa dwell in that particular area. In Jhum cultivation, some areas of the land were divided among the families. This natural

boundary was supposed to have been made by Rwtha-tha and Nengroite and is respected to the furthest extent in the family division. Thus, this has suggested that Rwtha-tha was in control of the whole land. Apart from this even all the animals are under the control of Tarpa. Tarpa has a full authority to exercise over the animals. Sometimes killing animals which he forbids to be killed can be a curse for human being. The Hrangkhawls, before entering the forest for hunting too performed rituals to Tarpa. Thus most of the sacrifices are performed in order to appease the Tarpa, who has controlled of the forest and every living being in the forest. The Hrangkhawls have season for clearing, cultivation, harvesting, etc. For example, The Hrangkhawls felt bamboos or trees for construction and other purposes mostly in the month of November and December or during phalbi. The bamboo cut during season is lasting and less eaten by termites. Therefore, the Hrangkhawls hold the forest with high regard and reverence as it is the base of their socio-economic sustenance.

The Hrangkhawls try to maintain harmony among themselves, with their deities, and with the natural world. They do not try to control, dominate, or change the underlying rhythms of life but rather attempt to sustain them by living in harmony with them.

Suggestions

1. The people should be sensitized forest as their cultural identity.
2. Retain and promote the good traditional practices
3. To curb illegal commercialization and smuggling of forest resources
4. Value addition of forests products and linkages with market

5. To have proper feasibility study before implementation of any development scheme and not to generalized one feasibility study to other tribes

Conclusion

The age old practices have sharply diminished. The practice of Jhum cultivation has reduced to a great extent and the Hrangkhawls are going for settled cultivation like rubber plantation, paddy, bamboo, etc. Great deal of damage has been made due to large scale commercialization of forest products, illegal smuggling, and indiscriminate felling of trees and bamboos. However, the Hrangkhawls hold the forest with high regard and reverence as it is the base of their socio-economic sustenance. Nonetheless

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Role of Tribal Women in Sustainable Forest Resource Management in North East India : An Overview

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Abstract

The Northeastern region has undergone a number of socio-cultural and socio-economic changes over time, with the influence of Christiantity, education, improved transportation, media and communications. The tribal is no longer confined to his or her home, or dependent on the forest, with many a number migrating to towns and cities in search of better or alternative opportunites, reflecting the different aspirarions of tribal people. In addition, realization that traditional practices are not sustainable in current conditions, forest related activities, which defined the cultural identity of tribes, have become comparatively marginal, e.g. jhum farming. However, majority of tribals are still largely rural, and dependent on agricultural and other forest-related activities for survival. The traditional heritage of tribes which was dictated by forests is slowly fading away due to environmental factors and the changing aspirations of people which will ultimately lead to loss of the intimate relationship. While men engaged in farming, hunting and timber, women represent the intimate relationship between

sustainability due to forests. Depandant on forest resources, women are involved as gatherers, artisans and craftsperson. Certain products such as bamboo, etc define the long-term occupations. The bonding between tribal women and forests has a direct impact on survival and quality of life. Intimacy of forests on livelihood makes the tribal women vulnerable to environmental degradation. The first, direct victim of loss in forests is the tribal woman, leading to livelihood insecurities.

Realisations of the bonding led to efforts by women engaging in acts of conservation. Activities range from planting fruit bearing trees in courtyards to large scale movements Chipko movements in Rajasthan, the 'Asha Van' or 'Forest of Hope' intiative by Jamatia women of Tripura. Given the important role women have played in linking tribes and forests, there is a need to firstly, increasingly acknowledge such important role, and secondly, to involve women in ensuring traditional forest practices and cultural heritage are kept alive while simultaneously enabling sustained economic growth. This can be done by stakeholders from goverment(s), NGOs, educated peopel, to the tribal who are directly affected.

Introduction

Tribes in India are confined to specific locations which influence their sociological organisation, livelihood, culture, traditions, religious practices, economy and the day to day way of living. There exists a close symbiotic relationship between the forest and the communities therein. This relationship is characterized not just by the physical dependency of tribal societies on forests for livelihood, but also by the sanctimonious bonding of love, respect and fear of the forest which has carved

out their customs and traditions. Tribes in North East India (NE) being in isolated, remote places were not affected much by post independence changes in the same pace as compared to tribes in the hinterland. Hence, NE tribes still maintain their customary bonding with the forests. This bonding is getting strained due to changing socio-economic outlook and increasing aspirations of tribal's, created by improved education, media and communications. Gradual disappearance of customarily valued practices and culture will lead to loss of traditional skills and knowledge. Such a loss will ultimately affect forests too, due to the decreasing relevance of forests in modern tribal way of life. Hence there is a need to create means to enable tribes and forests to continue to dwell in mutual coexistence by involving them in Sustainable Forest Resource Management (SFRM).

Gender and environment was a theme at the 1992 United Nations Conference on Environment and Development (UNCED), rightly due to its relevance. The subject of SFRM is vast and hence this paper restricts itself to the "gender" aspect of the socio-economic function of SFRM to argue that "tribal women have an important role in preserving the tribal-forest relationship due to their natural bonding, which must be facilitated by empowerment and engagement of women with forest and forest products related activities, ie, SFRM". The paper looks at examples from North East India to highlight the important role played by tribal women in forest management.

Sustainable Forest Resource Management

Sustainability of forests concerns the interactions between humans and forests and the effects of these at local, regional, national, and global scales. Forest management involves an array of systems and activities to enable optimum utilisation

of both forests and societies dependent on the forests. SFRM is defined by International Tropical Timber Organisation (ITTO) as "the process of managing permanent forest land to achieve one or more clearly specified objectives of forest management with regard to production of a continuous flow of forest products and services without undue reduction of its values and future productivity and without undesirable effects on the physical and social environment." Forest sustainability, sustainable forestry, and sustainable forest management are used interchangeably and are closely linked to sustainable development.

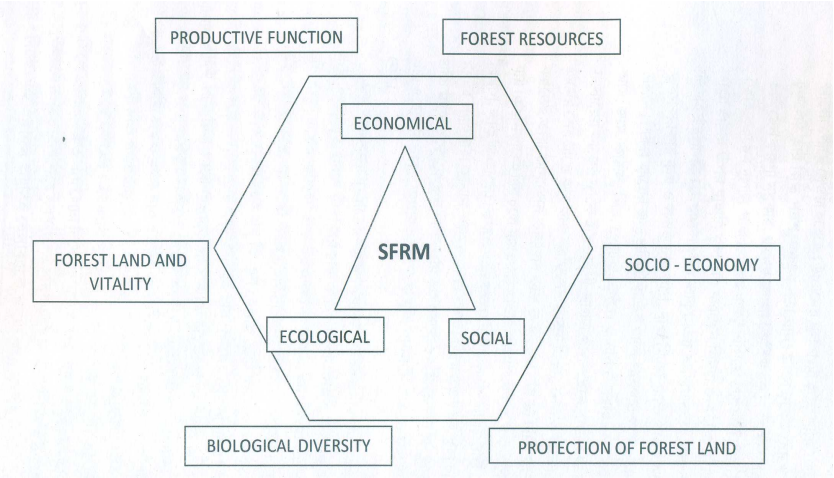

Fig 1 - SFRM

SFRM addresses issues relating to economical, ecological and social influences on and by forests (Fig 1). The Helsinki Resolution Human Development Index reads: "Sustainable management means stewardship and use of forests and forest lands in a way, and at a rate, that maintains their

biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems." This definition has also been adopted by Food and Agriculture Organization of the United Nations. This implies management must provide for continued existence and use of forests to meet human needs, preserve health of forest ecosystems in perpetuity, and preserve options for future generations while meeting the needs of the present.

NE Tribal Women and Forests - The Bonding and the Upsetting Equilibrium

An estimated 147 million people live in 1,70,000 villages that are in and around forests in India and another 275 million people depend heavily on forests for their livelihoods. In NE India, 40 million people, consisting of a diverse number of tribes, are either localised in forested areas or are part of urban conglomerations on the periphery of such areas, be it in the mountains, hills, plains or wetlands. The interdependent link between a vast array of land resources and an equally diverse population has been a major factor in dictating the identity and survival of tribes. While the forest used to cater for all the needs of the tribes, the tribes in return cared and protected the forests. Protection of forests became an inherent part of the tribal living by way of the reverence translated into custom and traditions of the tribes to protect the forests. Changing times is upsetting this equilibrium in the NE.

Women and Forest Products

There is a close bonding between forests and the tribes living therein. Forest and its products enable survival and self sufficiency in tribal societies. It gives food for the entire fam-

ily as also provides income which is the basis of their economy. In structuring forest resource use, access and control, there are distinct "men's forest spaces" and "women's forest spaces". In this paper the distinction has been assumed on a division of labour and knowledge of natural resources, which is based on gender. While men have been restricted largely to farming and hunting, women have been involved as gatherers, craftsmen and artisans who use forest products for enabling survival of the family. It is the tribal women's work space which represents a revered bonding with forests. While primary resources such as firewood and supplementary nutrition are direct dependency, significant dependence on Non Timber Forest products (NTFP), secondary products, provides income. In addition to food, forest products also provide raw material and home appliances, such as brooms, baskets, mats, ropes, toothbrushes, leaf plates, etc. Forest products such as bamboo, paan, cane, honey, bidi define long-term occupations, which keep the traditional arts alive.

Tribal Women and the Ecosytem

Due to womens' work spaces creating an intricate relationship with forests, tribal women have been very closely involved, by nature, in protection of forests and ecosystem, which ultimately is an inherent part of SFRM. Though women are not directly involved in physically challenging activities like hunting, honey collection or timber felling, their work space has a direct influence on their capability to provide food and trade. Cautious of the need to maintain a healthy ecosystem to ensure continuous availability of food, there are inherent tribal practises which compel women to enforce eco-conserving acts in families and tribes. The 'Sacred Groves" are small patches of land conserved by tribal belief and faith. In Tripura, there

are such groves preserved by many tribes, the Asha ban of Killa, Udaipur , being just one example. Abstinence from meat during animal mating period is another example. Such practices prevent over utilisation of forest resources despite needs poverty and immediate survival needs to ensure sustainability.

Tribal Women and Forest Conservation

The reverence has a direct impact on their quality of life - be it in broom-making, providing food, water, or additional income. The first victims of environmental degradation are tribal women because of their inescapable dependency on basic fuel, food and water. A fuel-wood crisis as a result of deforestation forces women to travel miles searching for firewood. Drying up of rivers forces them walk miles to collect water or wash clothes. Depletion of forests forces women to send their girl child to cities in search of a job. Direct effect of environmental degradation has created an interdependency which has led to concerted effort by many tribal women in conserving forests. They are prospective resource managers, with potential to halt environmental degradation. The range of conservation activities commence from planting fruit bearing trees in courtyards to large scale activist movements like the Chipko movement in Rajasthan, preservation of Mawphlang Sacred Grove in Meghalaya, or 'Asha Van' or 'Forest of Hope' by Jamatias of Tripura.

The Upsetting Equilibrium

Due to changing socio-economical factors and increased aspirations, NE tribal is no longer confined to villages, or dependent on forests, with many migrating to towns and cities in search of better or alternative opportunities. Forest related activities have become marginal instead of the erstwhile primacy lent to such activities which defined the tribal cultural

identity. Some changes were a consequence of the realisation that they were not sustainable, such as jhumming, or slash-and-burn agriculture. There is a danger of traditional wisdom that reflects the intimate relation between forests and tribal disappearing. Such a loss also leaves a them without a means of successfully engaging with forests as means of livelihood and survival. It would lead to a gradual disappearance of traditional farming and forest practises including the money earning handicrafts, artisan skills and traditional herbal medicines in a few years from now.

Therefore, it is important this intricate bonding of women with forests be energised to achieve long term goals in maintaining both the tribal identity and conserve forests. Such involvement will firstly retain the tribal women in the forest areas by empowering her to earn an income from the forest. Secondly, engaging her in SFRM will go a long way in conservation. Thirdly, this would keep the fading traditional practises and rich heritage of tribes alive.

Major Findings

- Tribal women play an important role in sustaining the household for which they are dependent on forest and its products (NTFPs).
- Women are involved with forests as direct users to provide food and income to the families. Any upset in the equation will impact the life of a woman first and directly, eg, famine, drought, forest fire, imbalance in the ecosystem, etc.
- The first victim of any ecological or environmental degradation is the tribal women which affects her capability to enable sustainability of the family - be it providing food or water.
- Degradation of forests affects tribal children by

forcing them to take up jobs outside forests there by losing touch with customary tribal practises and scientific traditions.

- The dependency of tribal women with forest is sensitive and creates an intricate bonding between them.
- The female workspaces in utilisation of forest and forest products, though cannot be distinctly demarcated, provides a place in the system for women to play an important role in SFRM.
- Tribal women have a role in sustaining forest products, forest conservation and ecosystem protection activities in SFRM.
- Changing aspirations of people in NE has led to emigration which has affected the tribal- forest harmony. It will also lead to a deterioration in traditional culture and practises which ultimately might lead to loss of the valuable traditional knowledge of forest products and their use, in the long run.
- Due to sensitive natural bonding between tribal women and forests they can be actively engaged in SFRM which will retain them in tribal areas, empower economics sustenance, conserve ecosystem and forests and protect the fading tribal culture and heritage.

Recommended Solutions

Given the major role tribal women play in linking tribes and forests, there is a need to firstly, increasingly acknowledge such an important role, and secondly, to involve women, especially those who have opted to stay within the tribal areas, in management of forests. This will preserve forests, retain tribals in their own land and conserve cultural heritage. The various means that can be adopted are:-

- Financial Empowerment by way of easy government loans.
- Education of balanced utilisation of forest resources

by the Forest Department.

- Government aforestation plans to include forest product bearing trees that can be utilized by the tribals in the Autonomic District Council (ADC) areas.
- Facilitate an organized marketing system by direct involvement of the tribal women, including by creation of cooperative societies.
- A safe transportation facility to enable free move of goods.
- Infrastructure in the state for converting forest raw material to finished products, like medicines or pineapple juice, etc, to be sold in other parts of the country where these forest products are not available
- Involving women in planning for Natural Re source Management (NRM) either through the district councils or other traditional institutions. Giving them a voice in planning for NRM .
- Increased role of the gender perspective in Joint Forest Management Mechanisms.

Conclusion

The conservation of natural resources, such as forests, is not possible without the active involvement of local people. The scheme of the Sixth Schedule and various legal enactments like the Forest Rights Act of 2006 recognises the role of tribal community in protection of forests. Indian history is replete with the participatory management for conservation of natural resources. The direct influence of forests on tribal women in NE is a major factor which must be explored to facilitate the blending of forest science within the socio-cultural frame-work of local people. To carry this forward, it is the state govern-

ment, Non Government Organisations of Tripura who can facilitate an active involvement of tribal women with the forests to enable mutual benefit.

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