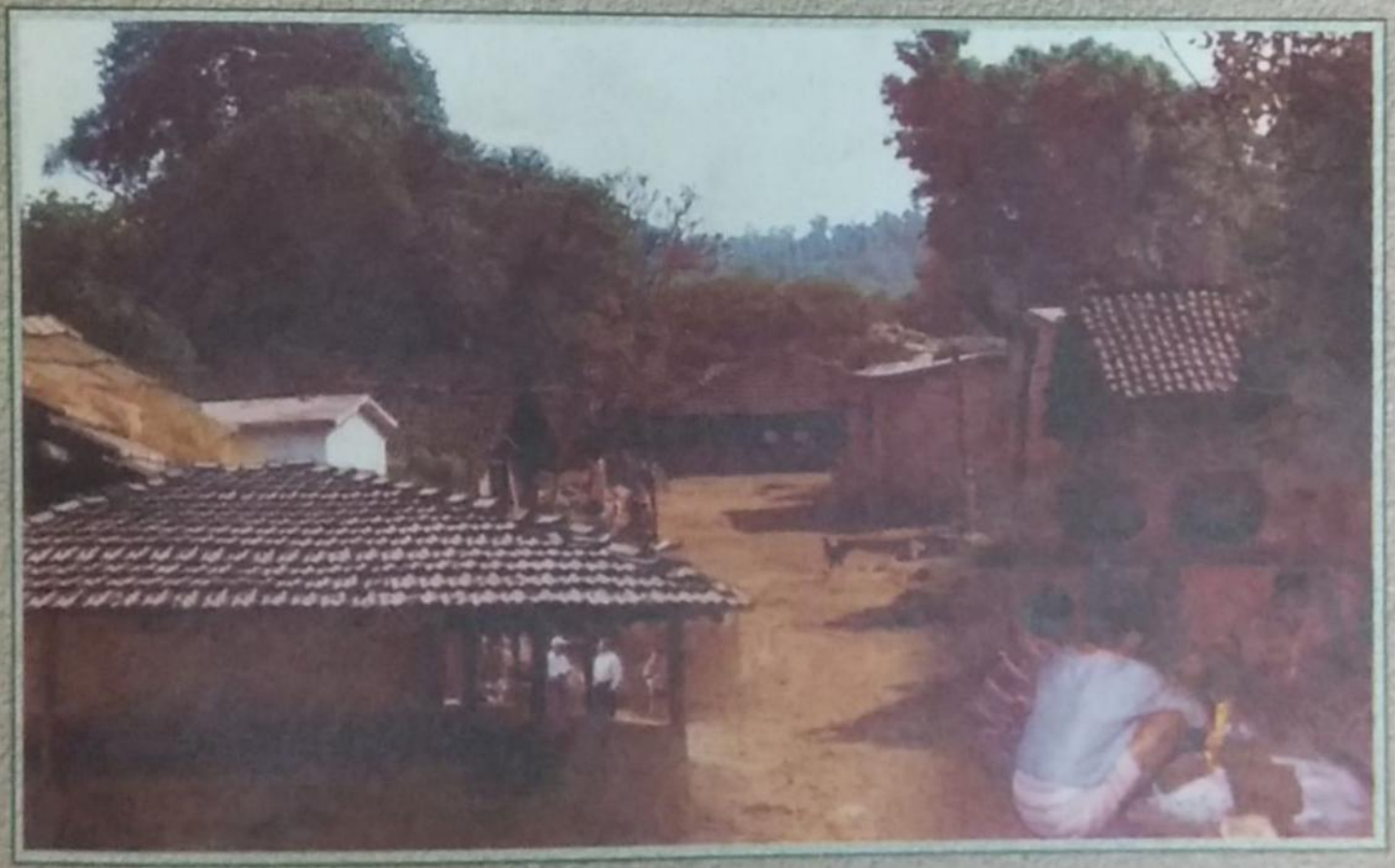
DEVELOPMENT HANDBOOK FOR THE JUANG OF JUANG DEVELOPMENT AGENCY AREA, GONASIKA, KEONJHAR DISTRICT, ORISSA

(An Action Plan Based on Techno-Economic Survey)



SCHEDULED CASTES AND SCHEDULED TRIBES RESEARCH AND TRAINING INSTITUTE, BHUBANESWAR-751003, ORISSA

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Scheduled Castes and Scheduled Tribes Research and Training Institute, Bhubaneswar-751003, Orissa

Year of Publication : May, 2005

Published by:

Scheduled Castes and Scheduled Tribes
Research and Training Institute (SCSTRTI)
Bhubaneswar – 751003
ST & SC Development Department,
Government of Orissa

Sponsored by :

Ministry of Tribal Affairs,
Government of India

Cover Photograph:

A Juang Village

ISBN 81-902819-0-9

Printed at :

Orissa Government Press,
Madhupatna, Cuttack-753010

PROLOGUE

The present volume, "***Development Hand Book for the Juang of Juang Development Agency Area, Gonasika, Keonjhar district : An Action Plan based on techno-economic survey***" is the third publication of its kind. Prior to this, two reports one on the Bondo of BDA, Mudulipada of Malkangiri district and the other on the Kutia Kandha of KKDA, Belghar of Kandhamal district have been published.

This report presents the socio-economic profile of the Juang tribe, one of the 13 PTGs of Orissa with sector-wise need based Action Plan for their sustainable development. This study was undertaken by the experienced research personnel of this Institute through a techno-economic survey and the report was given a final shape during 1997-98 for printing.

It is hoped that this book will be of much help to the development practitioners working in the tribal areas in general and Officers entrusted with the task of development of PTGs in particular. Besides, this book will also provide necessary inputs and reference materials to planners, academicians and researchers working in the field of tribal research and development.

May 07, 2005

G.N.Mohanty
Director

G. N. Pegu, I.A.S.,
Commissioner,
Tribal and Harijan Welfare *ex officio*
Commissioner-Secretary to Government
of Orissa, Welfare Department, Bhubaneswar.

Bhubaneswar
23rd March, 1998

FOREWORD

I deem it a pleasure to write a Foreword to the present volume, entitled, DEVELOPMENT HAND-BOOK FOR THE JUANG OF JUANG DEVELOPMENT AGENCY AREA, GONASIKA, KEONJHAR DISTRICT being published by the Scheduled Castes and Scheduled Tribes Research and Training Institute. The Book is the third one in the series of publications of Development Handbooks on the primitive tribal groups of our State. The Juang is one of the 13 primitive tribal groups so far identified and for their all-round development, a Micro-Project has been functioning at Gonasika in Keonjhar district since 1978. The book is based on techno-economic survey for the preparation of an action plan intended towards sustainable development with people's participation.

I hope the book will be useful to academicians, planners and development administrators.

G. N. PEGU

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Bhubaneswar
February 2, 1998

PREFACE

The Development Hand Book for the Juang of the Juang Development Agency (JDA), Gonasika in Keonjhar district of our State is the third in the series of publications of Development Hand Books by our Institute. The Juang is one of the most primitive tribal groups (PTGs) who needs special attention for their all-round development. Under the Sub-Plan strategy for tribal development, the micro-project with 32 Nos. of villages started functioning since 1978. As the achievements in course of development are not commensurate with the aspirations there is need for more inputs and hence, the present exercise. The research staff of our Institute have conducted techno-economic survey in the area among the Juang tribal community and on that basis the action plan for their sustainable development has been prepared. While preparing the volume and in highlighting the location specific felt needs of people, the perspectives of the people and the officers of various line departments in general and of Welfare department in particular have been taken into consideration.

I hope this book will be of immense use for the development personnel working in micro-project area and the scholars in the field of tribal development.

I express my hearty thanks to my colleague Shri B. Chowdhury, Deputy Director of our Institute for his meticulous and painstaking efforts and constant supervision, in the field and at the desk, for the completion of the present study. I am thankful to Shri A. K. Mohanty and Shri G. B. Sahoo, Research Officers for the preparation of draft report. I thank Shri B. R. Dash, Research Assistant for supervising the field work. Thanks are due to Shri N. Sarangi, Shri H. C. Singh, Shri B. N. Sahoo, Shri B. K. Sethi, Shri N. Dash and Shri G. B. Padhi, Primary Investigators and Shri N. Mohapatra, Shri B. K. Paikray, Shri P. Nayak and Shri J. Majhi, Junior Investigators who had collected data from the field and also processed and tabulated the data for the study. Shri R. D. Murmu, Shri S. S. Sahu, Shri R. Jena, Peons had rendered necessary help to the team during the field work.

K. K. MOHANTI

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I

INTRODUCTION

The Juang is one of the Scheduled Tribes of Orissa State and is recognised as a primitive tribal group (PTG). A micro-project styled as JUANG DEVELOPMENT AGENCY (JDA) has been in operation since 1977-78 at the project headquarters in Gonasika in Keonjhar district. It was decided to prepare a Development Hand Book with action plan formulation based on techno-economic survey for the overall development of the tribe. The principal objectives of the present study is to formulate action plan for multi-sectoral development based on their felt needs with the backdrop of their past development efforts and experiences. The various sectors include ; forests, soil conservation, agriculture, horticulture, irrigation, animal husbandry, health, credit and marketing, communication, education and rural eletrification. The present exercise has been done by the research staff of SCSTRTI with the help of data collected from officers of various line departments in the field area, unlike engaging Project Consultants from various sectors in earlier such studies.

The action plan differs from one primitive tribal group to another as their eco-systems and socio-structural arrangements vary. Each primitive tribal group has its uniqueness in social identity (defined and redefined over time), social, economic, religious and political aspects, values, ethos, world view and ideologies. Therefore, the development intervention is desired to be tune with the total way of life of a tribal group-its societal norms and cultural milleu. The planned development efforts are by and large, factors of induced change in a community and are required to fit into the set up for suitable adoptation. As we cherish sustainable development of a primitive tribal group the action plan is ought to be pragmatic and realistic in its theory and applications.

While formulating the action plan for the Juang, the following salient features attract our attention :-

1. The Juang as an autochthonous group is found only in the Orissa State and nowhere else in the country.

2. The Juang is recognised as a primitive tribal group (PTG) during Fifth Five Year Plan by the Union Government in order to grant Special Central Assistance for sustainable development.

3. They are originally the inhabitants of Gonasika region in Keonjhar district which is known as the Juangpirh and the later migrants are located in the Pallahara Dhenkanal areas, the former is known as the Thaniya and the latter as the Bhagudiya.

4. By and large, the community includes several cohesive units with complementarity rather than contradistinctions. For example, their villages are more or less uniclan and the clan system ensures solidarity and co-operation. The kinship plays a vital role in their socio-political, economic and religious nexus. They are more egalitarian and relatively non-hierarchic.

5. The Juangs are typically simple, hospitable and receptive.

6. They are more conservative and inward looking.

7. They have rich cultural heritage manifested in art and crafts, songs and dances and fairs and festivals.

8. They strictly adhere to clan rules and regulations and resist any kind of deviation from norms. There are prescriptions for punishment in case of breach of customs.

9. In course of time, the uniclan villages are transforming into multiclan ones due to migration of households belonging to other clans. This has a good deal of impact on the lineage based communal ownership where the migrants have no opportunity to get land.

10. The existing dry land in the area needs reclamation and provision of irrigation facilities for growing various types of cash crops and particularly oil seeds. However, such land may have individual

ownership. Further, through joint ownership the Record of Right (R. O. R.) in the names of both husband and wife will be more effective.

11. They have their indigenous skills and technical know-how for resource utilisation and resource management. While introducing new technologies their existing expertise need not be lost sight of.

12. The areas put under the shifting cultivation have communal ownership whereas the low lands for permanent cultivation have individual ownership. As the shifting cultivation is pernicious, the lands under shifting cultivation should be put under horticulture and other plantations following Slopping Agriculture Land Technology and the lands should be earmarked for the entire village instead of either lineage based communal ownership or individual ownership.

13. The institutional arrangements in their society need due emphasis and recognition . For example, the youth dormitories which have deep roots in their socio-culture network could assume new roles in the changing canvas of planned development efforts.

14. Their mobility tactics are group-centred rather than individualistic.

15. While implementing various development programmes in a village, if all the villagers are involved the success can be ensured. Even in case of family beneficiary oriented programmes all families in a village are to be recognised as intended beneficiaries. However, in such an approach the quantum of subsidy may vary according to the economic status of individual families. It does not mean that all the families may be selected for implementation of a particular scheme. A scheme is to be allotted to each family as per its felt need and the capability.

16. The Action Plan is primarily oriented to ensure self-confidence among them for sustainable development.

17. Wood carving, making of combs,leaf-umbrellas, sialifibre craft need development.

The present exercise on action plan formulation is primarily based on first hand field investigations although secondary source materials have been utilised.

The chapter on forestry, taking the existing forest resource into consideration and keeping the pernicious practice of shifting cultivation in view, recommends introduction of Slopping Agriculture Land technology (SALT) for ultimate conservation of eco-system and for accrual of benefits to people.

Taking into consideration the physicgraphic features of the area, such as topography, physiognomic unit, land type, soil type, land use etc., the chapter on Soil Conservation recommends various programmes for soil conservation and water management.

Since the Juang economy is primarily agro-forest based the development measures in agriculture sector attracts top priority attention. The action plan on this sector is pragmatic and realistic and it hints at programme management with people's participation.

The horticulture sector appears to be most promising in creating avenues for sustainable development. It has the potentiality to absorb a large number of mines workers when rendered unemployed in future.

The irrigation facilities in the area need more emphasis. There is need for construction of more lift irrigation points.

Keeping in view the prevailing condition in the Animal Husbandry sector, the action plan suggests its extension for the socio-economic well being of the Juangs. There is the necessity of rearing and carring of various animals on scientific basis as suggested by the experts in the line of veterinary and Animal Husbandry. For obtaining more technical support the existing institutional arrangement needs further strengthening.

There are various problems connected with health conditions and health services in the area. Their indigenous beliefs and practices concerning the diseases and cure and the modern medical practices differ very much. There is necessity of creating awareness among themselves for their hygienic living and for taking advantages of existing modern medical facilities.

The T. D. C. C. is the apex of the marketing nexsus in tribal areas for purchase of their surplus agricultural and minor forest produce and for sale of essential commodities at fair price. The LAMPS play a vital role in advancing production loans, in the sale of seeds and fertilisers and commodities under public distribution system. The above institutions need revitalisation as very often they suffer from scarcity of adequate funds.

The communication and transport system in the area is an essential ingredient of development. Keeping in view the existing arrangement, the action plan is suggestive of further extension in the line. The list of roads with their proposed cost has been reflected in the action plan.

As education is the key input for development and in view of the low literacy rate, the proposal for the extension of educational facilities and the funds required for the purpose has given in the action plan.

Further, the rural electrification component need attention not only for domestic consumption of electricity but also for the working of lift irrigation points.

The estimates given in the action plan are based on rates at current prices and programmes are phased out for a period of 5 years.

II

THE JUANG DEVELOPMENT AGENCY, GONASIKA

The Development Agency

The JUANG DEVELOPMENT AGENCY, Gonasika started functioning with effect from the 10th March, 1978 when a decision was taken by the Government of India to treat the primitive tribal groups as a special category during the Fifth Five Plan for bringing them within the ambit of special development programme for their allround development. The Juang Development Agency, at present, covering 32 villlages / hamlets as shown in Table II. 1, comes under Banspal Development Block of Keonjhar Sadar Subdivision in Keonjhar district. It is located in the Juangpirh, touching boundaries of Harichandanpur, Keonjhar Sadar and Telkoi Block areas of the same district. It roughly lies betwee 21°-25' and 21°- 30' N. Latitude and between 80°-25' E and 80°-25' Longitude. The total geographical area is estimated to be around 641.44 Sq.kms.

Physiography

The Juangpirh is a contiguous triangular piece of country divided into four maximal transitional territorial units like Jharkhandpirh, Sathkhandpirh, Rebena and Kathuapirh with a roughly north to south alignment along a range of hills with Keonjhar at it's apex and Kuanr and Basantapur at it's base. In the centre of the Juang country lies Gonasika, the birth place of the juang tribe and is surrounded by other Juang villages. From this place the river Baitarani originates and traverses through the whole district.

Climate

The summer season in this area commences by the beginning of March when temperature begins to rise rapidly. May and June are the hottest months. During this period the temperature rises to 40° c. With the on set of monsoon, the climate becomes cool and pleasant. By the first week of October, temperature further decreases and in December it varies from 7° c to 13° c .In the higher ridges the climate is cool and enjoyable even during summer. The monsoon breaks out about the beginning of June and continues till the middle of October. During this period rains are continuous and heavy and nearly 80 per cent of the annual rainfall is received during these months. The average rain fall of the project area is 1712.40mm. per year. The important species are Asan, Arjun,Cashew, Amba (Mangifera Indica), Panasa (Artu Carpushe Berphylus), Kendu (Diospyros Melanoxylon), Gambhari (Gomeline arbonea) Kusum (schlechera trijuga), Karanja (Pongmia Globra), Jamun (Eugenia Jambolana), Mahua (bassia latifolia), clumps of bamboo (Bambusa stricta) grow in abundance in this area. A kind of tall grass known as Sinkunda grows around the villages and is used as thatching grass. Siali creeper whose stem is used for rope making and leaves for cups and plates is also abundance. The practice of shifting cultivation and distribution of forests have made the wild animals scarce in the area. However, deer of various kinds, wild boars, bears, sambar and monkeys are found in the forests. Elephants, leopards, hyenas are seen in small numbers. The wild birds include peacocks, wild fowls and pigeons. The soil type of the project area is Sandy loom, Gravelly Sandy loom, Sandy Clay loom and Clay loom.

Agency Headquarters

Gonasika, where the headquarters of the Agency is located is connected with 12 Kms. long all weather black top road which branches out from the National Highway No. 6 (Calcutta-Bombay) at Bayapandadhar, a village only 20 Kms. away from the district headquarters of Keonjhargarh. This road to Gonasika is a part of the 26 Kms. long Bayapandadhar-Boibarigaon road now under construction out of the funds sanctioned by the Harijan and Tribal Welfare Department. In addition to this, there is a network of fair-weather jeepable roads connecting the National Highway.

Village / Hamlet

Initially the Juang Development Agency covered 16 villages / hamlets and identified 556 Juang households lived therein for their alround development as shown below. But subsequently more villages / hamlets were added in the years 1982-83 and 1986-87.

Grama Panchayat	Village	No. of Juang household
(1)	(2)	(3)
Gonasika ..	1. Gonasika	42
	2. Guptaganga (Baruda)	54
	3. Jantari	44
	4. Uppar Raidiha	14
	5. Tala Raidiha	29
	6. Kadali badi	26
	7. Baitarani	20
	8. Phulbadi	27
	9. Bali	64
	10. Barhagad	41
	11. Saria	34
	12. Nadam (Banshdiha)	23
Kuanr ..	13. Talpada	8
	14. Kanjipani	23
	15. Kuanr	22
	16. Panasnasa	85
		556

Now there are 31 villages / Hamlets enlisted as separate village in the plan document as given in Table II: 1. In the present list, the village Kuanr is not included. The juang are known for their tradition of shifting their settelements and living in well-knitted small cohesive groups in the villages. In addition to this, population growth and establishment of new colonies under Indira Awas Scheme, several villages have been bifurcated and recorded as separate villages in the official records of the Agency. Thus the village Bali is divided into Upper bali and Tala bali, Panasnasa into Upper Panasnasa and tala Panasnasa, Raidiha into Upper Raidiha and Tala Raidiha, sumatha into Upper Sumatha and tala Sumatha and the village Champei into Upper Champei and Tala Champei. Even Upper Champei has been further bifurcated as Rimulighati is now coming up as a separate hamlet.

Ethnic Composition of Villages / Hamlets

Ethnic composition of the villages / hamlets according to 1991 census has revealed as follows :-

(a) All villages except Barhagad have high concentration of tribal population i.e. above 50 per cent.

(b) Village Dumuria has got cent per cent tribal population

(c) As many as 15 villages / hamlets have got quota of Scheduled Tribes, Scheduled Castes and other castes. These are (1) Baitarani, (2) Upper Bali and (3) Tala Bali, (4) Guptaganga, (5) Jantari, (6) Gonasika, (7) Kadalibadi, (8) Kundhei, (9) Upper Panasnasa, (10) Tala Panasnasa, (11) Kanjipani, (12) Budhighar, (13) Bayakumutia, (14) Bayapandadhar and (15) Barhagad.

(d) Remaining 16 villages / hamlets have quota of both Scheduled Tribes and Scheduled Castes only.

(e) A comparison with 1971 census revealed that ethnic composition of the village / hamlet is changing with the migration of Scheduled Castes and other Castes in the recent past.

Ethnic Composition

The Juang is no more an isolated tribe. They have come in close contact with the Panos (Scheduled Caste) and the Gaudas (Milkman) who live with them in their villages. The relationship with the Gaudas is symbiotic in nature rather than parasitic. The Gaudas supply milk and milk products to the Juangs in their rituals. They serve them as liason agents with the Government Officials. The Panos are considered untouchables and live in separate settlements. They do menial works for the Juangs. The Bhuinyas, Bathudis and Gonds constitute the strength of the tribal population in the area. Among them the Bhuinyas are very close to the Juangs and in some villages they live side by side. The Juangs are akin to Bhuinyas in their dress and ornaments and in socio-religious, economic and political life. Both the communities practise shifting cultivation. But the Bhuinyas are more advanced in different spheres of life than the Juangs.

In a Juang village, the Taila land (land under podu cultivation) is owned by the village. It is distributed among the villagers before cultivation starts. Other communuties living in Juang villages do not get any share of it. But now-a-days some changes are taken place. The Gaudas, Bhuinyas and Panos are also allotted with some lands on the hill-slopes for podu cultivation as they live in the similar Geo-physical conditions.

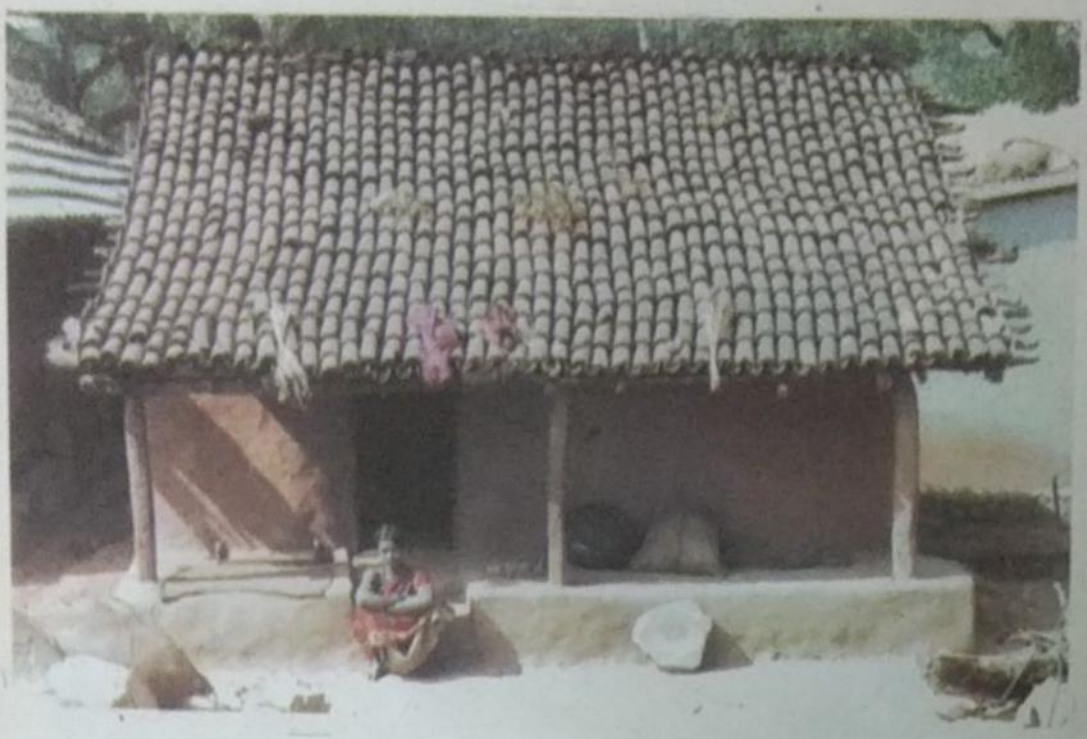
The Juangs classified themselves into two sections, the "Thaniya" and the "Bhagudiya". The Thaniya Juangs live in the Juang Pirh areas of Keonjhar while the "Bhagudiyas" live in other areas of Keonjhar and Dhenkanal districts. The Juangs of Keonjhar claim themselves to be the original Juangs and the Juangs in other places have migrated from Keonjhar over a period of time. The Juangs of Jharkand and Sathakand pirhs claim themselves superior in social scale compared to the Juangs inhabiting the Kathua and Rebena pirhs. This is largely due to the belief that, they are the original Juangs of the land and they live near the sacred Baitarani river whereas others are plain dwellers and they have long since lived in close proximity to the caste Hindus.

Habitation and Settlement

The Juang villages are mostly situated at the foot-hills or in the valleys surrounded by the forests. The villages are generally constructed near the hill steams or rivers to ensure supply of drinking water for the inhabitants. Suitability of village is largely dependant upon the availability of forest land for shifting cultivation and drinking water facilities. After the selection of the site is finalised, the religious headman undertakes certain divination and determines whether the gods and ancestors have approved the site for habitation and if the omens are favourable the site is levelled and the houses are constructed. They used to shift their villages in the past due to the non-availability of suitable land for shifting cultivation, frequent deaths, continuous diseases or calamities like house catching fire or failure of crops and cases of sorcery and witch-craft. However, they have discontinued this habit in recent times, as the plain lands in the valley bottoms cultivated by them are surveyed and pattas are issued which prevented them from leaving the village for fear of losing the lands to others as plain land is scarce and considered to be a prized possession in the Juang area.

The layout of the Juang village is generally compact but irregular, not conforming to any set pattern and mostly related to the layout of the terrain on which the village is constructed. The "mandaghar" is located preferably in the centre of the village and the houses of the individual Juang families are dispersed encircling it. The houses are built in a scattered manner, forming a shapeless cluster in the hilly region. However a linear pattern of settlement with a narrow rugged and uneven street in between the rows are also found here and there in the plain Juang area.

The village goddess "Gram-Siri" represented by stone column is installed by the side of the dormitory and there is dancing arena in front. The cremation or burial ground is located generally by the side of the stream in the forest.



A Juang hut

Inside view of Juang house

Mandaghar is located in centre of the village. Invariably it is bigger in size than the ordinary house. It has walls on three sides and is open in front with a high varanda where the villagers sit and enjoy the dance performed on various occasions by the village youths. The mud built walls and some wooden posts support the thatched roof. An wooden platform is erected in one corner of the dormitory where a huge grain bin, a big drum and leaf umbrellas of the villagers and some changus are kept. Mats of the date-palm, wooden head rests and broom-sticks are also kept in the dormitory for use of the bachelors who sleep there in the night. One or two slings (carring-nets) are also seen hanging from the roof where the Juangs keep jaggery and ghee-pots for the guests and visitors. On the walls some horns of sambars are also fixed where changus are hung. On the centre of the house fire is kept burning throughout the day and night and all the year round.

The traditional Juang settlement are unician settlement inhabited by the members of a single clan and in many cases the villages are named after the clan name of the settlers. Village in Juang society is the largest corporate group and it has formally recognised territory of exploitation with well delineated land boundaries. It is a land holding unit having uncultivated taila land and virgin forest lands, in which the Juang of the village are permitted to cultivate, to hunt and to cut down trees for the construction of their houses. The size of the Juang settlements vary in size, some very small and other big, but villages of average size with 20 to 30 households and a population of 100 to 150 are a common pattern in Juang pirh area.

The design of the Juang house is almost similar and uniform. The size of the house is generally small varying from 15' by 8' to30' by 10'. While compact and small houses are constructed by the Juangs of hilly-tarrains comparatively larger houses are built by the plain dwellers in the Juang pirh area. The walls of the typical Juang houses are made of wooden pillars erected vertically close to each other and plastered with mud and cowdung mixture. The roof is thatched with wild grasses collected from the forest and hill slopes. No window is provided for cross-ventilation. It is done mainly to safeguard against the biting cold during the winter months. The door is also very short measuring about 4'6" of height and 2'6" width suitable for the short statured Juangs. The entire materials used for the construction of house such as timber, bamboo, fibre thatching grass collected from the near by forest free of cost except paying a small tips to the forest guards.

The accommodation in the Juang house is divided into three distinct parts serving different functions. One extreme part of the house is apportioned for store purpose where a wooden platform is raised for keeping food grains. The other extreme portion is used as kitchen where a hearth is made for cooking daily meals. The space in between these two portions opposite to the entrance door, is used as living room for sleeping purpose by the members of Juang family. Some houses have two or three platforms, the first one for storing grains, the second for keeping agricultural implements and the third for drying paddy. The mortar in which paddy and other food grains are husked is fixed in the floor in the middle of the living room.

Pigstys and cattle sheds are constructed closely attached to the living houses surrounded by erected logs fixed to the ground serving as fence. Close kins build their houses close to each other and very often they share a common cowshed to keep their cattle.

The Juangs have very few household possessions as their needs are limited. Their household appliances consist of some earthen cooking pots, gourds for fetching water and preserving seeds and bamboo baskets for storing grains. Siali leaf, rain coats, mats made of date palm leaves, wooden pillows, broom sticks, winnowing fans, hand operated husking mortar & pestle, digging sticks, hoes, arrows & bows, axes, knives, straw and grain beans, wooden ploughs & levellers are mostly possessed by the Juang households. However at present due to the development of materialistic attitudes of the Juangs some articles like brass and aluminium utensils, cloth, umbrella, tin box, lantern and string beds are possessed by them.

Most of the Juang villages are inhabited by two or three Gauda caste households along with the Juangs. These Gaudas have migrated to the Juang pirh area generations ago to tend the cattle of the Juangs. They have developed interest in agriculture during the course of time and started cultivating crops like niger, mustard & paddy in small extends of land acquired from Juangs. Finding agriculture more remunerative than cattle tending, they have expanded the area under cultivation by occupying fertileJuang lands and reclaiming fallow lands available near their settlements in the valley bottoms.

This started alienation of land from Juang to Gauda hands and it increased considerably during the course of time causing concern and tension in the Juang area.

TABLE II.1

Ethnic Composition of Population during Census of 1971, 1981 and 91

Sl. No.	Name of the village	Location Code No. 1991	Census 1971			Census 1981			Census 1991		
			Total Population	Sch Tribe	Sch. Caste	Total Population	Sch. Tribe	Sch. Caste	Total Population	Sch. Tribe	Sch. Caste
1	2	3	4	5	6	7	8	9	10	11	12
1	Gonasika	21	399	252	80	732	446	111	783	422	117
2	Baitarani	31	143	107	..	120	99	..	164	132	4
3	Kadalibadi	26	162	107	7	323	271	..	208	167	1
4	Guptaganga	22	285	228	8	388	265	68	490	312	78
5	Upper Raidiha	18	150	106	..	153	98	..	236	142	..
6	Talapada	29	293	258	..	341	297	1	517	454	..
7	Kanjipani	17	173	108	6	672	372	17	743	449	17
8	Talapanasanasa	30	306	292	..	383	374	..	451	441	1
9	Upper Panasanasa										
10	Budhighar	27	200	177	..	231	185	..	267	223	5
11	Phulbadi	28	187	175	..	164	149	..	214	177	..
12	Bayakumutia	210	626	513	14	725	593	21	933	698	30
13	Bayapandadhar	209	630	573	49	742	654	75	915	789	101
14	Tala Champei	213	455	430	..	354	329	2	449	415	5
15	Upper Champei	212	142	32	6	219	217	..	235	231	..
16	Tangar Pada	46	193	169	..	185	159	..	228	186	..
17	Duarsuni	43	223	217	4	259	258	..	370	362	..
18	Dumuria	27	186	173	..	159	149	..	216	216	..
19	Ghungi	42	104	104	..	112	106	2	103	101	2
20	Kundhei	47	456	341	..	543	397	1	835	643	3
21	Jantari	25	316	309	7	297	281	14	395	383	7
22	Tala Raidiha	..	..	..	..	..	..	..	..	..	..
23	Hatisila	23	127	127	..	209	201	2	248	247	..
24	Upper Balli	37	411	373	..	368	318	..	385	337	2
25	Tala Balli										
26	Kaptadiha	85	111	91	..	158	126	..	226	161	..
27	Saria	26	168	159	..	163	147	..	224	183	..
28	Toranipani	45	Not Available	..	..	211	181	..	250	212	..
29	Tala Sumatha	44	116	116	..	51	50	..	111	106	..
30	Upper Sumatha	39	Not Available	..	..	68	68	..	66	65	..
31	Nadam	54	139	74	..	160	112	..	162	124	..
	Total	..	6701	5611	181	8494	6902	314	10,424	8378	373

III

DEMOGRAPHY

Population

According to 1991 Census, the total population of these villages / hamlets coming under Juang Development Agency was 10,424 with an average population around 326 per village / hamlet. The village Bayakumutia having 933 population is the biggest one and Upper Sumatha with 66 persons is the smallest. In addition to Bayakumutia, there are four more villages, viz, Bayapandadhar (915), Kundhei (835), Kanjipani (743) and Talapada (517) having population above 500. Apart from Upper Sumatha there are four villages viz, Ghungi (103), tala Sumatha (111), Nadam (162) and Baitarani (164) having population less than 200. The remaining 22 villages / hamlets have population between 200 to 500. Thus more than 80 per cent of the villages /hamlets are small villages with population below 500. The total population of the Agency was 10,424 in 1991 Census, out of which 8,378 belong to Scheduled Tribes constituting 80.37 per cent and 373 belong to Scheduled Castes claiming 3.58 per cent of the total population. According to the survey conducted in February, 1992, the total Juang population of the Agency was 5,490. (Table III-1) Among the Scheduled Tribes the Juang who are found in each and every village of the Agency, constitute the dominant group. Other tribes found in the agency area are the Bhuiyan, Kolha and Munda. The Pano and the Dom are the only Scheduled Castes found in the area. Among other castes, the Gouda (Milkman), the Teli and the Chasa are mainly found.

Growth of Population

Overall growth of population in the Juang Development Agency area during the last two decades (1971–81 and 1981-91) is indicated below in comparison with their counter parts in the district of Keonjhar and Orissa State. The growth of population in the J. D. A. among all categories of people, during the decade 1971–81 was higher than that of the district and the State. During 1981–91 decade the Scheduled Tribes and Scheduled Castes recorded a lower rate in J. D. A. than in the district and the State.

Community	J. D. A.		Keonjhar district		Orissa	
	1971–81	1981–91	1971–81	1981–91	1971–81	1981–91
Sch. Tribes	+22.69	+17.06	+11.34	19.13	+16.62	18.88
Sch. Castes	+73.48	+18.78	+15.40	23.52	+16.75	32.69
Total ..	+25.71	+23.89	+16.65	17.80	+20.17	20.06

The Juang tribe as a whole in the State has shown an improved trend in its population growth rate as it increased from 11.39 per cent during the decade the 1961–71 to 26.62 per cent in 1971–81. It is estimated that the Juang population in the J. D. A. has recorded an annual growth rate of 1.77 per cent during the period from 1980 to 1992 which is low in comparison to that of the total Juang population of State during the decade 1971-81.

Sex-Ratio

The sex-ratio of the Juang population in the J. D. A. as per the present survey was 1009 against 5490 for the total Juang population and 1012 for the total tribal population of the district of Keonjhar and of the whole State as per 1981 census. The sex-ratio of the general population for the district of Keonjhar (983) and Orissa (981) in the year 1981 was comparatively low.

Age-Groups

The Juang population of the J. D. A. classified by age and sex is shown in Table III.2. The females outnumber the males in the infant (0–4 years) and the old (60 years and above) age-groups. In the total Juang population there is a rise in the age-group of 4–11 years from 0-4 years. But, thereafter the quota has decreased in the subsequent age-groups of 11–16 years and 16–25 years. In the subsequent two age-groups again there is rise (25–45 years and 45–60 years) and fall in the old age-group. This is also the trend in the male and female population.

Literacy and Education

The percentage of literacy has improved from 5.8 in 1980 to 11.86 in 1992 among the Juang of the J. D. A. The percentage of literacy stood at 19.98 for males and 3.84 for females as per the present survey. Literacy status of the Juangs of the J. D. A. is far behind the total tribal and general literacy of the district of Keonjhar and the State which is indicated below :

	Orissa	Keonjhar District	J. D. A.
General (1981)			
Total	34.23	30.22	12.99
Male	46.90	42.61	22.21
Female	21.11	16.96	3.28
Tribal (1981)			
Total	13.96	15.26	NA
Male	23.27	25.78	NA
Female	4.75	4.86	NA
Juang Tribe (1981)			
Total			11.86 *
Male			19.98 *
Female			3.84 *

* As per survey in February, 1992

TABLE III-1

Number of Juang household and Population in 1980 and 1992 (Based on Survey)

Sl. No.	Name of the G. P.	Name of the village	Previous Survey 1980		Present Survey 1992	
			Total No. of Juang H. H.	Total Population	Total No. of Juang H. H.	Total Population
1	2	3	4	5	6	7
1	Gonasika	Gonasika	41	190	46	210
		Baitarani	20	89	33	136
		Nadam	21	85	30	122
		Saria	26	119	33	151
		Upper Bali	64	260	50	179
		Tala Bali	..	..	42	149
		Phulabadi	23	112	36	179
		Upper Raidiha	45	188	24	98
		Tala Raidiha	..	..	36	167
		Gupta ganga	52	215	68	287
		Jantari	43	208	68	308
		Kadalibadi	23	108	36	132
2	Kodipasa	Hatisila	20	90	33	124
		Kaptadiha	25	105	40	162
		Tangarpada	32	136	51	192
		Dumuria	22	115	35	160
		Kundhei	63	282	82	364
		Ghungi	18	80	28	101
		Dwarsuni	30	103	38	217
		Tal Sumatha	..	..	25	105
		Upper Sumatha	26	97	14	65
3	Kuanr	Tal Panasanasa	..	..	43	171
		Upper Panasanasa	86	382	55	180
		Talapada	5	17	13	39
		Kanjipani	42	170	57	220
4	Suakati	Uppar Champei	..	..	49	190
5	Baya Kumutia	Budhighar	34	141	50	229
		Bayakumutia	14	71	21	94
		Bayapandadhar	25	107	75	306
6	Junga	Torani Pani	..	..	40	163
7	Champei	Tala Champei	52	249	69	290
			Total	..	1320	5490

TABLE III-2

Age & Sexwise Break-up of Juang Population

Sl. No.	Age Group (In years)	Population		
		Total	Male	Female
1	2	3	4	5
1	0–4	845 (15.39)	400 (14.64)	445 (16.14)
2	4–11	1079 (19.65)	547 (20.01)	532 (19.30)
3	11–16	572 (10.42)	296 (10.83)	276 (10.01)
4	16–25	561 (10.22)	279 (10.21)	282 (10.23)
5	25–45	1053 (19.18)	534 (19.54)	519 (18.82)
6	45–60	1168 (21.28)	595 (21.77)	573 (20.78)
7	60+	212 (3.86)	82 (3.00)	130 (4.72)
	Total ..	5490 (100.00)	2733 (100.00)	2757 (100.00)

IV
SOCIO-ECONOMIC PROFILE

Juang Tribe

There are as many as 62 tribes in Orissa of which 15 are major tribes having more than one lakh population, and another 15 tribes having a population more than 25,000. The remaining tribes with less than 25,000 population distributed in different proportions in different districts in the State. The Kondh is the single largest tribe followed by other important tribes like the Gond, Santal, Saora and the Kolha. These five tribes together account for nearly half of the total tribal population of the State. The Shabar, Munda, Paroja, Kisan and the Oraon are some of the other numerically important tribes inhabiting the State. Besides, some of the most primitive tribes/ sections of tribes like Juang, Bondo, Bhuyan, Mankirdia, Kharia, Lanjia Saora and Dongria and Kutia Kondh (Sections of Kondh tribe) are also living in several parts of the State.

The Juang is one of the most backward and primitive tribal groups spread over the districts of Keonjhar and Dhenkanal in Orissa. As stated earlier, in Keonjhar, the Juangs are found in four Juang pirhs while they are distributed in the adjoining Pallahara and Dhenkanal areas in the district of Anugul and Dhenkanal. During 1981 Census a few of them were returned from Cuttack, Balasore and Phulbani districts. The Juangs of Keonjhar constitute the most primitive section of the tribe. More than half of the Juang live in Keonjhar district side by side with the Pauri Bhuyans, another primitive group in the district. About 46.66 per cent of the Juang population were returned to Pallahara and Dhenkanal areas of neighbouring Anugul and Dhenkanal districts. Those who still live in Keonjhar district distinguish themselves by calling themselves as Thania from those who have migrated to Dhenkanal district, referring them as Bhagadis. Thus the Juangs are divided into two groups. The Thaniyas who live in Keonjhar district are considered themselves as the true representative of the tribe. They consider the Bhagudias or deserters as impure. Intermarriage between these two groups is not allowed.

Units of Social Organisation

The Juangs are divided into a number of clan or 'Gotra' known as 'Bok'. Intermarriage within a clan is strictly prohibited. Earlier writers like H. H. Risely, V. Elwin and N. K. Bose have given elaborate lists of the Juang's clan. Risely enlisted twenty-four clans such as Asemba (Hailstones), Baitiriba (Buffalo), Bahimba (Mosquito), Banaiba (Bear), Barataba (Boar), Dumriaba (A kind of tree), Gaghraba (Paddy), Hatirilaba (Elephant), Jarigamba (Jari-tree), Kalimba (Tobacco-flower), Kanchaba (Dog), Ketoba (Bee), Kerlaba (Pumpkin), Kotabandaba Lihimba (Dove), Mundiba (Barialatifolia tree), Munduba (Small mushroom,) Odhalaba (Fox), Rengaraba (A kind of yellow coloured bird), Rasmba (Mushroom that grow on ant hills), Saramba (Tigress), Sundriba (Red-Mushroom), Talahadaba (Palm tree) and Terirhaba (A bird). But Bose on the other hand recorded two separate lists of clan names one for Pallahara and another for Dhenkanal area. In the Juang society the clans seem to have totemic origin named after grains and animals. The members of a clan believe to have descended from a common ancester, observe certain totemic taboos and show a high degree reverence towards the totem. The members of a totemic group do not hurt the totemic object. However, the Juangs neither worship the totem nor use it as surname. In Keonjhar the clans are also named after a particular village or place where the groups originally lived. For example the Hatisila Block, Raidiha Block belong to the village Hatisila and Raidiha respectively. Clan exogamy in Juang society is usually accompanied by village exogamy, there is no marital union takes place among the people belonging to the same village since every village is composed of a single clan, the members of which form an agnatic group called 'Kutumba'. The people of one village marry outside of their village having people related to them as cognatic colled Bandhu. Thus the Juang villages are divided into two groups i. e., 'Bandhu' villages and 'Kutumba' villages. Marital union is allowed among members of two 'Bandhu' villages. When a person dies, all the people of his clan observe mourning. But as an woman after her marriage becomes a member of her husband's clan so mourning in case of her death is not observed by her father's clan men. The Juang have both classificatory and descriptive kinship term. The use of descriptive terminology refers to the application of a particular term of address for each relationship. However, their common form of Kinship terminology is classificatory. It means that a single term of address is used for a number of relations.

The family is regarded as a primary unit in Juang society. The major economic and social activities revolve round the family. Simple and nuclear type of family consisting of father, mother and unmarried children is the usual form and it is found in preponderence over all other types. The son immediately after marriage may not be separated from his parents but such separation becomes necessary after some time when the second son gets married. Their family is patrilineal, patrilocal and patriarchal. The descent is always traced through male line. Property is always inherited by the son after the death of the father. In a Juang family, the authority is bestowed upon the senior-most male members. When the father is alive he normally exerts his power and authority in family affairs though does not totally ignore the views of his wife and other adult members of the family. Women in the Juang family enjoy a better status than the women of the local non-tribal sociéties. They dominate over household affairs. The main reason may be for their major contributions towards family economy. They work with their menfolk in the fields and toil together in all econmic activities. Sometimes the women work harder than men. But women are never consulted in religious and village matters. The Juang family is a significant corporate entity for economic, social and religious purposes. All the earnings of individual members go to the common economic pool of the family. It is also a ritual unit where ancestral spirits are worshipped.

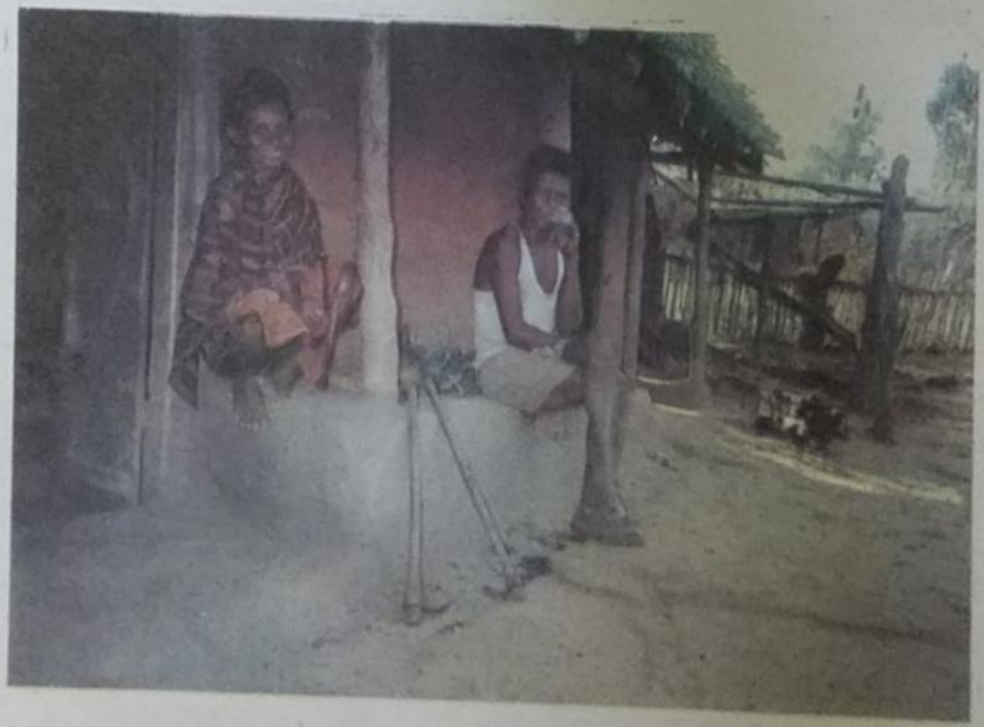
Life-cycle

Birth of a child is always considered a happy incident by the Juangs and the male child is preferred to a female for the simple fact that sons perpetuate the family line after the father's death. However, birth of girls is also cherished as they fetch bride-price to the parents as well as festive meals and enjoyment to their villagers i.e., at the time of marriage. Juangs believe in rebirth and generally prefer the name of deceased ancestors while naming a new born. Children are also named after the local trees, flowers, roots and tubers and also birds and animals. The name of the day of birth is also considered auspicious and both girls and boys are named after it.

Marriage is another important event in the life of the Juangs after the boys and girls crossed the adolescent age. As mentioned earlier marriage takes place only between members of cognatic villages called 'Bandhu villages'. Various types of marriages are in vogue among the Juang community. The most common types are arranged marriage, marriage by capture, marriage by elopment and love marriage. In case of arranged marriage, the grooms' father sends to the girl's village a mediator to negotiate and finalise the marriage proposal. After the marriage is settled, a group of married women, unmarried boys and girls from the bride's village accompany the bride to the groom's village for the marriage which ends with mass-feast to the guests and relatives involving heavy expenditure. In case of marriage by capture, the bride is captured by the groom's boy friends of the village on her way to the market, or when she is on a visit for dancing in a 'Bandhu' village, or when she goes for forest collection. The bride's parents and the villagers are informed only after the marriage is performed in the boy's house. Later, the bridal pair accompained by boys and girls visit the bride's village along with the bride-price which consist of cloth, paddy and cash. This type of marriage involves less expenditure compared to the arranged marriage as it is not followed by any feast to the villagers in a large scale. In the selection of mate both boy and girl play the main role. A boy after getting the consent of a girl informs his parents about their desire. The parents in their turn arrange the marriage after consulting the parents of the girl. In case the parents of the boy do not agree, the boy elopes with the girl to some place and get themselves married. After spending some days with some kinsmen in some other village they return back to the boy's village who are generally allowed to enter into the house or else they may set up a new house and live on their own. Widow marriage is prevalent in Juangs society for which no special rites are performed as in the case of regular marriage except entertaining the villagers with food and liquor.

Among the Juangs, death is associated with various beliefs, customs and rituals. It is generally believed that, death is caused by the hostile spirits, black magic, witch craft or the wrath of deities. Elaborate rituals' are performed to ward off the evil effects on the living members. The death of a person in a Juang house is identified with a long lamentation by the members of the household and the lineage. It is generally believed that the departed soul would not realise the depth of sorrow of his relatives and would grumble in the other world if they did not make crying sounds till the body is taken to the cremation ground. Persons dying because of murder, suicide, snake bite, cholera, small pox and women dying out of labour pains are not cremated but buried unlike in the case of ordinary death. It is generally believed that people killed by

Juang women with their Children



Juang couple sitting in Varendah of the dwelling house

tiger are transformed into tiger spirits and wander around the forests to attack people. Similarly women dying during child birth, transform into witches and attack babies and cause fever and sickness. They cremate the dead body in case of natural death. The relatives and lineage members who live in the village or in the neighbouring villages are informed and they assemble in the village of the deceased and make arrangements for cremation. The dead body is placed on the pyre with its head towards the east. An elderly man brings a Jamu twig and waves it over the face of the dead body. He also brings water from the stream in a leaf-cup and sprinkles it on the face of the corpse. Then the fire is set to it. When all these are over, they take a purificatory bath and return home.

Soon after the corpse is taken to the cremation ground the elderly woman of the deceased's family goes half way towards the cremation ground to offer cooked food to the departed soul. The house is plastered with mud and cowdung and the old earthen cooking pots are thrown away. Next day, the funeral party again goes to the cremation ground and throws away the ashes and bones except the scapula which is retained. An idol representing the deceased is made of mud. Personal possessions of the deceased are placed near the idol. Then the scapula is tied with a piece of thread smeared with turmeric powder and the same is again tied to a Jamu branch inserted in the chest of the idol. After a while the scapula is thrown in the stream. They observe mourning for only two days. The deceased's family and lineage members observe a number of restrictions. They do not take fish. meat and egg, they also do not use oil and ghee. Clothes are washed. The walls and floors are plastered with cowdung mixed with mud.

Living Condition

As the Juangs are one of the most primitive communities among the Scheduled Tribes, their living conditions are also very primitive and traditional both socially and economically. Their standard of living, the food habits, health and hygiene are some of the indices which indicate their persistent backwardness compared to the other tribal and non-tribal communities in the area.

Health & Hygiene

Most of the Juang villages are located in the hill slopes and hill streams are their main sources of drinking water. Though the stream water is pure at source, the water which passess through several habitation gets contaminated due to the indiscriminate use by the people. The Juangs pass their excreta on the bank of the stream, wash their clothes, bath the cattle in the same stream which cause considerable pollution to the drinking water. They generally suffer from stomach diseases after consuming the contaminated stream water. The backyards of the Juang households are become breeding ground for innumberable varieties of insects like mosquitoes and flies causing fatal diseases like malaria and gastro-enteritis because of their unhygienic maintenance by throwing cowdung and household refuges in the backyards. Due to such pollution and lack of personal hygiene, the Juangs generally suffer from different types of diseases like malaria, warm infection, fever, gastroenteritis and skin diseases like yaws and eczema. But, according to their belief system most of the diseases are brought by black magic and witches, sorcerors and ancestral and malevolent spirits. They believe that unless these offending spirits are properly propitiated with sacrifices and offerings like chicken, liquor, etc. one may not expect quick recovery from the diseases. They follow their traditional method of curing diseases after detecting the cause of disease by divination and offering chicken and liquor to the spirits to ward off the evil. If the cause of disease is found to be witch craft or sorcery, the offender, if he is found to be one of the villagers is fined a few rupees and in serious cases, the offender is expelled from the village. Previously there were very limited medical facilities in the remote inaccessible Juangpirh areas. However, with the availability of such facilities within easy reach in recent times, Juangs are availing the modern medical facilities for the treatment of diseases like malaria, skin diseases, gastro-enteritis etc. At present medical facilities are avilable at Gonasika and Kanjipani. Some of them use medicines supplied by the JDA for their treatment. Perceptible change in the attitude of the Juang youths to the use of modern medicine and its efficacy in curing diseases is observed in the neighbouring villages where such facilities are available although their traditional system is popular among the elder generation.

Food habit

The Juangs struggle hard to earn their livelihood by cultivating podu and plain fields in the valley bottoms besides collecting different varieties of edible green leaves, fruits, roots & tubers and occasional

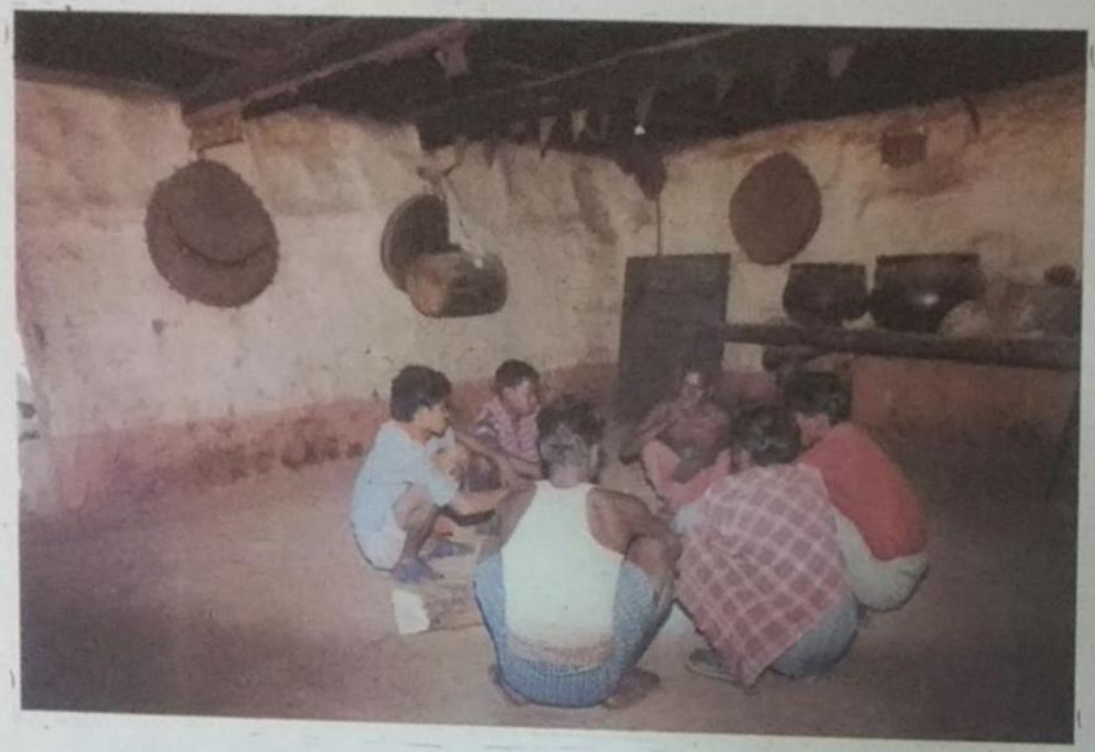
hunting and fishing for supplementing their diet. Rice is their staple food supplemented by millets like Ragi, Jawar and Maize grown in the plain and kitchen garden. Cash crops like mustard and niger, produced extensively are exchanged for paddy and rice. Rice or millet is taken with some vegetables or green leaves which are grown or gathered from the forest. Pulses like mung, kulthi and baragudi are occasionally added to their food on festive occasions. Their diet is neither regular nor standardized. Quantity and quality of food consumed depends on its availability at the time of seasonal rhythm of agricultural cycle and forest collection. In summer fruits like jack-fruit & mango form principal diet. Various types of roots and green leaves in the rainy season and edible tubers in winter supplement their diet. The powdered mango kernel is used for making cakes. Generally they take two principal meals in a day, one before noon and another in the evening. An ordinary forenoon meal consists of a leaf-cup full of cooked rice or millet or ragi gruel taken with a pinch of salt. Sometimes dal or green leaves boiled with a little turmeric powder and salt serve as side dish. The second meal in the evening is the repetition of the forenoon meal. In the busy agricultural season meals are taken thrice a day. On festive occasions, meat and pork are added to the main diet. Mutton, chicken and eggs are also used as food when such items are available particularly during festivities. Occasional hunting provides them with animal protein. Usually they are not regular hunters but eat whenever they get the meat of pig, fowl, goat, bear, rat, rabbit, pegion and varieties of birds. They never take milk and milk products. The technique of preparing food include frying, boiling, baking and roasting. The cakes are prepared from rice and ragi flour on special occasions. The main alcoholic drinks taken by them consist of mahua liquor, beer prepared from maize, millets, rice and the juice of sago palm. They either prepare or purchase alcoholic drinks. Though expensive, it is served during big festivities. The liquor is variously used in their society. It serves as medicine for curing minor diseases like fever, headache, etc. and sometimes as a substitute of food. They believe that, it provides energy to work. It is also offered to the deities and ancestral spirits.

Dress & ornaments

The dress used by the Juang has no special significance. The dress used by the menfolk are ordinary one like that of the native peasantry, with a cloth round the waist. The dress of an woman consists of a white or coloured saree. They do not have any special dress for ceremonial and other occasions. In rainy days and winter season they keep themselves warm by sitting around fire. A well-to-do Juang uses cotton shawl to cover his body in winter. The Juang women get pleasure in adorning different parts of their bodies with various kinds of ornaments. Their traditional ornaments consist of bangles, anklets, armlets, earrings, nose and toe-rings, made of brass or alluminium metals and different kinds of coloured beads and coin necklaces. These are bought readymade from the markets except the bead necklaces for which the Juang women purchase threads, beads and immitation coins to make these in different floral designs. But now a days the Juang girls & women like to use plastic, glass and alluminium bangles, earrings and necklaces. Tattooing is found to be obligatory and girls get their arms and forehead tattooed extensively. This is mostly done to enhance their beauty. They mainly use the design of plant, flower and birds for their tattoo marks. The women take little care of the hair in their day-to-day normal life but on the market day and during any socio-religious ceremonies they apply kusum or mahua oil to their hair, comb it properly and tie the hair in a bun.

Youth dormitory

The institution of dormitory (Mandaghar) Manjang also called "Darbar" plays an important role in the Juang society. Unmarried boys and girls form members of the dormitory. They are formally admitted into the dormitory as members after undergoing an initiation ceremony on "Am Nua" ceremony. It serves as a community centre for the youth, a court house for the village elders, a rest house for the guests and visitors, a store house of seeds and foodgrains of the common fund of the community in the village and above all a museum of Juang art & artifacts. Educative role of the dormitory is immense. Here the young boys and girls learn from their elders the traditional customs and manners of their life and values and norms of their society. The main objective of this organisation is to perpetuate the tribal solidarity. To achieve this end, provision is made for socializing youths for fostering participation in group activities. Unless one becomes a member of this youth organisation he is debarred from participating in such collective activities in which the Juang youths are engaged in the day-to-day life. The dormitory building is constructed



Juang youths sitting before the fire in Mandaghar

Gramsiri : The village deity

preferably at the central place of the village by unmarried boys of the village while the unmarried girls lending their helping hands in plastering the dormitory at least twice in a week. The changu and other drums and foodgrains of the village common fund are kept in the dormitory and a sacred fire is kept burning day and night at the centre of the dormitory. The unmarried boys sleep during night encircling the fire, keeping their feet towards the fire to ward off the biting cold prevailing most of the time in the year. The Village Council sits in the dormitory to discuss the village affairs. Besides, it serves as a recreational centre for all.

The duties of the inmates of the dormitory is multifarious, involving participation in most of the socio-economic activities of the village. The members bring firewood for the sacred fire kept burning in the dormitory throughout the year and attend to its repairing works. They contribute sacrificial goats, pigs or sheep for important village rituals besides collecting rice, and other foodstuff from every house for the guests and visitors that come to the village. They also help in cooking and fetching water and fire-wood for the communal feasts during festivals and marriage ceremonies and storing grains and seeds in straw bundles in the dormitory which are the common fund of the village.

Similarly, the girls help in plastering and cleaning the dormitory throughout the year and supply leaf-cups and plates to be used in communal feasts and for the guests and visitors. They also help in husking paddy and grinding rice for preparation of cakes on the occasions of village rituals. They also dance overnight along with the boys on festival and ritual days. All these functions are the collective responsibility of youth organisation of the village and the failure in performing any of these duties are seriously viewed and punished by the village Panchayat.

The supervision of the activities and duties of the youth organisation rests on the hands of a married man who plays the role of a go-between the youth organisation and Village Council. He is to give an explanation to the Village Council if the youths have violated any social norm or have neglected any of their duties. He may be punished by the Village Council if the explanation is not satisfactory. On the other hand he can impose punishment on members of the youth dormitory for negligence of their duties.

Dancing is one of the most important social events for the Juang youth and dance expedition are exchanged between Bandhu-villages frequently. As village exogamy is strictly observed the boys and girls of the same village generally do not dance together. Changu is the important musical instrument played on by boys at the time of dancing, therefore the Juang dance is popularly known as 'Changu dance'. The members of the youth organisation has to feed the members of the party that visit their village. During dance, gifts are exchanged between the boys and girls. In order to meet the expenses of entertaining the visitors, the members of the youth organisation work collectively by cultivating one or two patches of podu land every year and raise various crops like paddy, niger, etc. They also collect forest produces from the forests and sale for money or exchange for paddy and rice.

Leadership pattern

As mentioned earlier, the Juang area has been divided into several traditional territorial units called Pirha, each having a number of villages. Each such unit is headed by a traditional leader called Sardar with a number of village headmen under him. The traditional duties of the Sardar were to collect land revenue and maintain peace and order in his area in the feudal system till independence. After independence these duties have been transferred to the local officials appointed by the Government and the role of Sardar is restricted to the secular and inter-village affairs within the area of his jurisdiction. At the village level, each village is a political unit having a secular headman called Pradhan and religious headman called Nagam or Boita with a dozen of elderly members of the village locally known as 'Barbhai'. Some of the important functions of the Pradhan include distribution of swiddens among the villagers and adjudication of inter-village disputes. The religious headman (Boita) officiates in all communal rituals of the village, worship the village deities, fixes the dates for celebration of village rituals and for beginning different stages of shifting cultivation.

In addition to this traditional Village Council modern statutory village Panchayat has also been operating in the area with the introduction of Panchayati Raj system in the State for ensuring peoples participation in administration and development programmes. As the members of the statutory Panchayat are also associated with the Council of their respective villages and the institutions are operating parallel to each

other, there is close co-ordination between these two bodies. While the statutory Panchayat is identified as a vehicle of development, the traditional Village Council is regarded an institution to maintain social order in community of the village. Although both the institutions are performing different functions, conflict between these institutions is minimised due to close collaboration and co-operation.

Religion

The Juangs have number of religious ceremonies spread over different seasons and different months of the year. Some of them are associated with hunting and food gathering and eating of the first fruits of the season and some other revolve round some agricultural operations in the swidden.

'Dharam Devata' and 'Basumata' are the two important deities propitiated by them and while the former is identified with the Sun God, the latter with the Earth Goddess. Apart from the village rituals on important occasion in their socio-economic life these deities are propitiated. Besides the Supreme deities, they believe in the existence of many other deities like Gram-Siri (Village deity), Thanpati (Tutelary deity), Bhim Badma and Kanchuni. While the former two deities are believed to protect the village and its inhabitants from all kinds of calamities and misfortunes and the latter two are believed to take care of the health of the unmarried boys and girls as they are believed to reside in the drums kept inside the dormitory. They have also full control over the sound of the drum and changu. They worship forest, river and hill deities who are believed to reside in the surrounding of the settlement. In all major rituals the Juangs pay homage to these deities and pray them for protection. For the Juangs, shifting cultivation is regarded as a means of livelihood. It is their whole way of life and interlinked with other facets of life. It unites all the villages into a single task. Therefore festivals associated with shifting cultivation are observed jointly with great enthusiasms.

'Puspunei' is one of their most important annual festivals. It marks the beginning of agricultural cycle. On the full moonday of 'Pusa' a pig is sacrificed and its blood is sprinkled over the grains collected from each household. These grains are kept in 'Mandaghar' to be used during 'Magh Jatra' another important festival oberved in the 'month of 'Magh' to promote the fertility of the forest clearings. 'Am-Nua' festival is associated with offering of mango blossoms to the village deities and ancestral spirits. The village youths on this occasion worship Bhima and Kanchuni in the dormitory. After this festival held in the month of 'Falgun' they go for ceremonial huntings. 'Tirtia' is a sowing festival held in the month of 'Chaitra'. During this festival paddy kept in the Mandaghar is distributed to the villagers by the priest for sowing in the swiddens.

Sources of livelihood

Before launching of various developmental programmes by different development Agencies and restrictions imposed by Government, the Juangs had full freedom to use the forest to earn their livelihood partly by cultivating the swiddens and partly by hunting, fishing and food gathering. Now they are found adopting an economy which is more varied than it was before. The important sources of their livelihood are shifting cultivation, settled cultivation and wage earning, which are supplemented by forest collection and hunting.

Shifting cultivation is locally known as 'Tailachasa'. The forest land for shifting cultivation is traditionally owned by the village as a whole. Patches are distributed to individual households for cultivation for a period of two to four years after which are left fallow for a period of eight to ten years. After the taila patches are allotted to the individual households by the village headman on Puspunei day, the trees and bushes are cut down to clear the patches leaving a few big trees here and there to serve the purpose of supporters for beans and other creepers. Then the felled materials are allowed to dry up in the scorching heat of the sun. As soon as these dry up, fire is set. After a good shower of rain the ashes are spread throughout the field evenly. The flat portions of the field are ploughed by men and the uneven portions are hoed by the womenfolk since ploughing can't be done in such type of land. The poor Juang families who do not possess draught animals depend solely on hoeing. They grow a varieties of crops in one plot year after another. They mainly grow paddy, niger, black gram, horse gram and some varieties of creeper vegetables in their taila land. Harvesting of crops are done one after another by the members of both the sexes.

Due to non-availability of low lands in the area, settled cultivation is found to be very scarce. Some Juang households have been encouraged to develop land near the streams. Such land are used for growing 2 to 3 crops annually. They have been taught to use chemical fertilizers and pesticide in this type of cultivation. After the paddy plants are grown up, they cross cultivate their plots and weed the grass and extra-paddy seedlings. As these plots are situated in the heart of the Jungle, which is the abode of wild animals, they take pain to keep constant watch over these fields.

Forest Collection

Primarily the Juangs were food gatherers. Previously their diet was included various edible roots, tubers and green leaves from the forest. At present they have also not lost their interest for such items and collection of forest produce among them still continues as an indispensable pursuits. The poor Juang families mostly depend on collection for six to eight months in a year. The important food items collected by the Juangs from the forest include edible roots and tubers, fruits, green leaves, mushrooms, honey, eggs and insects of various kinds. The collection of food mostly depend on seasonal variation. Fruits are plentily available during summer, while mushrooms of various kinds are available during rainy season. The Juangs having scanty agricultural produce in their stock often take recourse to collection of different kinds of fruits, roots, tubers and greens to keep their body and soul together. The seasonal variation of foods break the monotony of their diet.

Hunting is regarded as one of the pursuits in the past, through which they get their requirement of animal protein. Now it has become a leisure time activity, due to shrinkage of forest and restriction enforced by the Forest Department on hunting. The Juangs have already left community hunting. Thus the Juangs have little interest for hunting. Hunting is regarded both an individual and a communal effort. The last day of 'Am Nua' ceremony marks the beginning of communal hunting for the Juang. Since the 'Forest Games Rules' have restricted the freedom of hunting in some areas of Keonjhar, the communal hunting expedition is becoming ceremonial and gradually giving way to individual hunting. They usually hunt spotted deer, shambar, wild pigs, etc. the meat of which are treated as delicacy. The flesh of the peacock and almost all other birds, except crows and vultures are also very much relished. To kill the birds and beasts, two types of arrows are used by them. The sharp iron blade arrow is used to kill the animals, while a blunted arrow with bamboo or wooden head is used to shoot at the birds to injure them and hurt without bleeding.

Fish is also another favourite item of food for the Juangs. They are by no means good fishermen. Their fishing equipments mainly consist of fishing rods and a few bamboo traps. Rivers and streams provide fishing ground for them for occasional engagement in catching fish. The traps are generally kept in deep or flowing water in the rainy season. Some use fishing rods to catch fish during leisure hours. But most common method of catching fish is to damp up the water of a closed area and catch fish by hand or by using a piece of cloth.

The Juangs have not yet taken to animal husbandry on commercial basis. They have not enough cattle to meet their agricultural purpose. They mostly domesticate cows for cultivation and not for milk. Those who do not possess cattle, they hire cattle on payment. Other animals like goats, sheep, pigs and fowls reared by them are primarily for rituals and meat purposes. Buffaloes are the most prized variety of all animals and considered as an insignia of wealth and richness. These are used in ploughing and give milk and can be sold for money to meet contingent expenses. But only a few households own buffalo.

The Juangs do not like to work as daily or annual labourers for other communities but prefer to work with their own tribesmen. The daily wage rate varies from place to place. Besides wage, mostly a labourer is given food on the days of work.

Employment, Income and expenditure

Juangs are hard working people engaged in one pursuit or other throughout the year to eke out their livelihood because of their subsistence economy. An attempt has made here to assess the magnitude of employment, income, expenditure, savings and loans, etc. of the Juangs of the 'JDA' to gain a comprehensive knowledge about their economic condition.

Employment

Agriculture including shifting cultvation is the main occupation of the Juangs. They grow different crops in the plain land available at the foothill and through podu cultivation (tailachasa) on the hill slopes and tops. It is estimated that only 291 (22.04%) of 1,320 total Juang households (Table IV. 1) carry on settled cultivation, 404 (30.61%) practise shifting cultivation, 180 (13.64%) households undertake collection of minor forest produces, 12 (0.91%) households engage themselves in Government or private service, 412 households (31.21%) depend on wage earning as their main economic pursuits.

In settled cultivation they are engaged from the month of May to December. The total hours devoted in it is 403 hours or approximately 50 man-days in the year. Likewise in shifting cultivation they are found engaged for 528 hours or approximately 66 man-days. It shows that they devote more man-days in shifting cultivation than in wet cultivation. When there is no sufficient agricultural and shifting cultivation operations, they go either to the forest for collection of minor forest produce or to work for wage in labour intensive development schemes. It is seen from Table IV. 2 that they spend 616 hours or 77 man-days in wage earning during the year and 795 hours or 99 man-days, for collection of Minor Forest Produce mostly during the period from January to April. It is also seen from the table that for 23 days they do not get any work and spend the entire period in gossiping among themselves in the Mandaghar.

Table IV. 3, which deals with distribution of worker according to occupational pattern indicates that, in settled cultivation more number of males are engaged than the females, as the males do most strenuous like ploughing, sowing, harvesting jobs etc. In the field of shifting cultivation, the representation of male and female workers is almost equal as the males are engaged in felling trees and the females are engaged in debushing and weeding as their primary jobs.

In the field fo forest collection, it is seen that the females usually take active part in larger proportion than the males. In wage earning equal burden, is shared both by males and females. Representation of people in the field of service, cottage industry and business are found to be very negligible.

Table No. IV. 4, which deals with the land ownership pattern of the Juang households shows that out of 1,320 surveyed households 625 (47.35%) households are landless, 303 households (23.7%) possess land within one acre, 207 households (15.68%) between 1.1 and 2.5 acres, 97 households (7.35%) between 2.6 and 5 acres, 52 households (3.94%) between 5.1 and 7.5 acres and 26 households possess land above 7.5 acres.

Table IV.5 indicates the number of households owning domestic animals. It is seen that as many as 1,187 out of 1,320 surveyed households have domestic animals like cow, bullock, buffalo, goat, sheep and poultry birds. Cows and buffaloes are mainly used in ploughing the fields and sheep, goat and poultry birds meant both for ritual and table purpose. Although goat, sheep and fowl are occasionally sold for cash, these are not domesticated for commercial purpose.

Each household is found possessing small sized kitchen garden attached to its housesite. Here they grow tobacco, some varieties of vegetables and mustard. Table No. IV. 6 shows that out of 1,320 surveyed Juang households 1,228 households (93.03%) have possessed very small acres of kitchen garden. It is calculated that, 1,228 Juang households have possessed 175.63 acres of kitchen garden @ 0.14 acre per household.

Income

Table IV. 8 indicates the amount of income derived from different sources by the households. It is seen that, major portion of the income is derived from agriculture, both settled and shifting (42.59%). Next to agriculture comes wage earning (23.85%) and is followed by collection of minor forest produces (16.81%) other sources (10.60%) and from animal husbandry (6.15%).

It is revealed from the survey that most of the Juang practise both settled and shifting cultivation. As per an estimation furnished by District Agriculture Officer (Table. IV. 9) an area of 5,470 Hects. are cultivated under main crops like paddy, maize, mustard, niger, wheat and ragi. Out of 5,470 Hects. of land, 499 Hects. are being cultivated under other crops. Of these 5,470 Hects. of land, paddy is cultivated on 2,660 Hects., maize in 695 Hects., mustard in 637 Hects., niger in 8.34 Hects. and ragi in 40 Hects.

Under other crops in which 499 Hects. are covered consitute introduction of high-yielding variety of wheat, winter vegetables, like potato, tomato, brinjal, etc.

It is also ascertained from the Table IV. 10 as furnished by the District Agriculture Officer, Keonjhar regarding yield-rate of principal crops in Hects. during the year, 1990-91 that, paddy being the principal crop, per Hect. yield is 9.9 quintals whereas maize comes in the second place with a yield of 7.50 quintals per Hect. Besides, yield of vegetables per Hect. is 26.62 quintals and wheat 7.00 quintals. Following these crops, oil seeds like mustard and niger, the yield rate per Hect. is 2.28 and 2.90 quintals respectively. It is also encouraging to note that, the yield rate of wheat which has been introduced after the grounding of the Micro-Project is 7.00 quintals per Hect.

Further more, the cost of cultivation of different crops in the Agency area as furnished by the D. A. O., Keonjhar, (Table IV.11) reveals that, the cost of cultivation of paddy per Hect. comes to Rs. 1,573.00, maizer; Rs.1,205.00 ragi Rs. 553.00, Arhar Rs. 1,074.00, niger Rs. 670.00 and groundnut Rs. 2,380.00. Table IV.11 indicates the cost of cultivation of different crops in the project area.

Regarding different category of land in the project area, (Table IV.12) it is seen that, out of total cultivated land of 3,841.73 Hects., the up-land comprises 2,194.75 (57.12%), medium land 1,159.98, (30.17%) and low land 487.00 (12.76%). The cultivable waste land is estimated to 3,299.86 Hects. (85.88%). The uncultivable land constitutes 66.02 Hects. (1.71%) whereas the extent of Gochar or pasture land is 164.86 Hects. (4.26%) and Rakhit Anabadi is 1,771.59 Hects. (46.10%).

Expenditure

The expenditure pattern shown in Table IV.13 brings to light that, the major part of their income is spent on food (75.56%). Next to food comes clothing, ceremonies & religion (4.33%), wine and tobacco (3.88%), medicine (1.52%) and K. oil (1.48%). A quite negligible part of their income is spent for the education of their children (0.14%) and for gift purpose (0.77%).

The loan position of the surveyed households as indicated in Table No. IV.14 reveals that out of total number of 1,320 Juang households, 510 households (38.64%) have incurred loan from different agencies. Of these, 510 households, 49 households (3.41%) have taken loan from private money lenders, 435 households (32.95%) have received loan from official agencies and 26 households (1.97%) both from private and official agencies.

So far as amount of loan is concerned the same table indicates that an amount of Rs. 18,320.00 (3.33%) have been borrowed from private money lenders, an amount of Rs. 495,600.00 (90.25%) from official agencies and Rs. 35,280.00 (6.42%) both from private and official agencies.

TABLE IV. 1

Main sources of livelihood of the households

Sl. No.	Name of the village	Main Sources of livelihood of the households								
		Settled cultivation	Shifting cultivation	Forest collection	Service	Wage earning	Cottage Industry	Business	Live-stock	Total house-holds
1	2	3	4	5	6	7	8	9	10	11
1.	Gonasika	9	21	13	..	2	1	..	..	46
2.	Baitarani	..	6	2	..	25	..	..	..	33
3.	Kadalibadi	2	17	13	..	3	1	..	..	36
4.	Guptaganga	28	8	2	2	27	1	..	..	68
5.	Upper Raidiha	3	7	2	..	12	..	..	..	24
6.	Talapada	..	4	1	..	8	..	..	..	13
7.	Kanjipani	10	..	3	..	44	..	..	..	57
8.	Talapanasanasa	7	3	..	2	8	1	2	..	43
9.	Upper Panasanasa	9	20	14	..	12	..	..	..	55
10.	Budhighar	12	9	10	1	16	1	1	..	50
11.	Phulbadi	10	13	8	..	5	..	..	..	36
12.	Bayakumutia	1	8	3	..	9	..	..	..	21
13.	Bayapandadhar	20	25	6	1	23	..	..	..	75
14.	Tala Champei	15	21	7	..	25	1	..	..	69
15.	Upper Champei	12	21	2	1	13	..	..	..	49
16.	Tangarpada	4	17	7	..	22	1	..	..	51
17.	Duarsuni	9	11	7	1	9	..	..	1	38
18.	Dumuria	4	6	6	..	19	..	..	..	35
19.	Ghungi	6	9	5	..	7	1	..	..	28
20.	Kundhei	12	30	16	..	23	..	..	1	82
21.	Jantari	18	25	12	1	12	..	..	..	68
22.	Tala Raidiha	7	14	6	1	8	..	..	..	36
23.	Hatisila	8	11	3	..	11	..	..	..	33
24.	Upper Bali	18	17	5	..	7	2	1	..	50
25.	Tala Bali	7	29	2	..	3	1	..	..	42
26.	Kaptadiha	16	..	11	..	13	..	..	..	40
27.	Saria	12	9	3	..	9	..	..	..	33
28.	Toranipani	3	9	8	2	15	..	2	1	40
29.	Tala Sumutha	6	5	1	..	13	..	..	..	25
30.	Upper Sumutha	4	2	1	..	7	..	..	..	14
31.	Nadam	19	7	1	..	2	1	..	..	30
	Total ..	291 (22.04)	404 (30.61)	180 (13.64)	12 (0.91)	412 (31.21)	12 (0.91)	6 (0.45)	3 (0.23)	1,320 (100.00)

TABLE IV. 2

Monthwise average hours of Employment per working person in the sample village

Sl. No.	Month	Hours engaged in (From 9 A. M. to 5 P. M.) daily							
		Wet Culti.	Shifting Culti.	Wage earning	Forest Product	Others	No work	Total hours	Total days
1	2	3	4	5	6	7	8	9	10
1.	January	..	..	26	115	72	35	248	31
2.	February	..	..	28	99	68	29	224	28
3.	March	..	..	17	113	84	34	248	31
4.	April	..	..	45	159	20	16	240	30
5.	May	32	44	88	56	17	11	248	31
6.	June	45	62	56	53	16	8	240	30
7.	July	48	70	64	38	18	10	248	31
8.	August	58	72	62	24	20	12	248	31
9.	September	56	74	66	26	12	8	242	30
10.	October	44	64	58	52	24	6	248	31
11.	November	58	70	50	32	20	10	240	30
12.	December	62	72	56	28	18	12	248	31
	Total ..	403	528	616	795	389	191	2922	365

TABLE IV.3

Distribution of workers according to occupational pattern

Sl. No.	Name of the village	Settled cultivation			Shifting cultivation			Forest cultivation			Service			Wage earning			Cottage Industry			Business			Animal Husbandry			Total workers		
		T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1.	Gonasika	24	13	11	40	24	16	28	13	15	..	..	..	9	5	4	2	1	1	..	..	..	..	..	..	103	56	47
2.	Baitarani	..	..	..	15	6	9	5	2	3	..	..	..	51	24	27	..	..	..	..	..	..	..	..	..	71	32	39
3.	Kadalibadi	3	2	1	37	19	18	30	13	17	..	..	..	7	3	4	2	1	1	..	..	..	..	..	..	79	38	41
4.	Guptaganga	53	28	25	15	8	7	4	1	3	2	2	..	63	36	27	2	1	1	..	..	..	..	..	..	139	76	63
5.	Upper Raidiha	6	3	3	15	7	8	4	2	2	..	..	..	25	13	12	..	..	..	..	..	..	..	..	..	50	25	25
6.	Talapada	..	..	..	8	4	4	1	..	1	..	..	..	13	5	8	..	..	..	..	..	..	..	..	..	22	9	13
7.	Kanjipani	17	10	7	..	..	..	3	..	3	..	..	..	86	42	44	..	..	..	..	..	..	..	..	..	106	52	54
8.	Tala Panasanasa	13	7	6	51	24	27	..	..	..	2	2	..	16	8	8	1	..	1	2	2	..	..	..	..	85	43	42
9.	Upper Panasanasa	14	9	5	34	21	13	25	14	11	..	..	..	22	13	9	..	..	..	..	..	..	..	..	..	95	57	38
10.	Budhighar	27	13	14	21	10	11	22	10	12	1	1	..	38	21	17	2	1	1	1	1	..	..	..	..	112	57	55
11.	Phulbadi	25	12	13	29	17	12	18	8	10	..	..	..	11	5	6	..	..	..	..	..	..	..	..	..	83	42	41
12.	Bayakumutia	3	1	2	16	8	9	7	3	4	..	..	..	19	9	10	..	..	..	..	..	..	..	..	..	46	21	25
13.	Baya Pandadhara	47	24	23	52	27	25	15	7	8	1	1	..	49	25	24	..	..	..	..	..	..	..	..	..	164	84	80
14.	Tala Champei	33	17	16	45	23	22	16	8	8	..	..	..	53	27	26	2	1	1	..	..	..	..	..	..	149	76	73
15.	Upper Champei	25	12	13	39	20	19	4	2	2	1	1	..	29	15	14	..	..	..	..	..	..	..	..	..	98	50	48
16.	Tangarpada	9	4	5	35	17	18	13	6	7	..	..	..	44	22	22	1	..	1	..	..	..	..	..	..	102	49	53
17.	Duarsuni	29	14	15	27	12	15	20	13	16	1	1	..	32	15	17	..	..	..	..	..	..	2	1	1	120	56	64
18.	Dumuria	12	5	7	15	7	8	15	6	9	..	..	..	40	20	20	..	..	..	..	..	..	..	..	..	82	38	44
19.	Ghungi	11	6	5	17	9	8	9	5	4	..	..	..	12	7	5	1	1	..	..	..	..	..	..	..	50	28	22
20.	Kundhei	27	14	13	64	32	32	35	17	18	..	..	..	47	24	23	..	..	..	..	..	..	1	1	..	174	88	86
21.	Jantari	40	19	21	51	28	23	33	16	17	1	1	..	31	15	16	..	..	..	..	..	..	..	..	..	156	79	77
22.	Tala Raidiha	18	8	10	33	14	19	15	7	8	1	1	..	19	9	10	..	..	..	..	..	..	..	..	..	86	39	47
23.	Hatisila	13	8	5	21	12	9	7	4	3	..	..	..	24	14	10	..	..	..	..	..	..	..	..	..	65	38	27
24.	Upper Bali	29	19	10	33	18	15	7	2	5	..	..	..	11	5	6	2	..	2	1	1	..	..	..	..	83	45	38
25.	Tala Bali	13	7	6	57	28	29	2	..	2	..	..	..	3	3	..	1	..	1	..	..	..	..	..	..	76	38	38
26.	Kaptadiha	34	16	18	..	..	..	24	9	15	..	..	..	27	13	14	..	..	..	..	..	..	..	..	..	85	38	47
27.	Toranipani	7	3	4	18	9	9	17	8	9	2	2	..	31	15	16	..	..	..	2	2	..	1	1	..	78	40	38
28.	Saria	26	14	12	22	13	9	9	5	4	..	..	..	20	11	9	..	..	..	..	..	..	..	..	..	77	43	34
29.	Tala Sumatha	13	6	7	12	5	7	1	..	1	..	..	..	27	13	14	..	..	..	..	..	..	..	..	..	53	24	29
30.	Upper Sumatha	9	4	5	7	2	5	1	..	1	..	..	..	16	7	9	..	..	..	..	..	..	..	..	..	33	13	20
31.	Nadam	37	21	16	14	8	6	2	1	1	..	..	..	6	4	2	1	..	1	..	..	..	..	..	..	60	34	26
	Total	617	319	298	844	432	412	401	182	219	12	12	..	881	448	433	17	6	11	6	6	..	4	3	1	2,782	1,408	1,374
		(22.18)			(21.69)			(30.68)			(14.41)			(15.94)			(0.85)			(31.32)			(31.82)			(0.43)			(0.22)			(0.14)			(0.07)			(100.00)		
			(22.65)			(30.34)			(29.99)			(12.93)			(0.43)				(31.82)			(0.61)			(0.80)			(0.43)			(0.21)			(100.00)			(100.00)	

TABLE IV.4

Land holding pattern of the Project Area

Sl. No.	Name of the village	No. of household surveyed	No. of land less H. H.	No. of H.H. within one acre of land	No. of H.H. between 1.1 to 2.5 acres	No. of H.H. between 2.6 to 5.0 acres	No. of H.H. between 5.1 to 7.5 acres	No. of H.H. above 7.5 acres of land	Per Capital land in acres	Remarks
1	2	3	4	5	6	7	8	9	10	
1.	Gonasika	46	16	19	3	4	3	1	..	
2.	Baitarani	33	27	3	3	..	..	..	..	
3.	Kadalibadi	36	17	15	2	2	..	..	..	
4.	Guptaganga	68	32	9	14	8	3	2	..	
5.	Upper Raidiha	24	14	5	3	1	1	..	..	
6.	Talapada	13	9	2	1	1	..	..	..	
7.	Kanjipani	57	47	3	2	2	1	2	..	
8.	Tala Panasanasa	43	13	15	10	4	1	..	..	
9.	Upper Panasanasa	55	26	14	8	3	3	1	..	
10.	Budhighar	50	29	7	7	3	2	2	..	
11.	Phulbadi	36	13	11	9	2	1	..	..	
12.	Bayakumutia	21	12	5	3	1	..	..	..	
13.	Bayapandadhar	75	30	21	14	2	2	6	..	
14.	Tala Champei	69	33	17	12	4	3	..	..	
15.	Upper Champei	49	16	15	10	6	1	1	..	
16.	Tangarpada	51	30	12	6	1	2	..	..	
17.	Duarsuni	38	18	7	8	3	1	1	..	
18.	Dumuria	35	25	3	3	2	2	..	..	
19.	Ghungi	28	13	5	8	2	..	..	..	
20.	Kundhei	82	40	25	3	8	4	2	..	
21.	Jantari	68	25	18	10	5	7	3	..	
22.	Tala Raidiha	36	15	10	6	4	1	..	..	
23.	Hatisila	33	14	7	8	2	2	..	..	
24.	Upper Bali	50	15	15	11	3	4	2	..	
25.	Tala Bali	42	6	21	10	3	1	1	..	
26.	Kaptadiha	40	24	3	8	4	1	..	..	
27.	Saria	33	12	8	7	4	1	1	..	
28.	Toranipani	40	28	5	2	3	2	..	..	
29.	Tala Sumatha	25	14	4	3	4	..	..	..	
30.	Upper Sumatha	14	8	2	4	..	..	..	..	
31.	Nadam	30	4	7	9	6	3	1	..	
	Total	1,320 (100.00)	625 (47.35)	313 (23.71)	207 (15.68)	97 (7.35)	52 (3.94)	26 (1.97)	.. ..	

TABLE IV.5

Particulars about Domestic Animals and Birds owned by the Juang households in the sample villages

Sl. No.	Name of the village	No. of household	No. of household owning animals	No. of Animals owned						
				Cow	Bullock	Buffalo	Pig	Goat & sheep	Poultry birds	Total
1	2	3	4	5	6	7	8	9	10	11
1.	Gonasika	46	42	54	73	12	..	75	155	369
2.	Baitarani	33	31	42	56	..	..	59	132	289
3.	Kadalibadi	36	33	48	62	7	..	71	146	334
4.	Guptaganga	68	64	75	93	19	..	106	217	510
5.	Upper Raidiha	24	19	32	45	..	..	28	125	230
6.	Talapada	13	9	10	18	..	..	17	60	105
7.	Kanjipani	57	52	68	72	18	..	76	164	398
8.	Tala Panasanasa	43	37	50	69	10	..	57	143	329
9.	Upper Panasanasa	55	50	61	82	16	..	68	182	409
10.	Budhighar	50	42	48	75	21	..	49	125	318
11.	Phulbadi	35	28	65	53	..	..	46	104	268
12.	Bayakumutia	21	18	29	40	..	..	25	84	178
13.	Bayapandadhar	75	70	127	105	29	..	98	211	570
14.	Tala Champei	69	65	63	89	14	..	92	218	476
15.	Upper Champei	49	46	46	61	13	..	44	116	280
16.	Tangarpada	51	47	95	66	18	..	38	123	340
17.	Duarsuni	38	32	45	59	..	..	33	136	273
18.	Dumuria	35	29	39	62	5	..	28	125	259
19.	Ghungi	28	24	33	46	..	..	21	118	218
20.	Kundhei	82	78	76	135	..	..	143	291	645
21.	Jantari	68	66	55	82	16	..	128	234	515
22.	Tala Raidiha	36	33	32	47	..	..	54	95	228
23.	Hatisila	33	31	51	58	..	..	65	116	290
24.	Upper Bali	50	45	48	65	18	..	62	131	324
25.	Tala Bali	42	37	62	53	21	..	70	104	310
26.	Kaptadiha	40	34	37	49	..	..	45	112	243
27.	Saria	33	30	31	42	..	..	39	87	199
28.	Toranipani	40	26	36	51	15	..	47	93	242
29.	Tala Sumatha	25	22	27	36	..	..	32	89	184
30.	Upper Sumatha	14	11	18	19	..	..	8	33	78
31.	Nadam	30	26	33	42	6	..	16	68	165
	Total	1,320 (100%)	1,177 (89.17)	1,536	1,905	258	..	1,740	4,137	9,576

TABLE IV.6

No. of households having Kitchen Garden

Sl. No.	Name of the village	Total No. of H. H.	No. of H. H. Owning kitchen garden	Area
1	2	3	4	5
1.	Gonasika	46	43	6.18 Ac.
2.	Baitarani	33	31	5.27 Ac.
3.	Kadalibadi	36	32	6.03 Ac.
4.	Guptaganga	68	63	8.81 Ac.
5.	Upper Raidiha	24	20	2.75 Ac.
6.	Talapada	13	12	2.16 Ac.
7.	Kanjipani	57	52	9.34 Ac.
8.	Tala Panasanasa	42	41	6.97 Ac.
9.	Upper Panasanasa	55	52	6.76 Ac.
10.	Budhighar	50	47	7.19 Ac.
11.	Phulbadi	36	32	3.84 Ac.
12.	Bayakumutia	21	19	2.67 Ac.
13.	Bayapandadhar	74	71	9.23 Ac.
14.	Tala Champei	69	63	6.94 Ac.
15.	Upper Champei	49	44	5.28 Ac.
16.	Tangarpada	51	49	6.82 Ac.
17.	Duarsuni	38	35	6.32 Ac.
18.	Dumuria	35	32	5.13 Ac.
19.	Ghungi	28	24	2.86 Ac.
20.	Kundhei	82	79	10.27 Ac.
21.	Jantari	68	67	8.05 Ac.
22.	Tala Raidiha	36	34	5.78 Ac.
23.	Hatisila	33	31	4.96 Ac.
24.	Upper Bali	50	47	7.05 Ac.
25.	Tala Bali	42	41	6.74 Ac.
26.	Kaptadiha	40	39	5.11 Ac.
27.	Saria	33	30	3.49 Ac.
28.	Toranipani	40	36	4.75 Ac.
29.	Tala Sumatha	25	22	2.87 Ac.
30.	Upper Sumatha	14	11	1.66 Ac.
31.	Nadam	30	29	4.35 Ac.
	Total	1,320 (100.00)	1,228 (93.03)	175.63

TABLE IV. 7

No. of Household owning housesites

Sl. No.	Name of the village	Total No. of H. H.	No. of H. H. owning house site	Area in (AC.)
1	2	3	4	5
1.	Gonasika	46	46	3.22 Ac.
2.	Baitarini	33	33	1.98 Ac.
3.	Kadalibadi	36	36	2.53 Ac.
4.	Guptaganga	68	68	3.94 Ac.
5.	Upper Raidiha	24	24	1.46 Ac.
6.	Talapada	13	13	1.29 Ac.
7.	Kanjipani	57	57	3.27 Ac.
8.	Tala Panasanasa	43	43	3.42 Ac.
9.	Upper Panasanasa	55	55	4.45 Ac.
10.	Budhighar	50	50	3.64 Ac.
11.	Phulbani	36	36	2.16 Ac.
12.	Bayakumutia	21	21	1.74 Ac.
13.	Bayapandadhar	75	75	5.17 Ac.
14.	Tala Champei	69	69	4.35 Ac.
15.	Upper Champei	49	49	4.19 Ac.
16.	Tangarpada	51	51	3.16 Ac.
17.	Duarsuni	38	38	2.26 Ac.
18.	Dumuria	35	35	2.52 Ac.
19.	Ghungi	28	28	1.65 Ac.
20.	Kundhei	82	82	4.83 Ac.
21.	Jantari	68	68	3.81 Ac.
22.	Tala Raidiha	36	36	2.02 Ac.
23.	Hatisila	33	33	1.94 Ac.
24.	Upper Bali	50	50	3.28 Ac.
25.	Tala Bali	42	42	2.89 Ac.
26.	Kaptadiha	40	40	2.68 Ac.
27.	Saria	33	33	2.04 Ac.
28.	Toranipani	40	40	2.52 Ac.
29.	Talasumatha	25	25	1.57 Ac.
30.	Upper Sumatha	14	14	1.35 Ac.
31.	Nadam	30	30	2.16 Ac.
	Total	1,320	1,320	87.49

TABLE IV.8

Income received from different sources by the "Juang" household

Sl. No.	Name of the village	Source of Income of all households						
		No. of household	Agri. produce	Hiring of labour	Collection of forest pruduce	Animal husbandry	Other source	Total in Rs.
1	2	3	4	5	6	7	8	9
1.	Gonasika	46	61,370	38,460	32,735	13,100	23,240	1,68,905
2.	Baitarani	33	42,165	52,325	13,400	8,670	11,590	1,28,150
3.	Kadalibadi	36	46,380	45,230	28,820	3,495	9,240	1,33,165
4.	Guptaganga	68	1,05,140	11,175	23,550	10,660	14,785	1,65,310
5.	Upper Raidiha	24	37,220	35,560	19,680	7,535	21,170	1,21,165
6.	Talapada	13	12,900	16,700	6,100	..	2,800	38,500
7.	Kanjipani	57	24,400	68,500	22,050	..	14,400	1,29,350
8.	Tala Panasanasa	43	49,315	27,190	18,265	11,220	16,465	1,22,455
9.	Upper Panasanasa	55	54,210	29,285	23,190	13,085	17,350	1,37,120
10.	Budhighar	50	57,125	23,890	19,235	8,780	13,215	1,22,245
11.	Phulbadi	36	51,060	2,480	21,840	12,315	5,680	93,375
12.	Bayakumutia	21	26,300	17,825	9,480	3,660	7,850	65,115
13.	Bayapandadhar	75	1,16,285	36,320	29,765	11,780	19,295	2,13,445
14.	Tala Champei	69	1,11,050	39,100	33,250	4,550	7,750	1,95,700
15.	Upper Champei	49	60,385	35,210	27,690	6,420	13,345	1,43,050
16.	Tangarpada	51	63,190	27,495	29,135	11,210	14,270	1,45,300
17.	Dwarsuni	38	42,135	20,695	23,610	9,385	9,575	1,05,400
18.	Dumuria	35	38,900	41,300	16,550	4,700	4,700	1,06,150
19.	Ghungi	28	52,850	8,750	10,600	1,800	..	74,000
20.	Kundhei	82	1,04,500	68,790	51,080	13,410	50,180	2,87,960
21.	Jantari	68	1,02,225	8,300	37,825	16,650	37,040	2,02,040
22.	Tala Raidiha	36	47,120	6,540	15,320	10,145	4,990	84,115
23.	Hatisila	33	42,540	19,980	16,765	9,300	6,725	95,310
24.	Upper Bali	50	42,700	50,100	11,600	2,600	15,500	1,22,500
25.	Tala Bali	42	51,225	32,170	27,210	9,550	14,120	1,34,275
26.	Kaptadiha	40	49,110	27,265	29,365	7,630	12,780	1,26,150
27.	Saria	33	38,960	20,595	13,120	8,195	5,965	86,835
28.	Toranipani	40	55,450	34,650	29,900	10,900	28,650	1,59,550
29.	Tala Sumatha	25	41,400	45,800	12,700	2,700	7,000	1,09,600
30.	Upper Sumatha	14	27,000	14,800	6,200	1,900	1,800	51,700
31.	Nadam	30	29,780	26,985	14,730	8,115	7,640	87,250
	Total	1320	16,84,390	9,33,465	6,74,760	2,43,460	4,19,110	39,55,185
			(42.59)	(23.60)	(17.06)	(6.15)	(10.60)	100%

TABLE IV. 9

Area under main crops in the Agency Area

Sl. No.	Name of the crops	Area cultivated in hectare	Remarks
1	2	3	4
1.	Paddy	2,660.00	
2.	Maize	695.00	
3.	Mustard	637.00	
4.	Niger	839.00	
5.	Ragi	140.00	
6.	Any other	499.00	
	Total	5,470.00	

TABLE IV.10

Yield rate of principal crops in hectare

Sl. No.	Name of the crops	Yield rate (in quintal)	(1990-91)
1	2	3	4
1	Paddy	9.90	
2	Maize	7.50	
3.	Arhar	2.05	
4	Biri	1.78	
5	Ground nut	2.15	
6	Ragi	1.81	
7	Vegetable	26.62	
8	Wheat	7.00	
9	Mustard	2.28	
10	Niger	2.09	
	Total	5470.00	

TABLE IV.11

Cost of cultivation crops in the Agency area

Sl. No	Name of the crops	Cost of cultivation for one hectare	Remarks
1	2	3	4
1	Paddy	1,573.00	
2	Maize	1,205.00	
3	Ragi	553.00	
4	Arhar	1,074.00	
5	Niger	670.00	
6	Ground nut	2,380.00	

TABLE IV.12

Area under different category of land

Sl. No.	Category of Land	Area in hectare	Remarks
1	2	3	4
1	Total cultivated land	3841.73 (100.00)	
	(a) upland	2194.75 (57.12)	
	(b) Medium land	1159.98 (30.17)	
	(c) Low land	487.00 (12.67)	
2	Cultivable waste land	3299.86 (85.88)	
3	Uncultivable waste land	66.02 (1.71)	
4	Gochar	164.86 (4.26)	
5	Rakhit	1771.59 (46.10)	

Table IV. 13
Annual Expenditure

Sl. No.	Name of the Village	No. of H. H.	Items of Expenditure													
			Food	Clothing	Kerosene	Wine and Tobaco	Medicine	Education	Ceremonial and deligious	Gift	House repair	Others	Annum Total	Purchase of animals	Cultivation	Grand Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.	Gonasika	46	128650	8490	1525	5130	2015	125	5620	790	2510	7175	162030	750	5625	168405
2.	Baitarani	33	95130	4995	1460	4575	1820	130	4650	750	2190	6540	122240	800	4510	127550
3.	Kadalibadi	36	97755	5670	1500	5150	1790	150	4875	780	2225	6830	126725	850	5130	132705
4.	Guptaganga	68	111830	10325	2910	7260	2870	225	8450	1640	4550	7655	157715	1540	5650	164905
5.	Upper Raidiha	24	101010	3650	1340	2580	1260	110	2725	450	1055	3335	117515	600	2550	120665
6.	Talapada	13	27010	1780	850	1030	750	150	1460	380	865	1750	36025	450	1625	38100
7.	Kanjipani	57	90795	9115	1690	5650	2260	190	4750	875	3625	6430	125380	560	3210	129150
8.	Tala Panasanasa	43	87500	6570	1480	5215	1815	120	5210	750	2480	6935	118075	615	3560	122250
9.	Upar Panasanasa	55	101865	7965	2050	3260	1950	200	4565	850	3520	6630	132855	525	3340	136720
10.	Budhighar	50	88950	7545	1930	3140	1855	210	4445	730	3210	6525	118540	485	3020	122045
11.	Phulbadi	36	61165	5520	1525	4010	1520	140	5830	750	1515	5615	87590	785	4800	93175
12.	Baya Kumutia	21	46920	3230	1215	2225	1250	150	2725	430	850	2650	61645	630	2525	64800
13.	Baya Pandadhar	75	169620	10665	3250	7070	1750	215	4050	1550	3660	5875	207705	890	4550	213145
14.	Tala Champei	69	153235	11350	3190	6860	1520	185	3690	1450	3450	5625	190555	780	4045	195380
15.	Upper Champei	49	109805	8230	2760	5650	790	130	2850	1210	2510	4580	138515	675	3545	142735
16.	Tangarpada	51	114350	8525	2650	4830	670	125	2230	1080	2250	4015	140725	650	3020	144395
17.	Duarsuni	38	82980	5250	1830	3750	650	120	1850	780	1830	3550	102590	560	2050	105200
18.	Dumuria	35	82900	5680	1640	4525	1725	195	6540	765	3150	3665	110785	900	4210	115895
19.	Ghungi	28	50245	3550	1225	3240	1410	150	3560	750	2540	3150	69820	750	3030	73600
20.	Kundhei	82	217170	11725	5630	9560	3630	575	9860	3220	5475	9755	276160	2070	9030	287260
21.	Jantari	68	143720	10230	2715	7615	3550	360	9075	1540	3290	9230	191325	1550	8745	201620
22.	Tala Raidiha	36	49025	5475	1590	4230	1620	150	7050	760	1550	6425	77875	780	5225	83880
23.	Hatisila	33	58035	5760	1320	4625	1725	160	7525	875	1725	6590	88340	830	5610	94780
24.	Upper Bali	50	72000	9010	1575	6570	2610	175	8875	910	2075	9580	113360	990	8050	122400
25.	Tala Bali	42	85955	8570	1490	6030	2550	140	8960	840	1750	9410	125695	850	7530	134075
26.	Kaptadiha	40	67750	8760	1560	5890	2695	125	9175	900	1625	9315	107795	810	7445	116050
27.	Saria	33	48405	5875	1250	4530	1720	155	8010	735	1310	7550	79540	780	6115	86435
28.	Toranipani	40	112265	8535	1630	5675	2560	190	8780	1015	1460	8840	150950	850	7510	159310
29.	Tala Sumatha	25	90530	3450	1200	2510	1225	115	2730	425	925	3215	106325	450	2620	109395
30.	Upper Sumatha	14	40710	1925	840	1135	790	125	1425	310	475	1825	49560	360	1640	51560
31.	Nadam	30	67205	2490	1125	3060	1540	160	2110	650	1275	4050	83665	750	2425	86840
	Total	1320	2854485	209910	55945	146580	57445	5450	163650	28940	70920	184295	3777620	24865	141940	3944425
			(75.56)	(5.56)	(1.48)	(3.88)	(1.52)	(0.14)	(4.33)	(0.77)	(1.88)	(4.88)	100%			

TABLE IV.14

No. of Families Indebted and amount of loans incurred from different Sources.

Sl. No.	Name of the village	No. of H. H. Surveyed	No. of household indebterd to				Amount of Loan from				Average loan per Indebted H. H.
			Private money lenders	Official Agencies	Both to Private & Official Agencies	Total	Private money Lenders	Official Agencies	Both from Private & Official Agencies	Total	
1	2	3	4	5	6	7	8	9	10	11	12
1	Gonasika	46	4	20	1	25	1600	35000	4500	41100	
2	Baitarani	33	3	13	1	17	1000	5300	1800	8100	
3	Kadalibadi	36	2	12	1	15	900	18200	1600	20700	
4	Guptagang	68	3	27	2	32	800	25500	2700	29000	
5	Upper Raidiha	24	..	7	..	7	..	9600	..	9600	
6	Talapada	13	1	6	..	7	1000	10000	..	11000	
7	Kanjipani	57	2	14	1	17	900	18000	700	19600	
8	Tala Panasanasa	43	..	13	2	15	..	18000	2200	20200	
9	Upper Panasanasa	55	3	20	..	23	700	25000	..	25,700	
10	Budhighar	50	..	17	1	18	..	19000	1200	20200	
11	Phulbadi	36	..	12	..	12	..	16000	..	16000	
12	Bayakumutia	21	..	8	..	8	..	13500	..	13500	
13	Baya Pandadhar	75	4	24	2	30	1300	27000	2100	30400	
14	Tala Champei	69	1	25	1	27	350	18800	1600	20750	
15	Upper Champei	49	3	16	..	19	1000	22000	..	23000	
16	Tangarpada	51	2	20	1	23	600	11000	1200	12800	
17	Dwarsuni	38	..	11	..	11	..	15000	..	15000	
18	Dumuria	35	3	6	1	10	1600	8,600	2,000	12,200	
19	Chungi	28	1	13	2	16	200	14,500	2,100	16,800	
20	Kundhei	82	..	3	2	5	..	3,400	2,700	61,00	
21	Jantari	68	3	23	1	27	850	28,400	1,600	30,850	
22	Tala Raidiha	36	1	10	1	12	600	11,400	1,450	13,450	
23	Hatisila	33	3	9	..	12	1,050	7,500	..	8,550	
24	Upper Bali	50	2	18	1	21	850	21,500	1,100	23,450	
25	Tala Bali	42	2	19	2	23	680	26,300	1,750	28,730	
26	Kaptadiha	40	1	15	1	17	350	13,700	880	14,930	
27	Saria	33	..	6	..	6	..	10,500	..	10,500	
28	Toranipani	40	3	12	..	15	790	8,500	..	9,290	
29	Tala Sumatha	25	1	20	2	23	600	16,500	2,100	19,200	
30	Upper Sumatha	14	..	5	..	5	..	8,400	..	8,400	
31	Nadam	30	1	11	..	12	600	9,500	..	10,100	
	Total	1,320 (100.00)	49 (3.41)	435 (32.95)	26 (1.97)	510 (38.64)	18,320	4,95,600	35,280	5,49,200	

V
TECHNO-ECONOMIC SURVEY IN DIFFERENT SECTORS FOR SUSTAINABLE DEVELOPMENT

V. I. Forestry

The entire Juang-pirh area is situated on an elevated hilly region intersepted by deep valleys and ravines. The hill-slopes are concave in shape and the valley bottom are flat. The hill-slopes are usually covered with thick Jungle. The Jungles at the top of hills are virgin while those of the slopes are regenerated because of slash and burn cultivation practised by the Juangs and other communities, like Pano and Gauda who reside in the region. The thick forests around the villages were once a veritable sources of tubers, roots, leaves and wild fruits which form parts of the diet for the Juangs. However, most of the Jungle in the hill-slopes has been completely denuded due to continuous practice of shifting cultivation. Hence, no forest worth mentioning is existing except shrub Jungles, regenerated in the abandoned swiddens on the hill slopes.

The tribal people in the area traditionally used to collect various items of minor forest produces, like *kendu leaves, siali leaves,* broom-sticks, medicinal herbs, honey, resins, myrobalan, *mohua flower,* seeds of mahua, tamarind, *sal, karanja* and kusum etc. These items are sold in the weekly markets. In course of time most of these items have vanished because of deforestation and only mahua flower and seeds are reported to have been collected by the Juangs. Besides, wild mango and jack fruits are collected for own consumption and also for sale. Seeds of jack fruit and Mango kernels are preserved after drying for use as food-material during the lean period. For construction of their dwelling houses, the Juangs collect materials, namely bamboo timber, grass and fibres for roofing from the Jungle. As most of the forests are declared as unreserved and village forests, the Forest Department generally do not object for the Juangs using the hill-slopes for shifting cultivation, gathering materials for house construction and collection of various types of minor forest produces for self-consumption and sale. In a way, though the forest supplies food and dwelling materials for the Juangs it does not contribute to any significant extent to the household economy of the Juangs because of the non-availability of important items of minor forest produces of commercial value.

The total geographical area of the project (J. D. A.) is 64143.69 hectares of which 34287.39 hectares are covered with forests constituting 53.45% of the total area. The important categories of forest species are mostly Asan, Arjun, Cashew, Karanja, Tamarind, jack-fruit, Neem, Mahul and Sal. The predominant wild life are elephant, barking deer, spotted deer, wild boar, leopard and hyena. Out of total forest area, an extent of 1220 acres come under village forest. The villagewise area covered by village forest is indicated in Table V. I. The Juangs depend on the forest to a large extent for their livelihood as mentioned earlier. There is a symbiotic relationship between the tribals and the forest.

The age-old practice of shifting cultivation which has adverse effects not only on the environment but also ruins the soil on which the tribal depend for their survival. The reasons for practising shifting cultivation as enumerated through field study indicate that –

The tribals are bound to practise shifting cultivation as they have not adopted viable alternative economic persuits, although they are aware of not receiving adequate earning from shifting cultivation and not able to supplement it by other subsidiary occupations.

The tribal people may be persuaded to give up the pernicious practice by providing assistance and encouragement for adoption of viable alternatives.

The effects of shifting cultivation consists of rapid soil-erosion, degradation of top soil in addition to loss of natural resources. As per the information from the Special Officer, Juang Dev. Agency, Gonasika almost all families of Juang-pirh area were shifting cultivators. In order to wean them away from shifting cultivation, Podu Preventation Programme was introduced with the assistance provided by the Government of India in the year 1989. Under this scheme, a massive plantation programme has been undertaken.

The villagewise plantation programme undertaken in the J. D. A. area is furnished in Table V. 3.

Though the progress of plantation programme has been generally good and the coverage is quite vast, their impact on shifting cultivation or on the economic upliftment of the Juang has not been impressive. The Podu Prevantation Scheme was, therefore, discontinued during the year 1992.

In a Techno-economic survey conducted with the help of the experts of the different departments in Kutia Kondh areas of Belghar in Phulbani district, it has been suggested to introduce Agro-Forestry Schemes (SALT) in the project area. A similar programme is also suggested for the J. D. A. so as to supplement the efforts of the other departments for ensuring speedy rehabilitation of the Juangs.

SALT (SLOPING AGRICULTURAL LAND TECHNOLOGY)

Keeping in view the over all geographical and Agro-climatic condition the Agro-Forestry practices commonly known as 'SALT' (Sloping Agricultural Land Technology) has been suggested in the same line for speedy rehabilitation of shifting cultivators. This technology has been approved by the Indian Council of Agriculture Research, New-Delhi, who has recommended to introduce this technology in tribal areas of Orissa where large scale podu cultivation is still in vogue. The SALT will not only provide the tribal people with a simple low-cost and dependable alternative to podu cultivation but also to ensure restoration of the damage to the environment as quickly as possible. To begin with, this technology should be introduced on selected areas on demonstration plots on experimental basis without affecting any of the on-going schemes. This technology for the present may be treated as supplementary and may be extended further to cover the entire area after the tribal people are convinced of its success.

'SALT' is a simple applicable low cost and timely method of farming the uplands. This technology was developed for farmers with few tools, small capital and little learning in agriculture. A family can easily integrate his traditional farming practices in the SALT system without sacrificing his basic beliefs and ego. If farmers leave the 'SALT' farm as shifting cultivators practice in shifting cultivation, the nitrogen fixing trees already put in the area will continue to grow and overshadow the crop area. By the time the land is reverted to shifting cultivation, the soil would have already been enriched by the large quantity of leaves from the nitrogen fixing trees and consequently there would be no soil erosion because of the contour bunding already done. In addition, the trees may be used for firewood or charcoal as additional source of income. Experiment of the technology in the Philipines has been proved that the crops yield in such land is at least 50% higher than in traditional farming of the shifting cultivators. There are different stages of SALT technology as indicated below.

SALT–1 (Sloping agricultural land technology)

This technology is an agro-froestry technology with agricultural and forest crops at a percentage ratio of 75 : 25. The experience shows that, this technology can help to reduce soil erosion by four times, increase crop yield by five times and income by six times. This technology can be applied to land with gentle slopes where agriculture can be practised with minimal anti-erosion methods, by planting nitrogen fixing trees.

SALT–2 (Simple Agro-living stock technology)

This technology is goat-based agro-forestry with land use up to 40% for agriculture, 20% for forestry and 40% for live-stock.

This technology, minimises soil erosion, improves soil fertility and provides a regular income to the podu cultivating families. This takes care of uplands and hill-slopes. The hill-people badly need food, wood and animal products like meat and milk can supplement the family income.

SALT–3 (Sustainable Agro-forest land technology)

This technology is a small-scale reforestation integrated with food production. The farm is devoted to about 40% agriculture and 60% forestry. This "Food Wood" inter-cropping as experimented in Philipines

shows that, it can effectively conserve the soil, there by providing abundant food, wood and income to the hilly land farmers. Deforestation, soil erosion and inappropriate farming technologies are the three major causes of low-farm productivity and therefore the manifold poverty in the uplands. Agro-forestry is therefore becoming one of the sustainable alternatives for sufficient food production and income generation for the hill areas. This technology can only be taken up in steep slopes where the tribals practise podu in the absence of any other alternative.

The important objectives of the schemes are (a) Implementation of suitable SALT technology (SALT 1, 2 and 3) in the hilly land which has been depleted of the vegetation and suscepible to severe soil erosion in the process of shifting cultivation. (b) Demonstration of suitable SALT techniques in different localities on farmers' land and also Government land where farmers' land are not readily available, (c) Employment of the villagers mostly the shifting cultivators, on their own land or on neighbouring Government land in order to ensure that they get a decent wage while learning the techniques and also get the fruit of labour after successful implementation of this technique, in no case induction of outside labour should be permitted, (d) Each demonstration plot should be incharge of one person or family so that, involvement is total and manpower and financial requirement can be assessed correctly, (e) Demonstration plots will be converted into production units of the village after two years, when each plot is expected to provide sufficient income for an average family, (f) Extension and awareness education shall be provided side by side so as to ensure that, the tribal people are able to derive maximum benefit which induce them to adopt the new technique, (g) Colaboration with the Social Forestry Directorate and Orissa University of Agriculture and Technology for providing guidance including deputing of extension staff (Forest Extension Officer), simple tools, seeds and other inputs required for the demonstration plots.

Plan of Implementation

(I) Selection of sites for demonstration plots

According to the survey, the Juang Dev. Project area comprises 31 villages in 6 Gramapanchayats, namely Gonasika, Kodipasa, Kunar, Bayakumutia, Suakati, Talachampei with distribution of households as under :

(a) Villages with 50 or more households = 10

(b) Villages with 25 to 49 households = 17

(c) Villages with 5 to 24 households = 4

It is proposed to set up SALT demonstration plots in all the villages in course of the next five years, so as to cover the entire project area in the coming five years. Before beginning of the programme, the following exercises are to be made (i) Scrutiny and approval of the scheme (ii) Provision of funds (iii) Selection and Deployment of Extension Officers (iv) Preliminary works like survey and selection of sites, selection of beneficiaries etc.

The funding of the scheme and control of the staff should be directly under the micro-project in order to ensure that, there is proper co-ordination and adequate supervision.

The demonstration plots will be of uniform size of 25 metres X 60 metres (1500 sft.metres or 0.15 hectare or 0.375 acre) each, which is considered to be handled easily and effectively by a single farmer and to provide enough resource for an average family when fully developed. It is proposed to set up such demonstration plots for different categories of villages as under :

(a) For category one, village with 50 or more households, Total 10 villages. — 3 demonstration plots for each village preferably one from each category of SALT Total 30 demonstration plots.

(b) For villages under category 2 with households 25 to 49. Total 17 villages. — One demonstration plot for each village the SALT category depending on the local condition. Total 17 demonstration plots.

(c) For villages under category 3 with 5 to 24 households, Total 4 villages. — One demonstration plot for every two contiguous villages of the category found most suitable for the area. Total 2 demonstration plots.

Thus a total number of 49 demonstration plots come to operation during the plan period. There will be at least one and half demonstration plots per village for the project area.

Estimated Cost of the Project

It has alredy been stated that, the scheme under 'SALT' will be of labour intensive where major emphasis will be given on engagement of the Juangs on daily wage basis either on his own land or on Government land for setting of a 'SALT' demonstration plot. One individual will be required to set up a standard size of demonstration plot that is 25 metres X 60 metres which will sustain him round the year. The plot is expected to be self sustaining in the fourth year, there by eliminating payment of daily wage. In very exceptional cases payment of wages may be given in the fourth and fifth year in a reduced number of days. This need not however be taken into consideration at this stage. Therefore, wages paid to the Juangs for setting of a standardised demonstration plot is calculated as under :

Ist year = 300 man days @ Rs. 25/- per man-day=Rs. 7,500.00, 2nd year=250 man-days @ Rs. 25/- per man-day=Rs. 6,250.00, 3rd year=150 man-days @ Rs. 25/- per man-day =Rs. 3,750.00. Total cost for one standardised SALT plot comes to Rs. 17,500.00 during a period of 3 years.

The cost of staff, i.e. one forest extension officer for the project area and two village forest workers, seeds and other inputs, simple tools for survey and contouring etc. has been taken at lump sum basis @ Rs. 50,000.00 per annum.

The total number of 'SALT' demonstration plots of different categories to be laid out as indicated before.

Thus, the total estimated expenditure on labour will be Rs. 17,500.00 X 49 = Rs. 8,57,500.00. Over-head expenditure on staff, supervision, seeds and other inputs, tools etc. for 8 years (One year prior to launching of the project, and two years after the last batch of demonstration plots are laid) @ Rs. 50,000.00 per annum as stated earlier comes to Rs. 4,00,000. Thus the total expenditure of Rs. 12,57,500.00 will be phased out as in the following statement :-

Financial year	No. of demonstration plots to be set up			Total No. of plots	Preliminary Expediture on staff, tools & inputs	1st year	2nd year	3rd year	4th year
	CAT. I Village	CAT. II Village	CAT. III Village						
1	2	3	4	5	6	7	8	9	10
1992-93	..	..	..	..	0.50	..	..	..	0.50
1993-94	6	4	1	11	0.50	0.83	..	..	1.33
1994-95	6	4	1	11	0.50	0.83	0.69	..	2.02
1995-96	6	4	..	10	0.50	0.75	0.63	0.38	2.26
1996-97	6	4	..	10	0.50	0.75	0.63	0.38	2.26
1997-98	6	1	.	7	0.50	0.53	0.54	0.36	1.73
1998-99	..	..	..	..	0.50	..	..	..	1.40
1999-2000	..	..	..	..	0.50	..	..	0.36	0.86
	30	17	2	49	4.00	3.69	3.03	1.84	12.56

Requirement of staff

One forest extension officer and two village forest workers are to be engaged in the project of SALT technology in the initial stage. This extension staff may be brought on deputation from the Directorate of Social Forestry under foreign service terms and conditions approved by the State Government. They should work under the direct control and supervision of special officer, J. D. A. Their salaries and other allowances will be borne by the project. All the field work will be labour oriented and the execution of work will be exclusively done by the Agency and the beneficiaries will be the Juangs only. After execution of 'SALT' programme at least for two years, the requirement of additional staff will be reviewed when the number of demonstration plots increased.

Equipments and Inputs

Simple tools and equipments required for field contouring and survey etc. can be purchased out of the funds provided under the scheme.

Inputs such as seeds of fast-growing nitrogen fixing tree species, improved varieties of agricultural crops etc. can be purchased out of the fund provided in the estimates.

Technical Collaboration and Supervision

Since these technology is being introduced for the first time, it is absolutely necessary to keep close collaboration and liasion with the concerned authorities of the Directorate of Social Forestry and of the Orissa University of Agriculture and Technology. It is understood that the University of Agriculture and Technology has experts specially trained in this technology and Forestry Science. The teaching faculty have also gained experience by visiting Philipines to study the SALT techniques. It is, therefore, proposed to take all possible guidance from the OUAT before launching of this programme by the concerned project.

TABLE-V. 1.1

Break up of the Forest Area

Sl. No.	Name of the village	Reserved forest	Proposed reserved forest	Village forest (APPX ACs.)	Any other type
1	2	3	4	5	6
1	Gonasika	..	..	30	
2	Guptaganga	..	..	110	
3	Kadalibadi	..	..	75	
4	Baitarani	..	..	50	
5	Jantari	..	..	200	
6	Sinkulapada	..	..	40	
7	Mundula	..	..	20	
8	Bayakumutia	..	..	30	
9	Bayapandahar	..	..	20	
10	Talkanipur	..	..	35	
11	Lunaghar	..	..	40	
12	Mamlapasi	..	..	20	
13	Kasada	..	..	40	
14	Baitarani (B)	..	..	30	
15	Lata	..	..	50	
16	Khajuridiha	..	..	30	
17	Panasanasa	..	..	40	
18	Tangarpada	..	..	50	
19	Nippa	..	..	30	
20	Talpada	..	..	25	
21	Kanthadas	..	..	..	
22	Budhighar	..	..	40	
23	Hatisila	..	..	60	
24	Bali	..	..	50	
25	Upper Raidiha	..	..	20	
26	Phulbadi	..	..	50	
	Total		..	1220	

TABLE V . 1.2

Break up of the Forest Area

Sl. No.	Name of the village	R. F.	P. R. F.	Village forest	Any other type
1	2	3	4	5	6
1	Baitarani	..	Gonasika, DPF.		
2	Nadam	..	Khajuribani, DPF.		
3	Hatisila	..	Renda, DPF		
4	Saria	..	Khajuribani		
5	Phulbadi	..	Renda		
6	Upper Bali	..	Do.		
7	Tala Bali	..	Do.		
8	Upper Raidiha	..	Khajuribani		
9	Guptaganga	..	Gonasika		
10	Jantari	..	Khajuribani		
11	Tala Raidiha	..	Do.		
12	Gonasika	..	Gonasika, DPF		
13	Kadalibadi	..	Do.		
14	Kaptadiha	..	Khajuribani, DPF		
15	Tangarpada	..	Do.		
16	Dumuria	..	Do.		
17	Kundhei	..	Do.		
18	Ghungi	..	Do.		
19	Duarsuni	..	Champei, DPF		
20	Tala Sumatha	..	Do.		
21	Upper Sumatha	..	Do.		
22	Tala Panasanasa	..	Renda, DPF		
23	Upper Panasanasa	..	Do.		
24	Talapada	..	Kanjipani, DPF		
25	Kanjipani	..	Do.		
26	Upper Champei	..	Champei, DPF		
27	Budhighar	..	Kanjipani		
28	Bayakumutia	Mundula, DPF.	..		
29	Bayapandadhar	Pandadai Bayakumutia	..		
30	Toranipani	..	Champei, DPF		
31	Rimulighati	..	Suakati, DPF		
32	Tala Champei	..	Do.		

TABLE V. 1. 3

Development Programmes Already Executed

Sl. No.	Name of the village	Programmes executed				Programme to be executed			
		Target		Achievement		Target		Achievement	
		Financial	Physical	Financial	Physical	Financial	Physical	Financial	Physical
1	2	3	4	5	6	7	8	9	10
1	Baitarani	2.08	24 ha.	0.41	24 ha.				
2	Nadam	1.20	40 ha.	1.62	40 ha.				
3	Hatisila	0.30	10 ha.	0.35	10 ha.				
4	Saria	1.47	30 ha.	1.00	30 ha.				
5	Bali	0.51	15 ha.	0.65	15 ha.				
6	Tala Bali	..	..	..	..				
7	Phulbadi	..	..	..	..				
8	Raidiha	..	..	..	..				
9	Guptaganga	..	..	..	..				
10	Jantari	..	..	..	..				
11	Tala Raidiha	..	..	..	..				
12	Gonasika	1.91	22 ha.	0.40	22 ha.				
13	Kadalibadi	2.09	24 ha.	0.72	24 ha.				
14	Kaptadiha	0.68	20 ha.	0.58	20 ha.				
15	Tangarpada	3.29	50 ha.	0.91	50 ha.				
16	Dumuria	0.35	10 ha.	0.39	10 ha.				
17	Kundhei	..	..	..	..				
18	Ghungi	..	..	..	..				
19	Duarsuni	..	..	..	..				
20	Tala Sumatha	..	..	..	..				
21	Upper Sumatha	..	..	..	..				
22	Panasanasa	5.18	90 ha.	3.50	90 ha.				
23	Talapada	2.40	55 ha.	1.95	55 ha.				
24	Kanjipani	1.70	50 ha.	1.82	50 ha.				
25	Upper Champei	2.25	35 ha.	1.08	35 ha.				
26	Budhighar	1.74	20 ha.	0.32	20 ha.				
27	Bayapandadhar	0.68	20 ha.	0.76	20 ha.				
28	Toranipani	..	..	..	..				
29	Rimulighati	..	..	..	..				
30	Tala Champei	..	..	..	..				

TABLE V. 1.4

Soil Conservation Measures Already Executed
Both Under Podu Prevention and Normal Programme

Sl. No.	Name & location of the project	Type of S.C. measures	Target		Achievement	
			Phy.	Finan.	Phy.	Finan.
1	2	3	4	5	6	7
1	Gonasika	Sisal	105 Acs.	1,27,120/-	105 Acs.	1,27,120/-
2	Talapada	Sisal	10 Acs.			
3	Raidiha	Do.	110 Acs.			
4	Toranipani	Do.	70 Acs.	6,28,000/-	250 Acs.	2,28,000/-
5	Jantari	Do.	60 Acs.			
6	Gonasika	Maint. of Sisal	142 ha.	1,50,000/-	42 ha.	1,50,000/-
7	Tangarpada	L. D. Work	18 ha.	67,470/-	18 ha.	67,470/-
8	Kanjipani	Do.	2.7 ha.	10,230/-	2.7 ha.	10,230/-
9	Rimulighati	Do.	9.92 ha.	37,225/-	9.92 ha.	37,225/-

V . 2. Soil Conservation

The Juangs, dwell in remote villages located on foot hills, table land and in the platues of Juang-pirh hill ranges. In the Agency area the problem of soil erosion is very acute. Continuous exploitation of forests, over grazing and shifting cultivation have exposed the undulating land surface to the eroding and beating actions of wind, rain and sun gradually, rendering it unfit for cultivation. There are vast streches of denuded waste land, which need conservation. The agricultural land, particularly the uplands, are subjected to erosion hazards in the form of silt erosion and silt formation. In the worst cases, numerous gullies are developed which not only carry away a lot of soil & silt but also in some cases, the actual land is washed down in to the river and goes out of cultivation for all time to come. The major portion of the project area falls within the catchment of Baitarani river and it is necessary to control erosion and to reduce flow of silt load in to this river. The soil is poor to begin with and when exposed to the vagaries of weather and natural process, it is quickly exhausted of plant nutrients. It is therefore, necessary to focus immediate attention to arrest further soil erosion by suitable soil conservation method and increase the agricultural productivity by conserving soil fertility and adopting dry land farming practices.

The physiography condition of the area is much complex rendering the terrain extremely undulating. Depending on the conspicuous difference in topography and environmental conditions, the whole area can be divided into two broad physiographic units i.e., (a) Sedentary land scape in eroded phase (Hill, hill slope, pediment & ridge), (b) Sedentary land scape in depositional phase. According to the topography, physical condition and the present land use pattern, the whole project area can be subdivided into different physiographic units as per the details given below :-

Table No. V. 1.4

Physiographic unit	Physiognomic unit	Land type	Sub-land type	Present land use
1 Hill	..	..	..	(a) Without vegetation (shifting cultivated area)
				(b) With thin forest
2 Pediment	..	..	..	(a) With thin forest
				(b) Barren
				(c) Without vegetation (shifting cultivated area)
3 Ridge	Ridge-top	Upland	Unbunded	(a) With shrub jungle
	(Ridge slope)	..	upland (Bunded upland)	
	(Ridge)	..	bunds	(b) under cultivation
	Slope	..	upland	(a) Cultivation
				(b) Fallow
4. Valley	Valley top.	medium land dry	Bunded medium land	.. ..
	Valley slope.	low land dry	Bunded low land	.. ..
	Valley bottom	low land	Bunded low land	.. ..

The general slope of the region is from south-west to north-east. The region is drained by the Tondijore nallah, a tributary of river Baitarani which originates from the hills of Gonasika village and flows towards the north-east fed by number of semi-perennial streams from both right and left side & finally merges to Baitarani river. The area is excessively drained due to hilly terrain. The drainage pattern is dendritic. The entire Bansapal block is drained by a number of small streams which are the tributaries of Baitarani river. Being a part of the northern extension of the decan plateau, the area is mostly under lained pre-cambrian rocks. A very small percentage of the total area of this district is constituted of the quarternary to recent formations.

The oldest rock unity exposed in this area comprise mica, sillimanite, hornblande chlorite and quartzschist with some calc-magnessian gnesses and metavolcanic rocks grouped together in the Older Metamorphics. Detailed soil survey of the project area was done by using village cadestral map of scale 16"= 1 mile as base map. In general, four types of soil are met in the project area according to physiographic position. Soils of the pediment slope are generally sand loam to grevelly sandyloam with moderate to shallow depth and slope of land varies from 2 to 55%. These soils are excessively drained and highly eroded. The upland which are put under minor millets, upland paddy etc. having surface texure of sandy clay loam with moderate depth and slope varies from 3 to 5%. The uplands are generally of very low fertility status as they are cultivated without proper bunding or terracing. The medium lands have been well terraced and put under medium variety of paddy having surface texure of sandy clay loam. In the valley bottom, land surface texure is clay loam to silty clay loam.

The climate of the area is sub-tropical monsonic type with mild hot summer from March to May hitting cold winter from December to February and rainy season between June to September. The mini-watershed area receives plenty of rainfall during the monsoon months (June to September) after which the rain tails off and comes to a stop. The winter rain appears to be scanty as well as uncertain.Occasional summer showers associated with thunder storm experienced during summer months. The average rainfall of the project areas is 1712.40 mm. with 87 number of rainy days (Average).

The Project area is situated at an elevation of 714 m. above mean sea level. December is the coldest month of the year with minimum temperature of 11.70 C. The average maximum temperature in the month of May is 38.2C. The relative humidity percentage in the month of August is 83% in the morning whereas 81% in the evening.

Past Soil conservation measures

Soil conservation measures were taken up in the Project area by the Juang Development Agency since its inception from 1978 to March 1991 are as follows :-

Land Reclamation & Land Development

(a) An amount of Rs. 1,55,713.00 was utilised under land reclamation and development programme. 435 Acres of land were provided to 235 Juang landless beneficiaries after reclaiming the land.

(b) An amount of Rs. 3,41,400.00 was utilised for construction of water harvesting structures in the Project area for irrigation purpose.

Likewise under programmes for control of shifting cultivation, a massive amount of Rs. 25,21,000.00 was utlised by constructing 7 numbers of water harvesting structures raising of sisal nursery over an area of 80 hectares and land development programme over an area of 40 hectares. Under W. H. S. it has been stated by the project authority that 40 hectares of land were provided with irrigation facilities by constructing seven W. H. Ss. All these soil conservation measures were executed by Soil Conservation Department of Keonjhar range.

Programme for Soil & Water Conservation

The primary objective of soil & water conservation project is to minimise soil erosion, land degradation, vegetative denudation, shifting cultivation and restoring the environmental equlibrium and increasing

productivity of the land. It is evident that, the whole of the Project area is affected by shifting cultivation. Besides, the village forest area being ravaged by the practice of shifting cultivation, certain other revenue lands (Waste land) are also affected by shifting cultivation. This area contributes maximum sediments by erosion and also the soil fertility is lost as a result of which productivity power in the agricultural land diminishes. From the land use pattern it is ascertained that, the total cultivable waste land is 4004.83 hectares. Almost every area is cultivated but unbunded lands are subject to severe sheet, rill and moderate Gully erosion. These cultivable waste lands need to be bunded and levelled for better in situ grain and water management.

Gully erosion

In most of the deforested lands gullies have appeared and unless measures are taken it will advance further. Gully-erosion contributes maximum sediments to the streams and takes out of cultivation. To prevent Gully appearing at the foot hills, due to concentrated flow of run off, diversion weirs with safe disposal facilities need to be provided.

Stream bank erosion

There are large number of streams which emerge from the hills and, banks on eitherside are subject to erosion. Since the stream originate from the hills, flash-flood appears frequently. This results disruption in communication and loss of good cultivated land. It is therefore, necessary to control flow of water of the hill streams in order to check the flash-floods and quick soil erosion.

Management of Undulating & slope lands

The entire project area is hilly, extremely slopy and undulating. The slopes are also multi-directional which causes great difficulty in water management. Minor Irrigation Projects can't taken up due to difficulties in water conveyance. Moreover, Minor Irrigation Projects will cause submergence of some good low land now being utlised for paddy cultivation.

Soil treatment

It is a fact,that due to heavy monsonic rain and leaking out of calcarious like calcium and magnesium, the soils have become acidic. This brings about various imbalances in soil acidity which needs to be neutralised. About 5000 hectares of cultivated land need to be treated with suitable soil treatment and by increasing organic matter through green manuring composting and farm yard manures etc.

Water Harvesting Structure

It is evident from the information stated earlier that there is very little scope of providing flow irrigation through Minor Irrigation Projects. It is therefore, thought of to harness the small perennial streams by constructing a low cost water harvesting structure in the primary and secondary streams and gulliaes in the upper ridges. The water can be channelised to the adjacent agricultural lands. These mini catchments should also be protected by plantation and other measures.

Dry Land Farming

Due to eratic monsoons and difficult terrain, it is not possible to provide irrigation facilities to all the cultivated lands. Therefore, adoption of dry land farming technique for in situ management of rain water is needed.

Programmes under Soil Conservation & Water Management Measures

It has already been stated earlier that, massive soil erosion and denudation of forest are caused due to lack of proper management of soil & water conservation. To reduce the intensity of danger of erosion and for proper management of land & water resources, the following measures are suggested to be undertaken. The data collected from the Project Headquarters reveal that, out of total area of 4004.83 hectares of waste land only 174 hectares have already been developed and distributed among 235 landless farmers. Under Podu Prevention Scheme, 40 hectares have been covered under land development

programme. There are still large areas of cultivable waste land which can be developed and distributed among the landless Juang beneficiaries. It is proposed to develop 1000 hectars of this land by way of bunding and levelling. It is necessary to carry out micro-levelling as it will increase the water infilteration to the field. It has been calculated by the soil conservation organisation that, the per hectare expenditure will be Rs. 2,500.00. Thus, a total amount of Rs. 2500000.00 for this programme over a period of 5 years by taking 200 hectares per year is required. The yearwise physical target & financial requirement is as follows:–

Year	Physical target in Hect.	Financial requirement in Rs.
1	2	3
1st year	200	500000.00
2nd year	200	500000.00
3rd year	200	500000.00
4th year	200	500000.00
5th year	200	500000.00
Total	1000 Hect.	2500000.00

Gully control

The area is infested with Gullies particularly near high bank and foot hill area. It is proposed to construct 20 such gully control units in the project area during the project period. It has been estimated by the Soil Conservation Organisation that a sum of Rs. 25,000.00 will be required for construction of each Gully control unit though it will vary from one Gully control unit to other depending upon the volume of work. For construction of 20 Gully control units the total expenditure will be Rs. 5,00,000.00 which will be spread over 5 years as detailed below :–

Year	Physical target	Financial requirement in Rs.
1	2	3
1st year	4	100000.00
2nd year	4	100000.00
3rd year	4	100000.00
4th year	4	100000.00
5th year	4	100000.00
Total	20	500000.00

Water Harvesting Structure

The Project has already constructed a number of water harvesting structures in the project area by spending an amount of Rs. 8,41,000.00, since its inception.Though, all these water harvesting structures are functioning well, these require regular maintenance. Besides these, it is proposed to construct 15 number of new water harvesting structures during a span of 5 year period. Each W. H. S. will cost Rs. 25,000.00 approximately. Besides these, to maintain the existing project, a sum of Rs. 85,000.00 will be needed. The year-wise break-up of the programme is as follows :–

Break-up for water Harvesting Structure

Sl. No.	Programme	Amount required in Rs.					
		Ist year	2nd year	3rd year	4th year	5th year	Total
1	2	3	4	5	6	7	8
1	Water Harvesting Structure.	75000.00 (3)	75000.00 (3)	75000.00 (3)	75000.00 (3)	75000.00 (3)	375000.00 (15)
2	Maintenance of old Project.	17000.00	17000.00	17000.00	17000.00	17000.00	85000.00
	Total	92000.00	92000.00	92000.00	92000.00	92000.00	460000.00

Break-up for Irrigation Programme

Sl. No.	Name of the Programme	Amount required in Rs.					
		Ist year	2nd year	3rd year	4th year	5th year	Total
1	2	3	4	5	6	7	8
1	Soil & water conservation measures.	500000.00	500000.00	500000.00	500000.00	500000.00	2500000.00
2	Gully control	100000.00	100000.00	100000.00	100000.00	100000.00	500000.00
3	Water harvesting structure.	92000.00	92000.00	92000.00	92000.00	92000.00	460000.00
	Total	692000.00	692000.00	69200.00	692000.00	692000.00	3460000.00

V. 3. AGRICULTURE

The Juang economy is predominantly agro-forest-based and cultivation both settled and shifting is their main stay in the project area. Land is an important source of raising food and a few commercial crops for sustenance. Different types of land are used by them in cultivation because of the undulating nature of the terrain in which their villages are situated. Besides, using small stretches of valley land irrigated by hill streams in the valley bottoms for raising paddy and undulated patches along the foot hills, for millets, oil seeds etc. they heavily depend upon shifting cultivation on swiddens called taila land. In the area the land is divided into four broad categories i.e. (i) Bila or wet land (ii) Guda or up-land (iii) Taila, the shifting cultivation land (iv) Badi or Bakadi a kind of upland located around the homesread land or at the outskirt of the village site where maize, vegetables and mustards are normally grown.

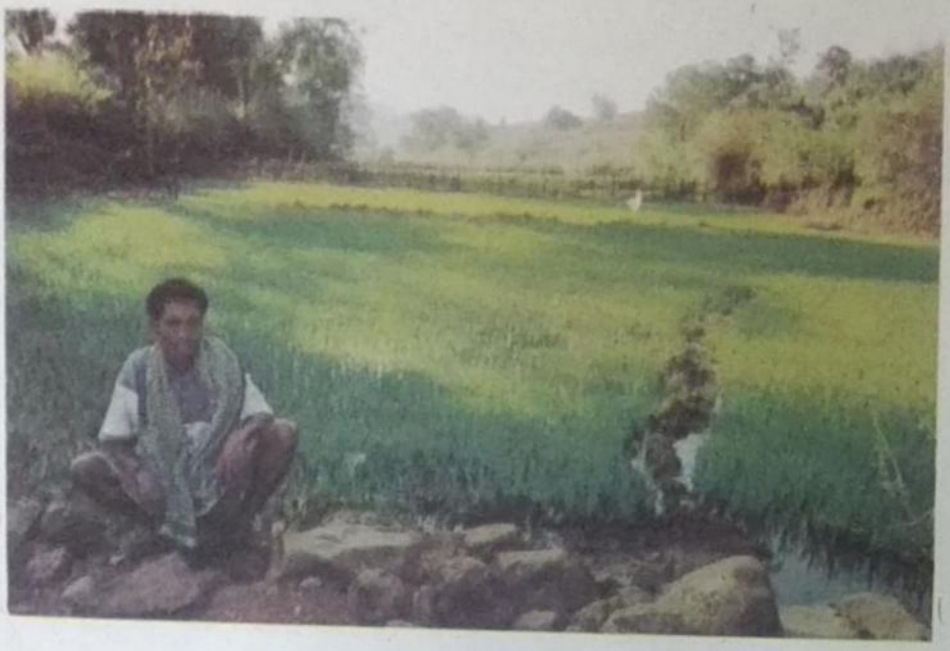
Taila is a communal property, owned by the entire village community. The villagers jointly select the patch every year and distribute the portions among the households according to their necessity and capacity depending upon the family size. A family having more adult members is allotted larger share than a family having less man power. Taila Chasa (Shifting cultivation) is a very labourious process, requiring hard labour in felling trees for making clearing. Every year new taila plot which has completed 6 to 8 years of fallow period and has regained fertility is selected for cultivation. In the first year, niger, blackgram, kulthi, beans etc., are sown. In the second year, short duration paddy, ragi and different kinds of vegetables are cultivated. Thereafter, the taila plot is kept fallow to recuperate if adequate yield is not received. If the plot retains some fertility, short-duration paddy is grown in the third year. This is locally called "Nala Chasa".

Guda or upland is situated at the foot hills i.e. at the lower level of taila land and upper level of Bila or low land, like taila it is commonly owned by the village community and allotted to the individual families according to their need. It is also cultivated for two years and left fallow for 4 to 5 years short duration. Paddy, maize and minor millets are grown in this type of land.

Bila or wet lands are located on valley bottoms, close to the hill streams along the line of natural drainage. These lands are reclaimed by the Juang farmers, some times terraced and made into convenient plots for wet cultivation of paddy and wheat, unlike taila and Guda lands, these lands are individually owned and can be inherited, sold and mortgaged.

As mentioned earlier, the Juang practise both shifting and settled cultivation depending upon availability of cultivable lands around their settlements. Shifting cultivation associated with primitive technology and inadequate scope for land development leads to low yield. Even in the settled cultivation, the crops are mostly rainfed and left to the vagaries of nature. A few tribals who irrigate their wet lands from the hill streams fall back on their traditional practice of constructing crude bunds across the hill streams and diverting water to the adjoining fields through contour. There has been no organised supply of required inputs till recently. They used to preserve their own seeds from the previous year and were quite ignorant about application of chemical fertilisers and pesticides to boost agricultural production. They were using organic manures to a limited extent. But after grounding of J.D. A. the situation changed to a great extent with the implementation of extensive programmes to modernise agriculture through conducting demonstration of high-yielding variety of crops in selected patches in the Juang villages and supplying different items of inputs like improved seeds, fertilisers, pesticides, plough bullocks and mordern agricultural implements. This is being done with a view to increase the yield and introduce multiple cropping wherever irrigation facilities are available.

With a view to expand the area under agriculture J. D. A. has taken up land development and land reclamation schemes in the Juang villages and soil conservation measures have been adopted to increase fertility and productivity of soil. These developed lands have been provided to the Juang households who are mostly landless and marginal farmers. It is reported by the J. D. A. that so far 437 acres of reclaimed



A Juang man in paddy field

Wheat Cultivation

land have been provided to 235 landless Juang beneficaries by spending Rs. 1,55,713.65. Although this is a good achievement, the Agency should try to reclaim more lands to allot the same among the landless Juang households.

Besides lands, for inputs like seeds, fertiliser and pesticides, a sum of Rs. 607,785.94 has been spent to supply the same to 1058 households. Apart from developed land and inputs, 1097 sets of improved agricultural implements have been supplied to the same number of Juang households which involved an expenditure of Rs. 213,869.74. In addition to these, 658 pairs of plough bullocks have been supplied to 658 Juang beneficiaries for which a sum of Rs. 7,46,086.00 has been utilised. Under podu prevention programme, a sum of Rs. 39.69 lakhs has been provided and the same has been utilised to provide input assistance to 1206 families including the Juang inhabiting in 24 villages for cultivation of 2547 acres of land. Programmes for improvement of agriculture launched by J. D. A. has brought a remarkable change in the method, practice and technology associated with agriculture. Formerly, their technology was primitive and traditional. They were using primitive implements like hoe, axe, wooden plough etc., and following traditional breadcasting method. Now they have addopted modern techniques like raising of seedlings and trasplantation of crops in irrigated wet lands. Though, organic manure is predominantly applied in wetland paddy, it is now applied to other crops in small quantities. Chemical fertilisers and pesticides are applied by the progressive farmers for growing paddy, wheat and groundnut. Thus, there is introduction of application of chemical fertilisers and pesticides for growing crops like wheat and vegetables by the Juang farmers which help them in raising multiple crops in the ayacut area of the irrigation projects. Distribution of plough bullocks have also increased the use of these drought animals in agricultural operation. The local dwarf variety of bullocks supplied by the J. D. A. are ideally suited for ploughing the taila and guda lands on the hill slopes, which have replaced the traditional hoe and reduced the engagement of human labour in hoe cultivation. Inspite of various measures taken by the Department of Agriculture and the special projects like Micro Project, I.T. D. A. & D. R. D. A., result of total output and adoptability of improved varieties of crops still lag behind to bring the Juangs towards optimum level of an ideal agriculturist. An assessment of present position of agriculture in the study area, its problems and potentiallities indicate that the present pattern of agriculture needs to be changed for its improvement. This is necessary in order to make the optimum possible use of land to bring about economic development in the area. As the net area sown can't be expanded, much importance is to be given to cover more areas under intensive cultivation using HYV of paddy, hybrid maize, groundnut, mustard, niger and other cash crops which would increase the production as well as their economic upliftment.

The information on "Area under different category of land" in the project area, under different crops given in Table V. 3.4. reveals that, out of the total cultivated land of 3841.73 hectares, which include upland, medium land and low land, paddy is grown in 2660.00 hectares, maize in 695 hectares, mustard in 637 hectares, niger in 839 hectares and other crops in 499 hectares of land. Table V. 3.4. which deals with the cropping pattern in different villages of the project area indicates that paddy is the most popular crop followed by niger, maize and mustard. It is interesting to note that, even after the execution of the Micro project, 14 years back and extending all possible assistance under agricultural sector, neither wheat nor groundnut have been extensively grown so far, though a small portion of land have been utilised in Gonasika, Tala Raidiha, Jantari, Talabaruda and Kadalibadi villages by the Juang Development Agency. Likewise introduction of potato and improved varieties of maize have also been introduced in a low scale with the assistance of the J. D. A. It is evident from the cropping pattern in the project area that paddy is the main food crop traditionally raised by the Juang on strips of plain lands on either side of the hillstreams utilising the stream water for irrigation. Paddy is also grown either as a single crop on unirrigated plain land and plots of second year Taila land or as a mixed crop, along with jowar, maize, arhar and millets. Niger is grown exclusively on the 1st year taila land while mustard and maize are grown in the unirrigated plain stretches on the hill-slopes and foot-hills around the Juang villages. However, after the instalation of lift irrigation points, as indicated earlier, some Juang households of Jantari and Tala Raidiha have started raising HYV crops like wheat, vegetables under irrigated conditions using chemical fertilisers and pesticides supplied to

them by the J. D. A. While food crops like paddy, maize, wheat and vegetables are used for self-consumption, oil seeds like niger, mustard and part of vegetables are either sold or exchanged in the market.

As mentioned earlier the Juangs subsist on crops raised on small extent of land using traditional implements. Their technology is very simple and primitive such as, ploughing the land with traditional wooden plough and hoe, traditional broad casting method, local varieties of crops and little use of both organic and chemical fertiliser. However, some of them have adopted modern techniques of transplantation of crops like paddy under irrigated condition by raising nurseries under the hill streams. Chemical fertilisers & pesticides are used up to a negligible proportion in comparision to the use of organic manures. For dry crops, chemical fertilisers is scarcely used. Inspite of all these adverse conditions, the Juangs have started the use of chemical fertilisers & pesticides in crops like wheat and vegetables in considerable quantities after the establishment of L.I. points in some villages. Utilisation of bullock as drought animal has also increased concfsiderably because of supply of plough bullocks in a large scale among the Juangs by various development agencies during the last one decade or so. The Juangs have replaced the use of hoe with plough bullocks on the taila lands and the dwarf variety of bullocks reared and used earlier in cultivation are rarely used. Various agencies have supplied drought animals ideally suited for agricultural operations in the hill slopes. Expansion of bullock labours have resulted in considerable reduction in the engagement of human labour. As the Juangs employ, traditional method of exchanging human labour^ for various agricultural operations, helping on each others lands, a very low proportion of wage-labourer is found.

The basic information under agricultural programme furnished by the District Agriculture Office are reflected here:—

(a)	Total cultivable land	=	3841.73	hectares
(b)	Upland	=	2194.75	hectares
(c)	Medium land	=	1159.98	hectares
(d)	Lowland	=	481.00	hectares
(e)	Cultivable waste land	=	3299.86	hectares
(f)	Uncultivable land	=	66.02	hectares
(g)	Pasture	=	164.86	hectares
(h)	Rakhit Anabadi	=	1771.59	hectares

As per cropping pattern there are two distinct cropping seasons in this region namely, Kharif and Rabi. In Kharif season cereals like paddy, maize and millets like ragi, suan, koda, Jowar, etc. and pulses like arhar, blackgram are grown. In Rabi season dalua paddy, green gram, blackgram, oil seeds like mustard and niger are grown extensively. After introduction of various agricultural programmes by the J. D. A., HYV paddy, wheat & ground-nut are also taken up by the Juangs. Previously paddy was the only crop grown in wet land once in a year. But after introduction of improved methods of cultivation like HYV seeds, fertilisers, improved agricultural implements, the Juangs have started growing double crops in the limited area where irrigation facility is available. The average yield per acre of different varieties of crops like paddy, maize, arhar, etc. is shown in Table V. 3.3.

The survey of all Juang households conducted for the purpose has revealed the following pattern of landholding :

(a)	Total surveyed households	=	1320 (100.00%)
(b)	Total landless households	=	625 (47.35%)
(c)	Households having within one acre of land	=	313 (23.71%)
(d)	Households having 1.1 to 2.5 acres of land.	=	207 (15.68%)
(e)	Households having 2.6 to 5.0 acres of land.	=	97 (7.35%)
(f)	Households having 5.1 to 7.5 acres of land.	=	52 (3.94%)
(g)	Households having land more than 7.5 acres	=	26 (1.97%)

AGRICULTURAL PROGRAMMES

It is estimated that the food requirement of the Juangs to attain self-sufficiency for coming 5 years will be as follows :

The population as per the survey is 5,450

The population will be increased by 20% by 1991 A. D. i.e., 5450+1090=6540

So the adult equivalent is 6540 x $\frac{88}{100}$ = 5758 or 5760

(1) Requirement of food grains :-

Requirement of cereals per adult per year is 198.7 kgs. Annual requirement 198.7 kgs.x5760=11.44 tons, 25% representing seed, wastage and for emergency requirement. Thus the total requirement will be 11.44+2.86=14.30 tons.

(2) Requirement of pulses :-

Requirement of pulses per adult per year is 31 kgs.

Annual requirement will be 31 kgs.x5760=178 tons. 25% of pulses on seed, wastage & emergency requirement will be 45 tons. Thus the total requiremnent comes to 178+45=323 tons.

(3) Requirement of oil seeds :–

Requirement of oil seeds per adult per year is =42 kgs. The Annual requirement will be 42 kgs.x5760=241 tons. 25% representing requirement of seeds, wastage and emergency requirement will be =60 tons. Thus the total requirement of the oil seeds will be 241+60=301 or 300 tons.

If, inputs like high-yielding varieties of seeds and chemical fertilisers are provideed with a package of practices, there will be no difficulties in producing these requirements to face the demands of the Juang in the coming years.

As indicated earlier, the Juangs are primarily shifting cultivators and a large chunk of area is being utilised for shifting cultivation in a rotation manner. It is estimated that, approximately an area of 1309.1 hectares is covered under shifting cultivation both by Juangs and other communities. The villagewise coverage of land under shifting cultivation is shown as detailed below.

1.	Baya Kumutia	..	81.66
2.	Baitarani	..	21.46
3.	Budhighar	..	26.79
4.	Bali	..	61.42
5.	Duarasuni	..	43.85
6.	Dumuria	..	16.37
7.	Ghungi	..	21.03
8.	Gonasika	..	35.57
9.	Golabondha-Raidiha	..	34.44
10.	Hatisila	..	21.99
11.	Jantari	..	23.99
12.	Kundhei	..	45.92
13.	Kadalibadi	..	29.88
14.	Kanjipani	..	81.24
15.	Kaptadiha	..	330.53
16.	Pandadhar	..	90.43
17.	Phulbadi	..	16.50
18.	Panasanasa	..	353.80
19.	Raidiha	..	9.04
20.	Saria	..	43.68
21.	Talachampei	..	26.25
22.	Tangarpada .	..	47.20
23.	Talasumatha	..	16.19
24.	Tala Baitarani	..	8.02
25.	Talapada	..	55.70
26.	Toranipani	..	11.34
27.	Upersumatha	..	29.39
28.	Uper champei	..	25.27
	Total		1,309.91 hectares

In order to wean away the Juangs from the practice of shifting cultivation, special scheme was in operation in this area through the I.T. D. A. Keonjhar.This scheme had taken up various programmes to attract the shifting cultivators for settled cultivation. The project report prepared for the said programmes was designed for 2000 Juang families with an outlay of rupees 6 crores. A total number of 48 villages were selected in three blocks namely Bansapal, Telkoi and Harichandanpur.The programme was executed from 1987 and was discontinued in the year 1990. A total sum of Rs. 2,10,30,000.00 was allotted and the entire amount was utilised under the following sectors :

Name of the sectors	Amount alloted in lakhs.	Amount utilised in lakhs.	Physical achievement
1	2	3	4
1. Communication	44.09	44.09	Improvement of four roads
2. Forest plantation	37.50	37.50	31 villages with 875 hectares: plantations of cashew, Neem, Tamarind, Mango, Jackfruit, Arjun, Ashan & Mahul.
3. Horticultural plantation	25.00	25.00	27 villages with 291 hectares covering 968 families.
4. Soil conservation	25.21	25.21	Seven number of water harvesting structures with an ayacut of 42 hectares, organising one sisal nursery on 80 hectares, land development on 40 hectares.
5. Irrigation	14.99	14.99	Two M. I. Ps.
6. Agriculture	39.69	39.69	Input assistance in Kharif, 24 villages with 1,206 beneficiaries on 2,547 acres. Demonstration of mustard on 502 acres with 800 beneficfaries. Wheat on 291 acres, Paddy on 162 acres.
7. Administration	23.82	23.82	Administrative charges etc.
Total . .	210.30	210.30	

The podu prevention scheme was discontinued and the families who were completely engaged in this scheme are now under difficulty for want of assistance. It is necessary that, the podu cultivators should be rehabilitated so that they will abandon podu cultivation and will take up regular settled cultivation of defferent crops for high production.

Action Plan for Agricultural Development

The Juang Development Agency as well as the I.T. D. A:, Keonjhar since their inception have taken up massive programme.under agricultural sector. Although twelve years have been passed the Juangs are not fully aware of the recent technology of agriculture practices in our State. They are some what in backward condition so far as agriculture is concerned and it is necessary that the recent technique of crop production should be known to them for higher production of diffrent crops. It has already been calculated earlier about the requirement of seeds and fertilisers projecting the population for 5 years. It is therefore, proposed to take up agricultural programme for the coming five years on the following items under agricultural sector–

1. Introduction of high yielding paddy and other cereals

2. Prevention of shifting cultivation

3. Training of farm families

4. Distribution of Agricultural Implements and other Inputs from a single point

5. Infrastructural Development Programme

1. Introduction of HYV Paddy

Paddy is grown in all the villages of the Project area. The area under paddy cultivation is about 2660 hectares both in Kharif and Rabi. The per acre production of Paddy has been calculated to be 25 quintals per hectares. So it is proposed to undertake demonstration on paddy crops in all 32 Juang villages of the agency taking at least one demonstration in each village. As the purpose of paddy demonstration is to provide the latest scientific know-how about paddy crops for adopting high-yielding varieties of paddy seeds with use of adequate quantity of fertiliser and plant protection measures as per the recommendation of the agricultural experts.

Coverage:

The area of each demonstration plot may be 0.5 hectare and the beneficiaries growing paddy more than half a hectare should be allotted for implementation. The inputs required for the demonstration and the cost thereof will be as follows :—

(a)	Paddy seeds (Hyvp) 31.25 Kgs.	Rs. 177.00
(b)	Seed treating chemicals for 31.25 Kgs.	Rs. 20.00
(c)	Fertilisers	Rs. 294.00
(d)	Pesticides (Thimet)	Rs. 262.50
(e)	Miscellaneous expenditure	Rs. 46.50
	Total	Rs. 800.00

For taking up 32 demonstration plot @ Rs. 800.00 for one demonstration plot in each village, the total cost will be Rs. 800x32=25,600.00 per year.

The expenditure under this programme for 5 years will be Rs. 25,600x5=Rs. 1,28,000.00

2. **Prevention of Shifting cultivation**

It has already been pointed out that, the major ocupation of Juangs, is podu cultivation. From podu cultivation, they get very less yield as compared to settled cultivation from different crops. The shifting cultivation is considered to be unscientific and no attention is given for adoption of the latest technology for growing different varieties of crops. So it is planned to rehabilitate the podu cultivators by providing input assistance for growing different crops in the lands available for the purpose. Thus, every year the podu cultivator will give up one forth of the land under podu (328 hectars) and in four years they will completely abandon podu cultivation and switch over for settled cultivation by adopting improved method of cultivation for various crops.

The detailed estimate of crops to be taken up for the podu practising families in Juang-Pirh area is given below for one year :– (P. 118) *

Detailed estimate of crops to be taken up by the Podu Rehabilitation of Gonasika J. D.A. area for 1993-1994

Name of the crop	Area in hectare	Seed in Quintal	Cost in Rs.	Fertiliser Quintal in Quintal	Cost In Rs.
1	2	3	4	5	6
Kharif					
Paddy	50	31.25	17,650.00	184.00	27,750.00
Maize	50	7.50	6,000.00	246.00	39,360.00
Ragi	50	5.00	2,220.00	76.00	13,000.00
Arhar	20	4.00	2,400.00	88.00	12,000.00
Niger	30	3.00	3,300.00	55.00	7,260.00
Total	200	50.75	31,570.00	649.00	99,370.00
Rabi					
Summer Paddy	72	45.00	25,426.00	354.24	54,692.00
Groundnut	30	37.50	39,375.00	108.42	14,157.00
Mustard	26	2.60	2,730.00	47.84	7,643.00
Total ..	128	85.10	67,531.00	510.50	76,492.00
G. Total ..	326	135.85	81,101.00	1,159.50	1,75,862.00

The introduction of this cropping pattern among the podu cultivators is aimed at to divert them from age old practice of shifting cultivation to regular settled cultivation by providing input assistance so that in the long run, they will be accustomed to adopt regular cultivation in a better and scientific way. An estimate has been made for one year both under Kharif and Rabi and the estimatedcost has been calculated to be Rs. 1,75,862.00, which will be continued for succeeding four years. The total requirement of funds for 4 years for control of shifting cultivation under agriculture sector will be Rs. 1,75,862.00 x 4=Rs.7,03,448.00.

3. **Training of Farm Families**

It is the primary objective of the agricultural experts to impart suitable training to the Juang Cultivators in order to be self-sufficient in different crops. They need be trained about the technical know-how of the recent technology for growing different varieties of crops. It is therefore, neccessary that, there should be training of farm families both males and females during agricultural operation seasons.

		Training Programme		
Name of the season	Number of training	Time & period	No. of Farm families to be trained	Amount required in Rs.
1	2	3	4	5
Kharif	2	June-July 3 days duration	40	10,800.00
Rabi	2	October-November 3 days duration	40	10,800.00
Total	4		80	21,600.00

For 5 years, the amount will be Rs. 21,600 x 5 =Rs. 1,08,000.00

4. **Distribution of agricultural implements**

Before distributing the agricultural implements it is necessary to divide the families into two categories according to their possession of land. From the survey, it has been ascertained that, there are 689 families having one acre or more up to 7.5 acres of land. It is proposed to give one mould board plough with handles costing Rs. 200.00 to families having a pair of bullock. The total amount required under this programme will be 689 x Rs. 200 = Rs. 1,37,800.00. The families will be distributed the agricultural implements in a phased manner as follows :—

Distribution of Agricultural Implements

Year	Distribution of Agriculture Implements	Cost in Rs.
1	2	3
1st year	200	40,000.00
2nd year	200	40,000.00
3rd year	100	20,000.00
4th year	100	20,000.00
5th year	89	17,800.00
Total	689	1,37,800.00

There are 625 landless families inhabiting in the Project area. They mostly carry on shifting cultivation and work as agricultural labourers for their livelihood. For these 625 families, a set of implements consisting of one trench hoe, one garden rake and rake-weeder amounting Rs. 150 is to be provided for doing cultivation in their backyard/ kitchen garden. The amount required for the purpose will be Rs. 93,750.00. The year-wise distribution of such implements to that 625 households is given below :—

Distribution of agricultural implements to landless families for cultivation in their back yard.

Year	No of families to be covered	Estimated cost in Rs.
1	2	3
1 st year	200	30,000.00
2nd year	200	30,000.00
3rd year	100	15,000.00
4th year	100	15,000.00
5th year	25	3,750.00
Total	625	93,750.00

5. **Staff Support & Infrastructural Development Programme**

During the field visit of the Project area, it was ascertained by the special officer J. D. A. that, none of the staff of agriculture deptt. have been posted to J. D. A. to execute the agricultural programme in the Project area. It is therefore, felt necessary to post one Junior Agriculture Officer exclusively for the Project work. Besides, some progressive youths of Juang Community may be posted as contact persons who would, after given a short course training programme on agriculture and horticulture sectors with remuneration of Rs. 750.00 P.M. It is suggested that one contact person will monitor at least 3 to 4 villages depending upon the size and dispersion of the village. It is calculated that, 10 such contact persons are needed with a total financial requirement of Rs. 7,500.00 P.M. for 5 years, the requirement of fund will be Rs. 7,500.00 x 60 = Rs. 4,50,000.00.

6. **Programme Management**

As the Juangs mainly depend on agriculture as their Primary occupation, the management of agricultural programmes is the vital task for the project. It is therefore, suggested that, there should be a single line of administration for the agriculture personnel posted at the Micro-Project level. The Project administrator of Keonjhar 1. T. D. A. and the special office of J. D. A. may look into the administrative aspect of the personnel and all the technical aspects concerning to various agricultural programmes should be chalked out by the Department of Agriculture in consultation with the Spl. Officer J. D. A. If all the programmes drawn up for agriculture sectors are meticulously followed and proper monitoring made, it would undoutedly bring economic upliftment of the Juangs.

The requirement of funds for the coming five years are as follows :—

Sl. No.	Name of the Programme	Amount required					
		1st year in Rs.	2nd year in Rs.	3rd year in Rs.	4th year in Rs.	5th year in Rs.	Total
1	2	3	4	5	6	7	8
1.	Dev. of high yielding paddy & other cereals.	25,600.00	25,600.00	25,600.00	25,600.00	25,600.00	1,28,000.00
2.	Prevention of Shifting cultivation	1,75,862.00	1,75,862.00	1,75,862.00	1,75,862.00		7,03,448.00
3.	Training of farm families	21,600.00	21,600.00	21,600.00	21,600.00	21,600.00	1,06,000.00
4.	Distribution of Agricultural Implements having 1 acre to 7.5 acres to 689 families.	40,000.00	40,000.00	20,000.00	20,000.00	17,800.00	1,37,800.00
5.	Distribution of Agricultural Implements to 625 families.	30,000.00	30,000.00	15,000.00	15,000.00	3,750.00	93,750.00
6.	Staff support and Agricultural development.	90,000.00	90,000.00	90,000.00	90,000.00	90,000.00	4,50,000.00
	Total ..	3,83,062.00	3,83,062.00	3,48,062.00	3,48,062.00	1,58,750.00	16,18,998.00

V. 4. HORTICULTURE

Cultivation of crops has many limitations. Development of improved agriculture depends on conditions like assured irrigation facility, good rainfall, favourable slope and fertile soil with scientific application of chemical fertilizer, pesticides and use of modern implements. Where all these favourable conditions are not available, agriculture may not be proved to be a profitable and dependable pursuit. All these conditions necessary for successful agricultural operations cannot be created over night and not all areas are endowed with such conditions. It may so happen that, the conditions prevailing in certain areas may be more congenial for horticulture, farm forestry and animal husbandry than for agriculture. This factor should be kept in view while deciding anything regarding land use for different regions.

In the Agency area, agriculture providing employment, to the majority workers is not yet profitable. The hill slopes where shifting cultivation is practised can be utilised for the development of horticulture. This will fetch more profit and a sustainable economy than the shifting cultivation in the swiddens and plain cultivation. The swiddens under second year cultivation should be taken up for horticultural plantation.

For this purpose before the end of first year of swidden cultivation, shifting cultivators should be encouraged to start developing orchard in the same patch. During later part of rainy season seedlings of jackfruit, papaya, mango, guava etc. should be planted in such patches where crops grown are then not harvested. By the time, the harvest of the crop is over, the horticultural plants should have come up to a stage of safe growth. A switch over from cultivation of paddy to plantation of fruit trees in the second year taila land will not only check soil erosion but also bring better return to the growers, leading to their economic improvement. Plantation of fruit bearing trees is a cultural tradition of the Juangs particularly those inhabiting in this Agency area. Naturally this innovation will be readily accepted by them. Under Podu Prevention Scheme and other normal programmes, horticultural plantation already done in the area as indicated in Table V. 4.1 are reported showing good results. The entire hilly regions of Banspal Block has good deposits of minerals. Many people are now working in mining belts of Joda and Barbil in the district. When the mines of the Gandhamardan hills adjacent to the Juangpirh area will be fully worked out, there will be large number of intruders from outside to this area. If horticultural plantations are taken up at the right moment, there will be a demand of fruits by these outsiders. In such a situation, the Juangs will not find it difficult to earn adequately by selling fruits in this industrial and mining belts.

In the Agency, the estimated area for shifting cultivation is 1300 Hects. Half of it i.e. 650 Hects. are under second year cultivation. The total population of Juangs in the project area is 5450 constituting about 1320 families. Thus the area per family per year roughly comes to 0.5 Hects. which can be utilised for growing fruit bearing trees under the proposed horticultural programme.

It is estimated that a sum of Rs. 3,674 will be required for mixed plantation programme over 0.5 Hect. of land. Requirement of plants to be distributed for every patch of 0.5 Hect. of land are as follows :–

1.	Banana	=	148	suckers
2.	Mango	=	9	seedlings
3.	Papaya	=	40	seedlings
4.	K. lime	=	28	seedlings
			225	

The unit cost for 0.5 Hects. of mixed orchard will be as follows :–

Unit Cost For 0.5 Hect. Of Mixed Orchard

Particulars	Year					
	1st year Rs.	2nd year Rs.	3rd year Rs.	4th year Rs.	5th year Rs.	Total Rs.
1. Preparation of land	100	..	..	..	..	100
2. Fencing	400	50	50	50	50	600
3. Digging of 225 pits and application of allurial (5%).	150	..	..	..	..	150
4. Cost of manure, oil cake and fertiliser.	726	771	798	837	620	3,752
5. Cost of sapplings suckers.	377	..	..	..	..	377
6. Pesticides	100	100	100	100	100	500
7. Labour charges for application of fertiliser, infrastructural operation and irrigation.	300	300	300	300	300	1,500
8. Misc. expenditure	100	200	100	100	100	600
Total	2,253	1,421	1,348	1,387	1,170	7,579

* Foot note – The cost of first two years will be included in the unit cost to be met by Government. The cost of the remaining years will be borne by the beneficiary out of his own resource from the income of the produce of inter cropping.

The cost per family for horticultural plantation will be Rs. 3,674.00. For 1,320 families the total financial requirement will be (Rs. 3,674.00 x 1,320)=Rs. 48,49,680.00 which will be done in a phased manner.

The Juangs grow vegetable in their kitchen gardens and near the banks of the streams. But the yield is very poor. Besides, most of the Juangs do not take vegetables, for which vegetables have not yet formed a part of their regular diet. It is therefore, necessary that, while trying to increase the production of vegetables, it is necessary to motivate the Juangs to take vegetables as a part of their daily diet. They may be encouraged to grow vegetables like brinjal, ladies finger, tomato, beans etc., in their backyards.

Spices like turmeric, ginger and chilly can also be taken up on the podu ravaged patches. It is therefore proposed to assist @ Rs. 250.00 per family for encouraging vegetable cultivation in their land. The total cost for this programme will be (Rs. 250.00 x 1,320) = Rs. 3,30,000.00. The beneficiaries for this programme will be covered in a phased manner as detailed below :–

Assistance For Vegetable Cultivation

Year	No. of beneficiaries to be covered	Amount required in Rs.
1st year	300	75,000.00
2nd year	300	75,000.00
3rd year	300	75,000.00
4th year	220	55,000.00
5th year	200	50,000.00
Total	1,320	3,30,000.00

The staff who will be engaged to look after the agricultural programmes will also look after the horticultural plantation work and vegetable cultivation under the direct guidance of the Horticulturist, Keonjhar and with the administrative control of the Special Officer, Micro-Project. The abstract of horticulture programme is as follows :–

Financial Outlay and Physical Target of Horticulture Programme

Sl. No.	Name of the programme	1st year	2nd year	3rd year	4th year	5th year	Total
1	2	3	4	5	6	7	8
1	Mixed plantation programme @ Rs. 3,674.00 per 0.5 Hect. per family for 1,320 H. H.	9,69,936.00 (264 H.H.)	9,69,936.00 (264 H.H.)	9,69,936.00 (264 H.H.)	9,69,936.00 (264 H.H.)	9,69,936.00 (264 H.H.)	48,49,680.00 (1320 H.H.)
2	Assistance for vegetable cultivation.	75,000.00 (300 H.H.)	75,000.00 (300 H.H.)	75,000.00 (300 H.H.)	55,000.00 (220 H.H.)	50,000.00 (200 H.H.)	3,30,000.00 (1320 H.H)
	Total	10,44,936.00	10,44,936.00	10,44,936.00	10,24,936.00	10,19,936.00	51,79,680.00

TABLE V. 4.1

Horticultural Programme Already Executed Under Both Podu Cultivation and Normal Programme

Sl. No.	Name of the village	Programme	Target		Achievement	
			Physical as on 14-10-1991	Financial	Physical as on 14-10-1991	Financial
1	2	3	4	5	6	7
1	Baitarani	Podu	7.2	31560	7.2	31560
2	Upper Raidiha	Do.	6.9	62008	6.9	62008
3	Guptaganga	Do.	16.8	212952	16.8	212952
4	Jantari	Do.	3.9	47346	3.9	47346
5	Tala Raidiha	Do.	9.3	36301	9.3	36301
6	Gonasika	Do.	6.9	62008	6.9	62008
7	Kadalibadi	Do.	7.2	31560	7.2	31560
8	Tangarpada	Do.	6.3	27615	6.3	27615
9	Dumuria	Do.	8.1	31617	8.1	31617
10	Kundhei	Do.	7.8	30096	7.8	70096
11	Ghungi	Do.	6.6	59312	6.6	59312
12	Duarsuni	Do.	1.8	16176	1.8	16176
13	Talasumatha	Do.	4.5	40040	4.5	40040
14	Uppersumatha	Do.	5.7	51224	5.7	51224
15	Talapada	Do.	15.0	182100	15.0	182100
16	Bayapandadhar	Do.	15.3	67015	15.3	67015
17	Bayakumutia	Do.	13.5	151906	13.5	151906
18	Champei	Do.	4.2	37744	4.2	37744
19	Toranipani	Do.	3.6	43704	3.6	43704

		Off season vegetables	Target		Achievement	
			Physical	Financial	Physical	Financial
1	Bayakumutia		3.6	15000	3.6	15000
2	Talapada		0.24	1000	0.24	1000

II. Guava Plantation in compact patches may be taken up in J. D. A. Area

V. 5. IRRIGATION

Water is the vital input for the survival of plant life and regulation of water resources through different irrigation process which is most essential for the success of agriculture and horticultural programmes. It is evident that the level of irrigation specially in tribal areas is extremely low, may be as low as 2 per cent which is far below the overall level of the State. But on the other hand, the tribal areas of State are rich in water resources and as such the potential for irrigation is very high. But development of irrigation facilities in the tribal areas has been very tardy, as a result, agricultural production in the tribal areas is far behind the national as well as State average.

Necessary provisions for adequate irrigation facilities forms an indispensable part of the strategy and programmes for integrated tribal development in which agriculture and hoticulture are placed under priority sectors. The project area being interpersed with a net work of a number of perennial hill streams and rivers flowing in all directions posses rich water resources and as such it is endowed with rich irrigation potential. Further the amount of annual rainfall of 1712.40 mm. per year is alone sufficient to feed the plants and crops in the project area. But in view of such a vast irrigation potential, it is necessary to exploit and utilise the water resource, for agricultural purposes.

In absence of proper irrigation infrastructure an enormous quantity of un-regulated water resources is drained off by the perennial streams & rivers. Thus the vast water resources of the project area is wasted causing chronic crop failure and drought. In this condition, a second crop is unthinkable in this area except the kharif crops which is also low and uncertain.

Data collected from the Juang Development Agency reveals that, six WHSs. and one Diversion Weir have been executed in the area under podu preventation and normal programmes. The ayacut area covered by these projects belonging to Sch. Tribe and Sch. Caste beneficiaries with cost incurred for, each of these projects is indicated in the Table V. 5.1 of this sector.

Besides these projects, there are six Lift Irrigation Points executed by the Executive Engineer, Orissa Lift Irrigation Corporation, Keonjhar. Each of these projects irrigated 50 acres both during Kharif and Rabi. Almost all the ayacuts of these projects are possessed by the Juang cultivators. The name of those projects with ayacuts area and beneficiaries is furnished in the Table V. 5.2 of this chapter.

Apart from these projects, it is proposed by the Executive Engineer, Lift Irrigation Corporation, Keonjhar to execute two more lift irrigation points at Talapada and Toranipani villages. Each of these points will irrigate 50 acres in Rabi and 50 acres in Kharif seasons. The approximate cost of which will be Rs. 3,75,000.00 and Rs. 3,75,000.00 respectively. All these ayacuts entirely belong to the Juang beneficiaries.

All these L. I. Points are maintained by the Lift Irrigation Corporation, Orissa and the electricity charges incurred during the irrigation period and minor repairs are attended by the Juang Dev. Agency as the Juangs can't afford to pay such huge amounts and the water is supplied to the fields of the Juangs free of cost.

After the installation of these Lift Irrigation Points, the Juang Dev. Agency has introduced cultivation of vegetables, wheat, potato and groundnut. Since the project is empowered to provide inputs like high yielding variety of seeds, fertiliser & pesticide with 100% subsidy, the Juang cultivators have been raising these crops both in Kharif and Rabi, utilising the irrigation facility available under the Lift Irrigation Points. A shift from traditional to modern cropping pattern is observed among the Juangs where the Lift Irrigation Points exist. Whereas their counterparts, where there is no irrigation facility are continuing, the same age-old traditional cropping pattern. The two new Lift irrigation Points as mentioned earlier will be executed in phased manner during the 1st two years of the project period as indicated below :-

Year	Name of the village	Cost (in Rupees)
1st year	Talapada L. I. Point	3,75,000.00
2nd year	Toranipani L. I. Point	3,75,000.00
	Total	7,50,000.00

TABLE V. 5.1

Irrigation project executed both under Podu prevention and normal programme (Minor, W.H.S., Cross bund etc.)

Sl. No.	Name & location of project	Type of project	Ayacut area			Total cost (in Rupees)	Remarks
			S.T.	S.C.	Other		
1	Pandadhar	W.H.S.	24	..	6	2,00,000.00	
2	Gonasika (Bhagabandha)	ditto	22	..	..	1,00,000.00	
3	Guptaganga	ditto	42	15	3	2,28,000.00	
4	Jantari	ditto	20	..	3	2,23,636.00	
5	Kodiposa	ditto	100	..	..	1,35,000.00	
6	Sinkulapada	D/W.	29	..	..	1,98,707.00	
7	Talapada	W.H.S.	6	..	..	30,870.00	

TABLE V. 5.2

Existing Lift Irrigation Points

Sl. No.	Location village	Name and location of L. I. Points	Source of water	Ayacut		Coverage of land	
				Kharif	Rabi	S.T.	S.C.
1	Jantari	Jantari	R. Baitarani	50	50	100%	
2	Tala Raidiha	Tala Raidiha	Do.	50	50	100%	
3	Dumuria	Dumuria	Do.	50	50	100%	
4	Kuanar	Kuanar I	Gumura	50	50	100%	
5	Do.	-Do- II	Do.	50	50	100%	
6	Bayakumutia	Bayakumutia	Do.	50	50	100%	

V.6. ANIMAL HUSBANDRY

The Juang have not yet taken to animal husbandry on an extensive scale. They have not enough cattle for use in their agricultural operations and hence many of them either borrow or hire cattle from their neighbours whenever needed. The poorer families who are unable to pay for hiring cattle, take recourse to hoe cultivation. Besides this, some of the poor households make use of cows as draught animals to plough their lands and they never milk the cows. Cows are also reared for breeding purposes which increase the strength of the cattle wealth. After the implementation of D.R.D.A., I.T.D.A., and J.D.A., programmes, a number of plough bullocks were supplied to the needy families for improvement of agriculture. Besides bullocks, a number of other animals like goats, pigs, fowls are reared for ritual and table purposes. Rearing of goats are becoming popular among them since they are now deriving additional income by sale. No special care is taken for rearing of these animals. They do not provide any fodder to them. They are taken to the forests for grazing and after they return home they are given shelter in separate sheds in the night.

Of all animals, the cows are considered to be very essential since they till the soil which give them food. As the bullocks are considered to be most essential to the farmers, a good number of bullocks are supplied to them by different development agencies, i.e., Tribal Development Agency, Integrated Tribal Development Agency, District Rural Development Agency and Juang Development Agency for use in agricultural operation and to practise settled cultivation. But due to the want of proper feeding the animals supplied to the beneficiaries were reported becoming rickety and skeletal. Since the Juangs mostly depend upon agriculture, the rearing of cows and bullocks is a necessity for them. It is a fact that, the Juangs were shifting cultivators but in course of time, due to introduction of developmental programmes to wean them away from shifting cultivation, they have adopted settled cultivation as a major source of their livelihood. In a society where settled cultivation is a practice, the livestock has to play an important role in their pattern of living. But due to lack of proper maintenance, the health condition of these animals are very poor. At the time of supply of these animals to the beneficiaries, the bullocks were quite healthy for ploughing purposes but after one or two agricultural seasons, these become very weak. Thus in spite of all Governmental aids, the conditions of the Juangs remain, unchanged. Rearing of poultry and pigs are very much beneficial to them since these animals do not need any special care for their maintenance. These animals are very essential for ritual purpose and for table purpose and entertainment of guests.

The Juang Development Agency, Gonasika is situated on the high mountains of Juang pirh in Bansapal block at an altitude of 3000 ft. from the sea level and has a temperate climate. Almost all the villages in the project area are surrounded by forests and thus green fodder for these animals is not a problem. The habitats of Juang settlements are quite favourable and has got enough scope for rearing animals to add to their economic gains. Table V 6.1 shows the cattle census of the agency area covering 32 villages. The census of livestock population has been collected in respect of cows, bullocks, buffaloes, sheep, goats, pigs and fowls. Table-V 6.1 indicates that out of these animals, the number of cattle stands the highest in comparison to other animals. Next to cattle, the goat comes in the second position and is followed by the buffalo, pig and sheep claiming third, fourth and fifth position respectively. As regards birds, the fowls numbering 6439 are found in the entire project area. Thus it is evident that cows, bullocks and goats are most commonly reared by them. Pigs and sheep are reared but it is numerically very insignificant in comparison to other animals. Since the Juangs are mostly shifting cultivators the use of cattle and buffaloes is occasionally required. Moreover, in the past developmental agencies like T.D.A., I.T.D.A. and Micro-Project have supplied plough bullocks for agricultural purposes. The specific purpose for which different varieties of animals are reared by them are indicated below :—

Animals		Uses
1. Cattle	..	Ploughing, dung used for manure, fuel, breeding purpose (in case of cow).
2. Buffaloes	..	Ploughing, supplying dung for manure and fuel and breeding purpose.
3. Goats and sheep	..	Slaughtered for meat for ritual and sale for additional income.
4. Poultry	..	Sacrificed on ritual occasions, slaughtered for meat, for egg and sold for money.

The cows among the Juangs in particular are not milched and the cattle are not used for food although the Juangs were taking beef in the past. But now it is strictly prohibited among the Juangs inhabiting in the project area. Buffaloes are the most prized of all drought animals, but only a few people of means can afford to have them. Goats are very popular among them. They supply meat on festive and ritual occasions and are sold for money. Chickens are used mainly for sacrificial purposes and for entertaining guests and relatives. One of the things offered by the Juangs at the time of welcoming a guest or his visit to a Juang village is the hen. Local officials, merchants and money lenders are given poultry birds as a matter of courtesy and hospitality. They do not take proper care of their animals. The cattle and buffalo sheds are neither properly built nor maintained and floors are very dirty as these are made of wooden logs. The people do not give them fodder. These are taken to the nearby forests for grazing or-left loose for grazing and these animals return back in the evening and are closed in the sheds till next morning. The owners of the cattle are not accustomed to stall-feeding nor do they grow fodder for their animals. Green grass and leaves are available only during rainy and winter seasons. But in hot summer months when the feeds are to be purchased whatever straw and leaves available in the area are eaten by the animals. Such items are not very nutritive for their growth. Pasturages are gradually diminishing as more and more of such land is being encroached upon for the purpose of cultivation as a result of which there is acute shortage of grass and fodder. The cattle are extremely vulnerable to diseases due to continuous in-breeding and poor feeding. The local varieties are usually small and sturdy, but their youth lasts for a small span of time. Being over-worked coupled with absence of proper care and cruelty in the hands of their owners they suffer from common diseases affecting foot and mouth. Such diseases can be prevented by immunization. But facilities for preventive and curative measures for the animals are extremely inadequate. There are two Livestock Aid Centres functioning, one at Gonasika and another at Kanjipani and one veterinary dispensary at Suakati with a Veterinary Assistant Surgeon as its head to look after the animal health of the area. In short, the problems which affect animal husbandry, are poor quality cattle, poorly fed, prevalence of diseases, inadequate facilities, peculiar cultural practices and economic backwardness of the people. Any animal husbandry programme for this area must try to solve these basic problems first.

Given certain minimum facilities with proper extension work in this regard can improve the general well being and economic conditions of the people. Animal husbandry programme which have suffered a long neglect, should be given top priority and planned for development keeping in view the tradition of these people.

General animal husbandry programme is normally linked with the marketing system which means that after consumption there is surplus for marketing. But it is not so in the project area. In this area traditional animal husbandry practice is mainly meant for ritual purpose and for providing animal protein in the diet among the tribals and other backward communities. People of Banspal block in general, and the Juangs of Gonasika area in particular, where the level of development is quite low, have limited prospects for animal husbandry programme on commercial basis. The Juangs in particular, do not like to keep poultry birds which are white in colour. They prefer coloured cocks and hens, particularly those of black colour, primarily for ritual purpose. The previous programmes under poultry scheme did not succeed, due to non-availability of coloured birds in the State poultry farms. The Juangs generally do not rear sheep but they are fond of goats. There are families having more than 60 to 70 goats, it is for this reason perhaps that the

sheep rearing did not fetch good response from the Juang, whereas goatery scheme was taken up without any resistance. The diary programme is not at all feasible in this area because, the Juangs neither milk cows nor are able to maintain improved varieties of cows and buffaloes which are three or four times larger than the local variety and very much susceptible to diseases. Moreover such improved animals are not required at all by these primitive tribal communities who carry axe cultivation and whose level of development is very low.

It has been mentioned earlier that there are 625 landless households, 313 households having one Ac. of land; 207 having 1 to 2·50 Acs. of land; 97 having 2·6 to 5 Acs. of land; 52 having 5·1 to 7·5 Acs. of land and 26 households having 7·6 to 10 Acs. of land reside in the project area. In other words more than 90 per cent of the total households are landless or marginal/small cultivators. It is therefore pertinent to plan for the animal husbandry programme in the project area as an essential programme for the landless and marginal farmers and as a subsidiary source for those who have land above 5 acres.

Review of Annual Plan for 1991-92

The annual action plan prepared by the J.D.A. for the year 1991-92 indicates that, under animal husbandry programme only provision for Rs. 1,20,000·00 has been made for supply of 50 pairs of plough bullocks to 50 beneficiary households having patta lands. When there is ample scope for taking of other income generating programme under animal husbandry sector, it has been proposed only for supply of plough bullocks which usually comes under agriculture sector. It will be useful to make provision for development of animal husbandry sector as there is enough potentiality for its development in order to help landless and marginal farmers in the area to adopt it as a primary source of income. It is also evident from the existing communication facilities in the project area and further improvement now in action that, the J.D.A. is now connected with market centres. A public bus has started plying daily from Gonasika to district headquarters at Keonjhargarh. Thus there will be no difficulty in marketing of products from animal husbandry sector like eggs, meat, poultry broilers, goats and pigs etc.

The Juang Development Agency has not given proper attention to the development of the animal husbandry activities. In health sector, the Agency has undertaken several health camps to safeguard the general health conditions of the people whereas not a single camp has been organised in animal husbandry sector since the inception of the Agency. At least a few general treatment camps for the livestock could have been arranged for treatment of the animals and side by side a number of motivation campaign could have been organised to popularise the animal husbandry schemes. Keeping in view of the above situations, the following schemes are suggested to develop the economic lot of the primitive tribal community.

Poultry Development

Poultry rearing is most common among the Juangs of the project area. As stated earlier, it serves many purposes of which the ritual purpose of chicken sacrifice offered to deities on ritual occasions is most important. As the religious festivals observed by the Juangs are many, every household should have a good supply of birds to meet the ritual requirements. Moreover in recent years much emphasis for rural development is given in income generating schemes. Hence it is felt that, poultry farming may be one of the important sources to generate income in the project area, it is proposed to introduce two types of poultry farming in the project area through Layer poultry farming and Broiler poultry farming. The former is for egg purpose and the latter for chicken purpose.

Scheme for Layer Poultry Farm :

(a) A unit of 100 birds

The Juangs are accustomed to rearing of country birds for which no training and technical know-how for their maintenance are required. But in case of improved layer poultry farming technical knowledge, training and experience are highly essential. Supply of day-old chick may not prove successful due to

backwardness of the people and provision of prompt veterinary services in the area. It is therefore, proposed to supply 5 month-old pullets to the beneficiaries for poultry farming. One such layer will consist of 100 pullets. The financial requirement to organise one such unit is indicated below :—

Non-Recurring Expenditure

(i)	Layershed 200 Sq. ft.	.. Rs.	3,000·00
(ii)	Equipments @ Rs. 5 per layer bird	.. Rs.	500·00
(iii)	Supply of pullets (5 months old 100 numbers @ Rs. 50 per bird).	.. Rs.	5,000·00
(iv)	Feed for two months @ 3 Kgs. per month per bird, Rs. 3 per Kg. 100 X 3 X Rs.3·00 X 2	.. Rs.	1,800·00
(v)	Misc. expenses like electricity, medicine, insurance etc. @ Rs. 5 per bird.	.. Rs.	500·00
		.. Rs.	10,800·00

The birds should be supplied from Central Poultry Breeding Farm. Layer poultry farming should be introduced in those villages where quick transportation can be available to market, the eggs and birds. Such units may be introduced in the following villages :—

1. Gonasika
2. Guptaganga
3. Bayakumutia
4. Bayapandadhar
5. Kanjipani

Five landless households may be selected from each village and each household may be provided with one such unit, the total financial implication of which will be as follows :—

Unit cost = Rs.10,800.00

For 25 such units = Rs.10,800·00 X 25=Rs.2,70,000.00

The programme will be lunched in a phased manner as follows :—

Year	No. of villages covered	No. of units	Cost in Rs.
1st year	5	5	54,000·00
2nd year	5	10	1,08,000·00
3rd year	5	10	1,08,000·00
Total	15	25	2,70,000·00

Poultry Farming (Broiler)

Broiler farming has been proved to be a profit-fetching pursuit of the landless and marginal farmers because it gives return, needs minimum space, easy maintenance and has greater efficiency in conversion of feed into meat than any other livestock. Broiler poultry farming has a number of advantages for which it will be a very acceptable scheme for the Juangs. The advantages are as follows :—

(i) The demand for broiler meat is ever-lasting

(ii) The profit from a single broiler is higher than other poultry birds in the market.

(iii) The feed for the broiler, costs 60 per cent of the working cost of broiler- rearing.

(iv) The cost of chicks constitute 30 or less than 30 per cent

(v) The weight of the broiler chicks increases and it comes fast to 40 times in 540 days.

(vi) The marketing of broilers is very easy and highly profitable

(vii) The agro-climatic condition of Gonasika area, the road communication facilities, supply of electricity and easy approach to the district headquarters are very much congenial to start the broiler scheme from the 1st year of the project period. The approximate unit cost of one unit of broiler farm consisting of 300 birds is as follows :—

(a) Non-Recurring Expenditure

(i) One small room in the size of 8' X 6'	.. Rs.	2,000·00
(ii) One shed of 10' X 7' without wall or cemented flooring @ Rs. 15 per Sq. ft.	.. Rs.	1,050·00
(iii) Wooden cages of 6' X 3' X 1 1/2' fitted with wire mesh flooring 2 numbers @ Rs. 500 each.	.. Rs.	1,000·00
(iv) Chick feeder up to 4 weeks of age 4 numbers @ Rs. 50	.. Rs.	200·00
(v) Country type brooder 1 No.	.. Rs.	200·00
(vi) Country type waterer up to four weeks of age 4 Nos.	.. Rs.	100·00
	.. Rs.	4,550·00

(b) Recurring Expenditure

Recurring Expenditure for 8 weeks (for one cycle)

(i) Day-old chicks 300 numbers @ Rs. 7·50 each	.. Rs.	2,250·00
(ii) Broiler-feed 5 M.T. @ Rs. 3,000 per M.T.	.. Rs.	15,000·00
(iii) Medicines, electrical charges and miscellaneous expenses	.. Rs.	300·00
Total	.. Rs.	17,550·00

The above mentioned unit cost coincides with the technical approval of the District Rural Development Agency and Commercial Banks. Since the Juangs are extremely poor and belong to the primitive groups this money fetching scheme is suitable for them. The Micro-Project should subsidise the cost of the feed to the beneficiaries on a regular basis.

Broiler poultry farming may be introduced in the following 5 villages initially on an experimental basis. The coverage will be extended to other villages after observing the results.

1. Gonasika
2. Jantari
3. Bayakumutia
4. Bayapandadhar
5. Guptaganga

In the first phase, 5 such units may be organised and 5 landless or marginal farmer beneficiaries may be selected @ one unit to each beneficiary. The total financial implication of the scheme will be as follows :—

(i) Non-Recurring Expenditure	Rs. 4,550·00
(ii) Recurring Expenditure	Rs. 17,550·00
Total ..	Rs. 22,100·00

For opening of 5 such units, the cost will be (Rs, 22,100 X 5)Rs. 1,10,500·00

Goat Rearing

The Juangs in Gonasika area are accustomed to rearing of goat for many advantages. The goats require no stall-feeding. The flock of goats follow the herd of cattle and graze a great varieties of grass and plants. They provide good cash return when sold for meat on special and festive occasions. In this area, there is ample field for grazing purpose and goats can be reared without a massive investment. There are 4,356 goats reared by 1230 Juang households in the project area. Out of 4,356 goats, there are about 3,000 does which are in the breedable age-group which is about 70% of the existing goat population. In addition to these existing goat population, it is now suggested to supply more goat units to the beneficiaries of a few villages in which landless and marginal farmers live. As they are not fully engaged either in agriculture or any other major occupational persuits such a scheme will be beneficial to them initially. It is proposed to supply 50 units of goats to landless and marginal farmers who are willing to adopt the scheme and abide by the guidelines of the project, The cost per one unit of goat will be as follows :—

(i)	Does 10 numbers @ Rs. 300 per does	Rs. 3,000·00
(ii)	Buck one	Rs. 500·00
(iii)	Insurance	Rs. 120·00
(iv)	Medicine	Rs. 100·00
(v)	Goat-pen	Rs. 500·00
		Rs. 4,220·00

As it is proposed to supply 50 units of goats, the total cost of this scheme will be Rs. 4,220·00 X 50=Rs. 2,11,000·00. It is proposed to implement this scheme within 5 years of the project period as indicted below:

Year	Units	Cost in Rs.
1	2	3
1st Year	10 Units	42,200·00
2nd Year	10 Units	42,200.00
3rd Year	10 Units	42,200·00
4th Year	10 Units	42,200.00
5th Year	10 Units	42,200·00
Total	50 Units	2,11,000·00

The Government of Orissa has put a ban to popularise goatery scheme in massive scale in areas where large-scale plantation has been taken up. It is, therefore, essential to select villages where plantation programme has not been taken up in large scale.

Pig-Rearing

In a working paper on piggery units, published by the Ministry of Food & Agriculture Department, Government of India, it has been stated that, the piggery scheme excels all other animal husbandry schemes in the economy because it can convert farm bi-products and other vegetable wastes in to edible flesh of high nutritive value with a maximum return for the money invested on it. It can utilise garbage, spoiled flour and grains which may be harmful to other animals. The piggery scheme, with a modernised method, better feeding, proper breeding and efficient management can fetch more return than the amount of investment made on other schemes. Since the pig is a very prolific & quick growing animal, a sow usually breeds twice a year and at each farrowing brings forth about 6 to 8 piglets. Each piglet attains the weight of about 150 lbs or more in about 6 to 8 months time when it can be slaughtered for food. This indicates how a piggery scheme can provide a better economy for a primitive tribal community which is already accustomed to rearing the pigs in an indigenous manner. Normally the Juangs rear mostly non-descript black variety of pigs with poor productive potential.

The conditions under which they rear pig is not economically viable and as a result the quality of pig is poor and production of pork is not possible. But with improved breeding, sanitary accommodation and proper feeding, they can be a source of much better profit to the beneficiaries.

In the project area, it is found that, in almost all the villages, the Juangs rear pigs. It is proposed that, in the first phase 50 such units may be supplied to such landless and marginal farmers to whom poultry and goatery schemes have not been given. The scheme spells out that an unit will consists of 3 sows and one exotic crossed breed boar with 100 per cent subsidy with a condition that the beneficiary family would return the same number of piglets within 18 months. These 50 units will be spread over in 10 selected villages and each village will be provided with 5 such units. The name of such villages is indicated below with pig units.

Sl. No.	Name of the villages	No. of pig units
(1)	(2)	(3)
1	Baitarani ..	5
2	Guptaganga ..	5
3	Kanjipani ..	5
4	Tala Champei ..	5
5	Kundhei ..	5
6	Toranipani ..	5
7	Upper Champei ..	5
8	Bayapandadhar ..	5
9	Tangarpada ..	5
10	Budhighar ..	5
	Total ..	50

The main objective of the scheme is to rotate the stock to other beneficiaries after return from the old ones. The scheme would be extended to five new families of each selected villages. Thereafter, the rotation stock would be given to 10 more remaining villages selecting 5 families from each.

Unit Cost

Non-Recurring Expenditure

1. (a)	Cost of one exotic boar 10 months old (one time expenditure).	..	Rs. 1,000·00
(b)	Cost of 3 improved sows 8 months old (Rs. 400 X 3) (One time expenditure).	..	Rs. 1,200·00
2.	Cost of pig-sty and equipments	..	Rs. 1,000·00
	Total	..	Rs. 3,200·00

Recurring Expenditure

1.	Cost of feed for one year for 3 sows and one boar @ 2 Kgs. per day per animal. (2 Kgs. X 4 X 365 days X Rs. 2)	..	Rs. 5,840·00

The non-recurring expenditure is to be given to every batch of beneficiaries but the recurring expenditure is to be paid to each subsequent batch of beneficiary for one year only. The scheme is to be in a phased manner as shown below with financial requirements.

Expenditure on Piggery Scheme

Year	Unit	Expenditure		
		Recurring in Rs.	Non-recurring in Rs.	Total in Rs.
1st year	10	32,000·00	58,400·00	90,400·00
2nd year	10	32,000·00	58,400·00	90,400·00
3rd year	10	32,000·00	58,400·00	90,400·00
4th year	10	32,000·00	58,400·00	90,400·00
5th year	10	32,000·00	58,400·00	90,400·00
Total ..	50	1,60,000·00	2,92,000·00	4,52,000·00

The year wise physical target and financial requirement of Animal Husbandry Programme is indicated in the following statement.

In order to safeguard the health condition of the livestock units, it is proposed to introduce a mobile treatment-*cum*-motivation unit initially to propagate the scheme and to render doorstep health services to the livestock reared by them. It is observed that the Juangs neither have time nor desire to give hospital treatment to their present stock of livestock assets when they fall sick. The mobile health-*cum*-motivation unit will operate from the Veterinary Dispensary level with a limited number of field officers who would frequently visit the adopted villages with medicine and other requirements for providing door-step treatment.

Year-wise physical target and financial requirement of Animal Husbandry Programme

Sl. No.	Programme	1st year		2nd year		3rd year		4th year		5th year		Total	
		Phy. target	Amount	Phy. target	Amount	Phy. target	Amount	Phy. target	Amount	Phy. target	Amount	Phy. target.	Amount
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	**Poultry**												
	layer poultry farming.	5 units	54,000/-	10	1,08,000/-	10	1,08,000/-	..	..	..	..	25	2,70,000/-
	Poultry farming.	5 units	1,10,500/-	..	..	..	..	..	..	..	..	5	1,10,500/-
2.	**Goat Rearing**	10 units	42,200/-	10	42,200/-	10	42,200/-	10	42,200/-	10	42,200/-	50	2,11,000/-
3.	**Pig Rearing**	10 units	90,400/-	10	90,400/-	10	90,400/-	10	90,400/-	10	90,400/-	50	4,52,000/-
	Total	30 units	2,97,100/-	30	2,40,600/-	30	2,40,600/-	20	1,32,600/-	20	1,32,600/-	130	10,43,500/-

There are two Livestock Aid Centres at Gonasika and Kanjiapani and one veterinary dispensary existing at suakati in the project area. These Livestock Inspectors are required to undertake tour for 20 days in the afternoon after working in Livestock Aid Centre in the forenoon. But this job chart is not normally followed as there is no effective supervision at higher level. The position of veterinary organisation in Gonasika area is still worse. The technical staffs are not staying in the centre. The proposed mobile treatment-*cum*-motivation units initially be organised with one Livestock Inspector and one Attendant. Two bicycles may be provided to them for their movement. They will carry kit bags with minimum instruments and medicines.

TABLE V 6.1

Cattle Census of village covered in J. D. A. Area

Name of the Panchayat	Cattle	Buffalo	Sheep	Goat	Pig	Poultry
1	2	3	4	5	6	7
Gonasika	280	21	..	157	..	780
	212	..	..	97	29	199
	140	..	53	140	..	281
	153	11	..	137	122	289
	138	28	7	108	..	201
	931	14	..	43	..	158
	135	..	..	53	50	..
	112	36	..	198	16	211
	270	10	..	95	61	186
	275	12	35	264	163	420
	138	..	..	154	52	299
	236	12	8	225	102	204
	95	34	31	146	55	142
Total	3115	178	132	2084	650	3370
Kodipasa	105	23	..	57	..	79
	192	16	..	94	52	..
	122	16	..	78	..	..
	370	25	85	395	105	393
	57	..	27	115	45	70
	181	22	..	154	61	252
	82	..	..	115	36	101
	74	24	..	90	33	123
Total	1183	126	112	1098	332	1018
Kunar	87	..	..	66	..	208
	152	..	..	168	62	308
	303	54	..	139	..	205
	243	105	11	206	..	295
Total	785	159	11	579	62	1016
Suakar	230	43	..	237	14	322
Total	230	43	..	237	14	322
Bayakumutia	291	60	..	187	..	200
	503	49	..	308	..	520
	173	..	..	101	..	..
Total	967	109	..	596	..	720
Talchuan	146	..	..	144	78	164
	123	23	12	49	8	201
	126	139	..	178	..	225
Total	395	162	12	371	86	590
Grand Total	6675	777	267	4965	1144	7036

Name of live-stock Institutions found in J. D. A. Area

Name of place	Name of Institutions
1	2
1. Gonasika	Livestock aid centre
2. Kanjipani	,,
3. Suakati	V.A.S. Centre

V.7. HEALTH

The Juangs, the prime settlers of Gonasika area live a life without taking much care of their health. It is difficult to study the problem of health among the Juangs in isolation from other aspects of their culture. Public health is an integral part of social system and cultural pattern of a particular society. It has been rightly said"health is wealth". Health is the expression of harmony and happiness. A person in tribal society is not healthy unless his environment is healthy, and that, which causes diseases and illness. Unhealthy condition may also arise owing to failure of crop, ill luck in hunting, mishap in family and misfortune to village. The Juangs are very much attached to their native place, to break connection between the body and the land may be hazardous. If a Juang is detached from his land for his treatment to a foreign place for a longer period his health condition detoriates due to setback of his emotional attachment with his land. Such a conception of continuity of body with land, environment and other objects of the habitat and unity of function of each of them underlie the way in which medical treatment and hygienic measures are accepted and worked out. The low level of nutrition in Juang-pirh area is one of the major problems of great concern. Hunger among them is prevalent because, they live on inadequate food. This is because of the continuous use of land for productive purposes coupled with the increase in population, the man-land ratio has been distorted. The result of the imbalance between the carrying capacity of land under the present land use pattern and the pressure of population on land causes, out-migration, low in-take of food, physical suffering and indebtedness. Repeated clearing and over cultivation of the hill-slopes has led to deforestation and soil erosion resulting in diminishing returns, deficient in essential nutrients. The over population and excessive cultivation on a particular land diminishes the production pattern in the area. As an example, the forests have been progressively cut down and the games which provided most of the meat, has disappeared in the process. Moreover nutrition is affected as they lack in the methods of storing and preservation. The fruits and vegetables which are available seasonally are consumed as soon as they are collected, as otherwise, they would perish for want of storage facility. Lack of proper distribution has contributed poor nutrition. Surplus of food in one area in the plains does not alleviate food scarcity in the Juang-pirh area. Since the food remains out side the reach of the Juangs on account of their low purchasing capacity, lack of adequate transportation and poor economic condition, the Juangs in the project area eat hand pound rice. They husk paddy either by means of mortar and pestle or by husking lever. This rice retains much of its brown coating and is more nutritious than the polished rice. Generally they do not throw away the gruel, instead they drink it with every meal. This type of food habit keeps malnutrition in check to some extent. But the progressive introduction of money economy and change from hand pound rice to milled rice have been a serious factor in nutritional imbalance. The paddy which the Juang produces is only sufficient for three to four months. After it is exhausted they buy polished rice either from local market or from P.D.S. The polished milled rice does not give them nutrition adequately and no other type of food stuff such as fruits & vegetables accompany polished rice to make up for the nutritional deficiency.

The next problem regarding the health conditions is hygienic and healthy habitation. The medical science tells "prevention is better than cure" unless, the preventive side is taken well care of, curative has got no meaning. Conception concerning cleanliness and uncleanliness, dirty habits and hygienic habits vary from community to community particularly among the tribal communities. The hygienic habit is better among the Munda, the Ho and the Santals who belong to some Kolarian racial stock. But most of other tribal communities keep their houses and surroundings unclean. They throw rubbish here and there around their habitation which go without cleaning years together. The rain water washes away heaps of cow dung into puddles which become the breeding places for mosquitoes and flies. Moreover, the Juangs use the bank of the hill stream as the place of cremation ground and defecation. During rainy season the remnants of such dirty things are carried into the stream which is the source of drinking water and in which the people also

take bath. Male Juangs take bath once, even twice if required, in a day while women do not take bath days together. It is therefore, essential to change their habit through motivation regarding hygienic way of life, cleanliness, better surroundings and protected water supply. So that they understand the value of these things and then try to change in their habits step by step. Besides the habits of cleanliness, adoption of preventive measures and use of medicines are important factors for improving their health condition. Taking medicines is a sign of accepting the modern method of treatment and teaches people what they should do and not to do to avoid ailments and sufferings. In this respect, their belief and practice relating to diseases and their treatment on the one hand and actual situation relating to types of diseases and nature of suffering, causation of diseases and their prevention and cure are to be taken into account. The Juangs being a primitive tribal community believe much of their sufferings are due to supernatural powers like witch craft, black magic and displeasure of malevolent deities, family ancestors and spirits of hills & forests. Accordingly, it is a common practice among them to propitiate unseen forces to cure illness and to restore harmony between the ailing persons and the supernatural powers. The witch diviner-*cum*-medicine man is called for at the time of illness to find out the cause of disease and to prescribe the treatment to be done. A priest is requisitioned to propitiate the offended deities for curing illness. Illness is also believed to be caused by the evil power set in motion by some maleficent magician or witch. The Juangs life is shadowed by the menace of witch craft and dread of black magic. Of course, the malicious actions of supernatural powers and magicians are not the only source which cause diseases and unpleasant events but there are other causes of illness. White magic counteracts the effects of black magic. In Juang community, there are persons who act as a doctor and psychiatrist, faith-healer and project with help of charms, spells and divination. By these means he brings on to the patients the needed psychological strength and will power to over come the trouble and get well quickly. Their faith in supernaturalism is one of the strong causes of illness, it is not easy on their part to have appropriation and acceptance on the modern health and hygienic measures which are introduced through various levels of medical and para-medical infrastructures. It is no use of mere filling in functional gaps in respect of health services to improve the health and nutritional status of the Juangs. It is therefore, imperative to take stock of the belief system and indigenous practices concerning food habits, food pattern, maternity and child care, hygienic habits and disease treatment, concept of contagious and pollution, preventive measures and surgery. Thereafter the patterns of resistance to acceptance of medical innovations and their bases need to be understood throughly. A medical practitioner who had a good knowledge about the tribal life & culture, customs & practices will be in a better position to understand and appreciate tribal point of view and their mental make up in regard to health practices than a novice who lacks in these. The vaccinators and inoculators collect illegal gratis from the tribals in order to exempt their children from vaccination. As soon as such illegal practices are discouraged and tribals are made to understand the scientific basis of illness they may gradually be interested in availing medical facilities which are available within their easy reach.

Causes of maternal and infant mortality particularly with the Juang population are numerous need rapid protective measures that to save the lives of mother and the child. The very indigenous method of maternal and child care are different from the modern health and medical practices. Therefore it is difficult on the part of the health workers to wean the tribals away from the unhygienic and risky methods of child birth and motivate them to adopt the scientific and hygienic methods. In fact, the tribals do not seek the help of mid-wives at the time of delivery, nor do they attend the maternity hospital for medical check up and delivery. Even the single Primary Health Centre in Gonasika is normally not utilised on account of the disinterestedness in scientific maternity and child care. On the other hand, there is a general complaint about the absence of the staff in the health centre and they find no one there to provide them with the medical aid needed by them.

Family Welfare Programme has been one of the most important development aspect of health programme. Main emphasis is given on birth control and limiting population. The Juangs do not know the use of modern contraceptives. There is a peculiar practice followed by them to stop conception. If husband after sexual intercourse walks over the body from feet to head of his wife, she will not conceive. The Juangs are interested in having large families because of certain economic persuits like shifting cultivation, food gathering and hunting which require more manpower in the family to support these works. Owing to diminishing trend in the population growth of certain primitive communities family members are prohibited, but it is not so in the Juang area. But the high birth rate coupled with high infant mortality, family planning programmes will have to be implemented after motivation and consciousness are induced among them to plan their families according to their economic conditions. The types of medical facilities available in the area include one Primary Health Centre located at Banspal, one Additional Primary Health Centre at Gonasika, one Allopathic Dispensary at Suakati and one Mobile Health Unit located at Kanjipani. The sanctioned staff strength in all these health institutions are in position at the time of study. The P.H.C. at Banspal is only 30 Kms. away from Gonasika. The referral hospital is located at Keonjhargarh, the district headquarters, which is 31 Kms. away from Gonasika. The whole of Banspal block suffers much due to inadequate medical facilities. Moreover the inaccessibility of the area make it difficult to avail the facilities at the referral hospital. Many villages of this area remain cut-off from the places where medical facilities are available for more than four months during rainy season. The Medical Institutions located in the project area are not provided with adequate facilities to cater the health-need of the people. It has been laid down as a norm by the Planning Commission under Minimum Need Programme that a sum of Rs. 12,000·00 should be allotted towards the annual cost of medicine for a P.H.C. and Rs. 2,000·00 to a sub-centre per annum on top priority. The charge on health sector should be reflected in the Plan out lay. It is a fact that, the health facilities which are now available in the project area is much below the standard laid down by the Planning Commission. This is more so in the matter of financial provision for medicine. The expenses towards medicine at the P.H.C. does not exceed Rs. 3,000 per year. Other facilities such as beds & equipments are almost in dilapidated condition and no steps has been taken for replacement. The Juangs do not get proper attention at the time of their requirement as the health institutions are not well-equipped with required medicines and equipments. On the other hand, the belief in supernaturalism is so strong among the Juangs and the health Institutions are far away from their settlements that, their receptivity to modern health practices is bound to be low all the time. The present functions of the sub-centres are confinded to family planning including maternity and child welfare.Here again on account of lack of proper facilities these Institutions do not function properly. These sub-centres need to be strengthened by providing adequate facilities for curative and preventive measures to deal with typical diseases and ailments prevalent in this area. The major diseases from which the Juangs suffer are Malaria, Respiratory Tract Infection, Skin diseases, Diarrhoea, Tuberculosis and Leprosy.

After black-taping of all weather Bayapandadhar-Gonasika road which connects N. H. 6 has caused infiltration of outsiders to this area. These infiltrators have spread infections and contagious diseases like V. D. and other skin diseases where there was no such maladies previously. If timely measures are not taken, these primitive tribal communities such as the Juang may die out of a short period of time. Therefore it is necessary to provide regular mobile units to the interior pockets with special facilities for treatment of such type of diseases. Besides, malaria eradication programme in the area should be given top priority and special drive may be made for total eradication of malaria. In the project area, there are residential schools where a large number of tribal boys and girls stay for their higher studies. Special attention is needed for the health care of these school children. For this purpose, creation of separate health Institution is not necessary, with the existing staff of the Additional P. H. C. located at Gonasika the health care can be tackled with

some special allocation for medicines and equipments. More over, the services of specialists whenever required are not readily available at Gonasika or in the vicinity and no purpose is solved by posting the unwilling workers to tribal areas. The technical staff particularly the medical personnels posted in Gonasika area should be involved in tribal welfare programme of which public health is a part. The existing additional Primary Health Centre at Gonasika should be strengthened with a Mobile Health unit equipped with necessary medicines, equipments, staff and vehicle. It is also necessary to integrate both health & education since the teachers can look after the general hygienic of the school children. For this purpose special provision has been made by the H. & T.W. Department for purchase of medicines by each of the Residential Sevashram and Ashram schools. The mobile health unit staff should visit the educational Institutions to check up the conditions of the boarders in consultation with the Head Master of the concerned school. Such an integrated programme of health education will not only minimise the problems of staffing, buildings and other inputs but also promote health and education in this area on a co-ordinated basis and involve less cost.

For the purpose of inoculation and vaccination programmes in the project area, it is barely necessary to motivate the expectant mothers to take timely medical aid and get herself vaccinated in the Additional P. H. C. Gonasika. It is also pertinent to take adequate care of the newly born babies for which the additional P. H. C. is to be well equipped with vaccination under triple antigen programme.

Besides all these programmes stated above, the Micro-project has also a separate provision in their action programme to supply medicines which will be duly prescribed by the Medical Officer of the Additional P. H. C., Gonasika to safeguard diseases & mal-nutrition. The project may organise periodical health camps in different villages in collaboration with the staff of Additional Primary Health Centre, Gonasika. The medicines available with the Micro-project may be utilised at the time of organising health camps.

The present infrastructure under health programme shows that the Allopathic Dispensary at Gonasika has been upgraded to Additional P. H. C. during the year 1986-87. The sanctioned staff position in Gonasika Additional P. H. C. as on 9-9-1992 include a Medical Officer, a Pharmacist, an A. N. M. and a Dhai besides three Class IV employees. Except one post of A. N. M. all other staffs are in position, the vacancy of A. N. M. may be due to non-availability of quarters as all other staff have their individual quarters. The record provided by the C. D. M. O., Keonjhar shows that during the year 1989-90, 29 patients treated in indoor where as 8,449 patients were treated in outdoor of which 4,281 were males, 1,563 were females, 2,634 were children. During 1990-91, 5 indoor patients and 9,341 outdoor patients were treated of which 4,895 were males, 1,630 females and 2,620 children. Similarly during the year 1991-92, 15 indoor patients and 10,613 out patients were treated of which 5,230 were males, 1,741 females and 3,649 children. It is evident from the above figures that the number of female outdoor patients are much less in comparision to the male patients. This may be due to the more backwardness of the female population in the area. As regards mobile health camps, 4 such camps were organised during the year 1990-91 and 2 camps in 1991-92 where as during the year 1989-90 no such camps were organised.

So far as treatment of disease is concerned, the data shows that, during the year 1989-90, 2,342 patients were treated for malaria, 502 patients for respiratory tract infection, 693 patients for skin disease and 117 patients for diarrhoea. In the year 1990-91, 1,182 patients were treated for malaria, 612 for respiratory tract infection, 805 for skin diseases and 306 for diarrhoea. Similarly during the year 1991-92, 4,098 patients were treated for malaria, 1,218 for respiratory tract infection, 1,517 for skin diseases and 480 for diarrhoea .It is clear from the above information that, there are considerable increase of the patients suffering from malaria and skin diseases. The diseases under respiratory tract infection is also quite sizeable.

Drinking Water :

Providing safe drinking water is one of the most fundamental and basic responsibility of the welfare State. For the purpose, State Government provides funds to Public Health Department for sinking of tube-wells and C.D. Blocks for sanitary wells. Besides the State Government, some foreign agencies as well as, some non-Governmental Organisations extend their financial support for safe drinking water supply in problem villages. Normally, the Juangs use water from wells, ponds, rivers and streams which contain unhygienic water and prone to contamination. It is therefore essential to provide safe drinking water either through tube-wells or sanitary wells.

Drinking water facilities now available in Juang Development Agency area is as follows :—

Name of the village	No. of Springs, Open wells	Tube-well	Tank	Spring
(1)	(2)	(3)	(4)	(5)
1. Baitarani	..	2	1	1
2. Nadam	..	..	1	..
3. Hatisila	..	1	1	..
4. Saria	..	1	1	..
5. Upperbali	1	1	1	..
6. Talabali	1	..	1	..
7. Upper Raidiha	..	1	..	..
8. Phulbadi	..	..	..	..
9. Guptaganga	..	2	..	1
10. Jantari	..	2	1	1
11. Tala Raidiha	..	1	..	..
12. Gonasika	..	3	1	1
13. Kadalibadi	..	2	..	..
14. Tangarpada	..	1	..	..
15. Kaptadiha	1	1	..	..
16. Dumuria	1	1	1	..
17. Kundhei	..	3	1	..
18. Ghungi	1	1	..	..
19. Duarsuni	..	2	..	..
20. Tala Sumatha	..	1	..	..
21. Upper Sumatha	..	1	..	..
22. Tala Panasanasa	1	..	1	..
23. Upper Panasanasa	1	..	1	..
24. Talapada	..	2	1	..
25. Kanjipani	..	5	1	1
26. Upper Champei	..	1	1	..
27. Budhighar	1	..	1	..
28. Bayakumutia	..	4	..	1

(1)	(2)	(3)	(4)	(5)
29. Bayapandadhar	..	3	1	..
30. Toranipani	..	1	1	..
31. Rimulighati	..	..	1	1
32. Tala Champei	..	3	1	1
Total ..	8	46	20	8

It is revealed from the above information that out of 32 villages in the project area 8 villages have open wells, 46 tube-wells in 27 villages, 20 tanks in 20 villages and 9 springs in 9 villages. There are 6 villages having no tube-well of which 3 villages have open wells and remaining 3 villages depend on spring and tanks. In order to provide safe drinking water to these 6 problem villages, installation of tube-wells may be taken up as indicated below :

Sl. No.	Name of scarcity villages	No. of tube-wells to be sunk	Approximate cost
1.	Nadam	One	Rs. 40,000
2.	Talabali	One	Rs. 40,000
3.	Phulbadi	One	Rs. 40,000
4.	Talapanasanasa	One	Rs. 60,000
5.	Upperpanasanasa	One	Rs. 40,000
6.	Rimulighati	One	Rs. 60,000
	Total ..	6 Tube-wells	Rs. 2,80,000

Malnutrition or under nourishment is commonly seen specially among pregnant mothers and new born babies. Ragi gruel or rice is their staple food. As paddy growing land is limited they utilise the 'Padar' land for growing cereals. Shifting cultivation is practised by each family to meet their requirement. More over due to destruction of forest, various tubers and roots are becoming scarce. The amount of calorie in-take for adult is almost adequate though qualitatively it may be poor. Social customs and traditions of Juangs are so important that execution of any plan and programmes without due consideration of their culture, social structure and taboos will lead to failure. In a society these traditional belief system plays an important role. There is little room for innovation and change. A change in their attitude can be made slowly by making close rapport with them. It is therefore essential to impart health education through various audio-visual aid, performing popular melodramas in Juang language concerning various diseases, disadvantages of witchcraft and sorcery and advantages of modern treatment etc. The following methods are suggested under health education programme in order to make them more conscious about modern treatment and maladis of traditional treatment through methods of magico-religious practices, witch-craft and Sorcery.

- Use of audio-visual aid project of documentaries on health.
- Staging of small dramas in Juang language on various diseases and development programmes.
- Exhibition of health matters with the help of maps, charts, clay-models, specially during their festive occasions.
- Organising training course for village-elders for one day with an expenditure Rs. 200 for 20 participants @ Rs. 10 each. Ten such camps may be organised at an estimated cost of Rs. 2,000.

- The training course for mothers can be organised in the same manner about mother and child care. Ten such women may be grouped for one camp for one day at an expenditure of Rs. 100 per camp. ten such camps may be organised with an estimated cost of Rs. 1,000.

- Organising debate, essay competition in educational institutions on personal hygiene, malaria, skin diseases, immunisation etc. Cash prizes may be awarded to the students. An amount of Rs. 30,000 may be earmarked for the purpose for 5 years.

- Strengthening of the existing Additional P. H. C. at Gonasika. The existing Additional P. H. C. at Gonasika is in a very pitiable condition. The hospital building and the staff quarters are uninhabitable due to lack of proper maintenance. More over, there is no quarter facilities for one A. N. M. It is therefore suggested that an amount of Rs. 1,50,000 may be earmarked for renovation of hospital building and staff quarters and construction of a quarter for an A. N. M.

- Since, malaria is rampant in the area, the Malaria Eradication Programme needs be taken up in the manner suggested below :

- Proper surveillance in the area should be activated.

- In each village Anganwadi workers and the school teachers wherever schools exist may be entrusted with distribution of medicines for treatment of malaria.

- Use of mosquito-net may be encouraged through health education.

- The Medical Officer, Gonasika may be provided with adequate supply of Chloroquine tablets and Lariago injection.

Rate of infant mortality—The rate of infant mortality in the project area is found to be high. The main cause of infant mortality is due to mal-nutrition of the mother and infantile diarrhoea. In order to check the rate of infant mortality, the health workers may be provided with oral anti-biotics, penicillin tablets and liquid preparation of long acting sulpha as a special measure, considering the peculiar topography and condition of the people.

It is observed that the JDA, Gonasika is spending Rs 30,000 to Rs. 40,000 every year for supply of medicines to the Juang patients on the basis of prescription of the Medical Officer, Gonasika. Previously the project had a Medical Officer and a Health Assistant to handle the medicine. But now these two posts have been abolished. As there is no medical staff in the project, it is therefore proposed that this amount may be diverted to the Additional P. H. C., Gonasika with instructions to the Medical Officer, Gonasika to utilise these medicines for the treatment of the Juang patients only. For 5 years a sum of (Rs. 30,000 X 5)= Rs. 1,50,000 will be required . The total outlay under this sector is indicated in the following statement.

Total Financial outlay for health & drinking water programme

Sl. No.	Programme	1st year Phy. target	1st year Amount	2nd year Phy. target	2nd year Amount	3rd year Phy. target	3rd year Amount	4th year Phy. target	4th year Amount	5th year Phy. target	5th year Amount	Total Phy. target	Total Amount
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	**Organisation of training course.**												
(a)	For village elders.	10	2,000/-	10	2,000/	10	2,000/-	10	2,000/-	10	2,000/-	50	10,000/-
(b)	For mothers	10	1,000/-	10	1,000/-	10	1,000/-	10	1,000/-	10	1,000/-	50	5,000/-
(c)	Organisation of debate, essay competation etc.	..	6,000/-	..	6,000/-	..	6,000/-	..	6,000/-	..	6,000/-	..	30,000/-
(d)	Strengthening of Additional P.H.C.												
(i)	Renovation of P.H.C.	..	1,00,000/-	..	..	..	..	..	..	..	..	..	1,00,000/-
(ii)	Quarter for A.N.M.	..	..	..	50,000/-	..	..	..	..	..	..	..	50,000/-
(iii)	Supply of medicine to Addl. P.H.C.	..	30,000/-	..	30,000/-	..	30,000/-	..	30,000/-	..	30,000/-	..	1,50,000/-
(iv)	Sinking of Tube-well.	2	80,000/-	2	80,000/-	1	60,000/-	1	60,000/-	..	..	6	2,80,000/-
	Total		2,19,000/-		1,69,000/-		99,000/-		99,000/-		39,000/-		6,25,000/-

V. 8. CREDIT & MARKETING

For quite a long time, private traders and middle men were the only channel of marketing traditionally in the Juang area by purchasing agricultural and minor forest products from the tribals and supplying them their daily necessities. The tribals were exploited in this process, by the private traders through various methods like advancing loan at exorbitant rates of interest and purchasing their produce at low rates, selling articles of their daily requirement like rice, salt and kerosine etc. at higher rate and also in weights and measures. In order to protect the tribals from such exploitation in the hands of private traders and money-lenders, number of large sized multi-purpose co-operative societies (L. A. M. Ps.) have been started in the tribal areas in Orissa to provide basic services like marketing of surplus agricultural and Minor Forest Produce from the tribals at reasonable rates and supplying them consumer's articles at fair price and provision of credit facilities at low rate of interest. Besides, Tribal Development Co-operative Corporations (T. D. C. C.) have also opened several branches to cater the similar needs of the tribal people at the time of their necessities. In the J. D. A. area, a branch of L. A. M. Ps. and T. D. C. C. have been opened Centres at Gonasika, Kadalibadi and Kanjipani and procured items like tamarind, mohua flower, harida as shown in Table V, during 1991-92. The L. A. M. Ps. have been functioning as a co-operative institution with a total enrolled members of 1791 of which the tribal members are 1480, Scheduled Castes 62 and others 249. Thus the majority of the members are tribals. The Board of Directors consists of a tribal President along with six tribal Directors, one Scheduled Caste Director and four non-Scheduled Directors. A paid Managing Director, from the Co-operative Department has been appointed to look after the day to day transactions of the society. The Board of Directors is functioning nominally, while the Managing Director is the key person to take decisions pertaining to the sales and purchases of various items and sanction of credit to its members. Normally the transaction done by the Managing Director, are placed before the Board of Directors for approval.

The L. A. M. Ps. performs mainly three functions, i.e., (a) purchase of surplus agricultural and selected items of minor forest produces from the tribals both from the market places and at their procurement centre, (b) sale of essential commodities like rice, edible oil, salt, kerosine oil, cloth etc. required by the tribals through the fair-price shops and supplying credit for the needy tribals for both productive and consumption purposes. All the 32 villages of the Agency are served by two Sub-centres at Gonasika and Kanjipani, which carry on both sale and purchase and advance credit. The Sub-centre at Kanjipani caters to the needs of Panasanasa, Talapada, Kanjipani and Kunar villages and the Sub-centre at Gonasika caters the needs of the rest of the villages. Keonjhar and Kanjipani are the two main market places where the Juangs of Kadalibadi, Gonasika. Tangarpada and Kanjipani villages go to sell their surplus agricultural produces like niger and mustard and to purchase cloth and other household materials from the market places. However, Juangs of Jantari and Talaraidiha villages visit the weekly market of Janghira village located at 10 Kms. away for sale of their produce and purchase of household materials. In all these markets both private traders and T. D. C. C carry on the purchase of agricultural produce, Minor Forest Produces and sale of daily necessities. Though the L. A. M. Ps. the T. D. C. C. pay a fair price, the traders pay a slightly higher price to attract the tribals and the gullible tribals succumb to the private trader's transaction and sell their commodities to them unmindfully and ultimately fall prey to cheating in weights and measures. Since there is no monopoly hold of the T. D. C. C. over the agricultural and Minor Forest Produces trades in the area, they have to compete with the private traders. Though the T.D.C.C. is not in a position to pay the same price, it is instrumental in maintaining the minimum price of the traders, indirectly helping the tribals to extract a fair price from the private traders.

In addition to the T. D. C. COL. the L. A. M. Ps. is actively involved in the supply of credit to the Juangs for both productive and non-productive purposes in close collaboration with the development Agencies like the Juang Development Agency, Integrated Tribal Development Agency and District Rural Development Agency operating in the area. While the development Agencies are financing the subsidy part, the

L. A. M. Ps. provides the loan for various Schemes like supply of plough bullocks, goats and land development to the Juang beneficiaries. In addition to the L. A. M. Ps. the Baitarani Gramya Bank, a branch of the Rural Bank located at Gonasika is also providing the credit to Juangs in the area and financing in the shape of credit for development programmes launched by various development Agencies operating in the area for income-generating schemes like supply of plough bullocks, goats, agricultural inputs and land development etc. Besides, it is also advancing personal loans for carrying on petty business and other income generating schemes to the Juangs sponsored by the development Agencies.

In spite of all the institutional facilities, Juangs inhabitating in the fringe villages close to the non-tribal habitation still depend on private money lenders for loan both in kind and in cash. In the interior villages, the Gaudas, a herding non-tribal Castemen, who have settled down in the Juang villages, have started advancing loans to the Juangs on exorbitant rate of interest and some of them grabbed their fertile lands against default payment. Legal proceedings under Regulation 2 of 1956 have been initiated to restore the alienated land to the rightful Juang owners. It is gathered from the local authority that till 1984-85 out of 162 cases registered, 63 cases have been disposed off and land up to an extent of 25·87 acres have been restored to the Juangs.

Recently the District Administration have circulated guidelines for Public Distribution System for the essential commodities directly in order to check the mal-practice by the private retailers. The subsidised rice and wheat are also now sold by the developmental Agencies for smooth distribution of essential commodities. Apart from all these facilities a mobile van is engaged for distribution of essential commodities in the weekly markets at a subsidised rate.

The data collected from the office of the Assistant Registrar, Co-operative Societies, Keonjhar reveals that under credit and consumer business, the Gonasika L. A. M. P. has done transaction of Rs. 2·21 lakhs benefitting 815 tribal members during the financial year, 1991-92. Keeping in view of the above position it is necessary that, the branches located at Gonasika and Suakati should be strengthened and more facilities be extended to the tribal beneficiaries. It is apparent that, the Juangs have already come to the fold of co-operatives and realised the advantages of becoming a member in the co-operative institutions. It is therefore, proposed to strengthen the existing branches of L. A. M. Ps. at Gonasika and Suakati and their Sub-centres. It is proposed to earmark an amount of Rs. 1 lakh each as share capital contribution to be utilised for purchasing surplus agricultural and Minor Forest Produces and sale of the essential commodities. This share capital contribution will act as a revolving fund which will strengthen the financial stability of the branches. It is also felt that due to difficult terrains in the area the essential commodities are not lifted by the L. A. M. Ps. from the godown of F. C. I. as it involves heavy transportation cost. It is, therefore, suggested that an amount of Rs. 50,000·00 may be earmarked for each branch towards transport subsidy for quick and easy transportation of essential commodities from F.C.I. godown. Thus the total requirement under co-operative sector will be as follows :

1. Share capital contribution Revolving fund @ Rs. 1 lakh for each L. A. M. P. for two L. A. M. Ps. .. Rs. 2,00,000·00

2. Transport subsidy @ Rs. 50,000·00 to each L.A.M.P. for two L. A. M. Ps. for 5 years @ Rs. 20,000·00 per year. .. Rs. 1,00,000·00

Rs. 3,00,000·00

This amount will be released in the first year of the project period. The location of L. A. M. Ps. with coverage of villages, number of members enrolled communitywise, functions of the institutions and transaction during the year 1991-92 is shown in Table V .8.1 of this sector.

Weekly Market :

There is no important daily market and commercial centres in the Project area. The Juangs attend the weekly markets at Gonasika and Kanjipani held on Wednesday and Saturday respectively and some attend daily and weekly market on Sunday at Keonjhar town to sell their surplus agricultural produces and buy their necessities. However, Gonasika, the project headquarters is slowly growing as a small market centre with grocery, tea-stall, stationery articles, etc. The year wise requirement of funds for credit and marketing is given below :

Year-wise break up for Credit & Marketing

Sl. No.	Name of the programme.	Amount required in Rs.					
		1st year	2nd year	3rd year	4th year	5th year	Total
1.	Share-capital contribution for two L. A. M. Ps. @ Rs. 1,00,000/- per L. A. M. Ps.	2,00,000.00	..	..	..	..	2,00,000.00
2.	Transport subsidy	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	1,00,000.00
		2,20,000.00	20,000.00	20,000.00	20,000.00	20,00000	3,00,000.00

TABLE V.8.1

Functioning of the Co-operative Institutions (Excluding T.D.C.C.) in J.D.A.

Sl. No.	Name of the village.	Number of members			Functions of the Institutions.	Transaction during 1991-92	
		S.T.	S.C.	Others		No. of members benefitted.	Amount transacted in Rs.
1	2	3	4	5	6	7	8
GONASIKA L. A. M. Ps.							
1.	Bayapandadhar	149	13	15	Credit and consumer business.	177	0·54
2.	Bayakumutia	116	20	5	Ditto	141	0·38
3.	Budhighar	57	..	14	Ditto	1	0·02
4.	Toranipani	45	..	11	..	..	..
5.	Kanjipani	48	1	45	Ditto	94	0·40
6.	Talapada	37	..	8	Ditto	45	0·20
7.	Upper Panasanasa	35	..	..	..	..	..
8.	Tala Panasanasa	63	..	2	..	..	..
9.	Kaptadiha	68	..	4	..	..	..
10.	Tangarpada	65	..	9	..	..	..
11.	Dumuria	28	..	4	..	..	..
12.	Kundhei	83	..	7	..	..	..
13.	Ghungi	29	..	1	..	..	..
14.	Duarasuni	54	..	..	..	..	..
15.	Talasumatha	21	..	..	..	..	..
16.	Uppersumatha	11	..	..	..	..	..
17.	Baitarani	26	..	8	..	..	..
18.	Nadam	23	..	11	..	..	..
19.	Hatisila	34	..	2	..	..	..
20.	Saria	35	..	9	..	..	..
21.	Upperbali	40	..	14	Consumer business	54	0·15
22.	Talabali	33	..	..	Ditto	33	0·08
23.	Gonasika	75	24	8	Ditto	107	0·18
24.	Upper Raidiha	18	..	11	Ditto	29	0·08
25.	Guptaganga	38	..	7	Ditto	45	0·05
26.	Jantari	50	1	..	..	..	..
27.	Tala Raidiha	29	..	..	..	..	..
28.	Kadalibadi	26	..	11	Ditto	35	0·04
29.	Phulbadi	39	..	3	Ditoo	42	0·05
SUAKATI L. A. M. Ps.							
30.	Upper Champei	24	3	32	Ditto	3	0·01
31.	Tala Champei	52	..	2	Ditto	4	0·01
32.	Rimulighati	29	..	6	Ditto	5	0·02
	Total	1,480	62	249		815	2·21 Lakhs

TABLE V.8.2

Activities of T.D.C.C. in J.D.A.

Sl. No.	Name of the village.	Name and location of T.D.C.C., Centre.	No. of members enrolled.	Amount of minor Forest products procured during 1991-92. (in Quintals)	Cost in Rs.	Amount advance loan.	Cost of essential Commodities sold during 1991-92.
1	2	3	4	5	6	7	8
1.	Gonasika	Gonasika Kadalibadi	..	Tamarind, -12.00 Harida, -39.00 Mahua Flower-61.75 Mushroom-1.00	Rs. 24,000.00 Rs. 5,850.00 Rs. 18,525.00 Rs. 100.00		We have not been allotted with P. D. S. items for this area.
2.	Kodipasa	..	..	..	..		Ditto
3.	Kunar	Kanjipani	..	Tamarind-6.00 Harida-8.00 Mohua Flower-31.00	Rs. 1,200.00 Rs. 1,200.00 Rs. 9,300.00		Ditto
4.	Suakati	..	..	..	..		Ditto
5.	Bayakumutia	..	..	..	..		Ditto
6.	Champei	..	..	..	..		Ditto

V.9. COMMUNICATION

A well developed net work of road communication is the basis of all developments. An effective communication and transportation system have the following utility : —

(a) For marketing of produce and effective utilisation of resources,

(b) For mobility of people and goods, and

(c) For cultural configuration.

So far as marketing of produce is concerned, the value of agricultural and forest produces increases when roads are developed. This means, more income to the inhabitants. One of the important reasons of regional disparity in the level of development is uneven distribution of resources and unsystematic development of road communications and transportation system. This disparity is substantially levelled up when the transportation system is uniformly improved in all areas. In fact, a planned transportation system can play a key role in bringing about balanced development. It is a fact that, the tribals living in backward regions are less mobile than the people of the plains. It does not mean that roads are not essential in tribal areas. In fact, the roads are as much needed in hilly areas as they are in the plains. The circumstances such as epidemic during which quick movement of professional staff and timely supply of medical aid needed are conceivable for all areas irrespective of their ethnic composition and geophysical situation. One of the important causes of backwardness of a tribal area is its relative inaccessibility and isolation of its inhabitant from the centre of learning and advancement and absentism of grass-root level workers of the Government posted there. That knowledge is conducive to progress, needs no mention. In this context, greater mobility and cross-cultural contact which follow the improvement of road communication and transportation system tend to increase knowledge. It is particularly so in an area like Juang-pirh where literacy is very low and education is to be imparted orally through personal contact. The agency headquarters at Gonasika though connected with a black-taped link road from National High Way No. 6, the arterial roads connecting villages with it are not well-developed. More over 9 out of 32 villages can only be approached by foot. These villages are Budhighar, Dumuria, Upper Bali, Upper Panasanasa, Tala Panasanasa, Upper Champei, Kaptadiha, Saria and Barhagarh.

The present status of road communication facilities existing in the project are as follows :

Sl. No.	Name of the road and its distance (in Kms.)	Type of road	Present position	Remarks
1	2	3	4	5
1	Boxibarigaon-Bayapandadhar Road.	26 Kms. Pucca	Construction is in progress.	
2	Gonasika to Guptaganga	3 Kms. Katcha	Good	
3	Gonasika to Baitarani	3 Kms. Katcha	Good	
4	Gonasika to Kadalibadi	5 Kms. Katcha	Good	
5	Gonasika to Kanjipani via Upper Raidiha and Talapada.	9 Kms. Katcha	Good	
6	Gonasika to Champei via Remulighati.	9 Kms. Katcha	Not completed	
7	Gonasika to Tangarpada	3 Kms. Katcha	. .	

8	Gonasika to Tala Raidiha	3 Kms. Katcha	The V. R. O. Ghat portion needs repair.
9	Gonasika to Jantari	5 Kms. Katcha	The V. R. O. Ghat portion needs repair.
10	Gonasika to Talabali via Hatisila	10 Kms. Katcha	The V. R. O. Ghat portion needs repair
11	Gonasika to Duarsuni, Torani-pani, Kundhei and Ghungi.	Katcha	The V. R. O. Ghat portion needs repair.

Out of the above mentioned existing roads, 13·5 Kms. have been constructed out of Project fund and the rest are constructed out of N. H. and Grama Panchayat funds. Another important road which runs from Bayapandadhar to Boxibarigaon (26 Kms.) is maintained by R. W. Division, Keonjhar under Rural Development Department and N. H. Division, Keonjhar under Works Department. This road provides communication facilities to villages such as Bayapandadhar, Bayakumutia, Gonasika, Jantari, Guptaganga, Baitarani which are inhabited mostly by the Juangs. A sum of Rs.11·70 lakhs has been deposited by the I. T. D. A., Keonjhar with the Executive Engineer, N. H. Division, Keonjhar for improvement of 2·25 Kms. of this road. Besides this, a sum of Rs.10·00 lakhs sanctioned by the Government of India for the development of communication facilities in hill areas has been deposited with the Executive Engineer, N. H. 6 for improvement of Bayapandadhar-Boxibarigaon road.

Apart from these, it is proposed to construct a new road from Bayapandadhar to Kaptadiha via Talabaitarani and Bali covering 8·90 Kms. by R. D. Department, with an approximate cost of Rs. 71,76,000·00. This amount has been provided during 1991-92 and placed with the Chief Engineer, Rural Works I, Orissa, Bhubaneswar.

Besides the existing roads and those under execution, a number of roads have been proposed by the J.D.A. But such a huge financial requirement may not be possible to meet out by the Agency fund. So also the Administrative Department may not be in a position to allocate the entire funds. The respective Department should come forward to take up such network of communication system. The Rural Development Department has already been created by the Government to handle such works in Rural areas.

So far, all these areas have been long neglected and now time has come for an integrated approach for over all development in this area. The communication system should not be left with the Grama Panchayats since they do not have the necessary technical personnel. The Special Officer of the Micro-project may be assigned with the responsibility of monitoring the road works keeping close contact with the technical staff and the executants. It is an encouraging fact that, one private bus is plying from Keonjhar to Gonasika via Bayapandadhar once in a day and it caters the needs of the people of the area to a great extent. A list of roads proposed by the Juang Development Agency along with the road proposed by the Rural Development Department with financial requirement is presented in Table V.9.1.

Besides these, a sum of Rs. 1,00,000·00 is kept apart for maintenance of 13·5 Kms. of existing roads. Thus the total financial requirement of road—project will be Rs. 81,26,000·00, the yearwise break up of which is given in Table V.9.2.

TABLE V.9.1

List of roads proposed and their cost

Sl. No.	Name of the road	Length in Kms.	Amount required	Remarks
1	2	3	4	5
1	Tala Bali to Upper Bali	3 Kms.	Rs. 15,000·00	
2	Tala Bali to Kaptadiha	1·5 Kms.	Rs. 30,000·00	
3	Hatisila to Saria	1 Km.	Rs. 20,000·00	
4	Tala Raidiha to Dumuria	12·5 Kms.	Rs. 60,000·00	
5	Budhighar to Talapada	5 Kms. Ghat road	Rs. 75,000·00	
6	Construction of 7 C.D. works in Gonasika to Kanjipani road.	7 C.D. works	Rs. 1,50,000·00	
7	Kanjipani to Upper Panasanasa	3 Kms. Ghat road	Rs. 5,00,000·00	
8	Bayapandadhar to Kaptadiha	8·90 Kms.	Rs.71,76,000·00	
	Total . .	33 Kms.	80,26,000·00	

TABLE V.9.2

Yearwise break up of road programme

Sl. No.	Name of the road programme.	Amount required					
		1st year in Rs.	2nd year in Rs.	3rd year in Rs.	4th year in Rs.	5th year in Rs.	Total in Rs.
1	2	3	4	5	6	7	8
New proposed roads :							
1.	Tala Bali to Upper Bali—3 Kms.	15,000·00	..	..	..	..	15,000·00
2.	Tala Bali-Kaptadiha—1·5 Kms.	30,000·00	..	..	..	..	30,000·00
3.	Hatisila-Saria—1 Km.	20,000·00	..	..	..	..	20,000·00
4.	Tala Raidiha-Dumuria—12·3 Kms.	20,000·00	20,000·00	20,000·00	..	..	60,000·00
5.	Budhighar-Talapada—5 Kms.	25,000·00	25,000·00	25,000·00	..	..	75,000·00
6.	Construction of 7 C.D. works in Gonasika-Kanjipani road.	50,000·00	50,000·00	50,000·00	..	..	1,50,000·00
7.	Kanjipani-Upper Panasanasa—3 Kms.	2,00,000·00	2,00,000·00	1,00,000·00	..	..	5,00,000·00
8.	Bayapandadhar-Kaptadiha—8·9 Kms.	20,00,000·00	20,00,000·00	20,00,000·00	11,76,000·00	..	71,76,000·00
9.	Maintenance of old road	20,000·00	20,000·00	20,000·00	20,000·00	20,000·00	1,00,000·00
	Total ..	23,80,000·00	23,15,000·00	22,15,000·00	11,96,000·00	20,000·00	81,26,000·00

V.10. EDUCATION

Following the directive principles of the Constitution, social justice has become a basic objective of development planning. Attempts have since then been made for achievement of this objective as well as provisions of minimum needs of different areas and sections of the community. Since the beginning of the fifth Five-Year Plan, a new strategy was adopted with huge financial mobilisation to implement minimum need programmes in all areas. Accordingly, a net work of certain essential services on a co-ordinated and integrated manner was estalished to bring uniformity and equality throughout the country.

Among all individual needs, education stands in a separate platform since this need is a parameter for the sound economic growth of a particular society and individual as it means the conciousness of the society. All the development and socio-cultural milieu basically based on the educational standard of a particular society. Hence the need for educational development has been considered as a paramount requirement for a healthy society. On the other hand, in a developing country where resources are limited, expenditure on education or health unrelated to productive activities will get a low priority. In fact, the Planning Commission has also observed that the social facilities were not given a high priority particularly in a relatively poorer State.

Productive use of social facilities which will serve the needs of the tribal people and poorer sections can be made in two ways. The short term use will be to fill in the educational gaps wherever they are existing by providing the facilities, especially in centrally located villages. Attention may be given to the existing indigenous educational institutions and attempts should be made at activizing them and in comparing these with the official educational institutions. For example, among the Juangs, the institution of Majang works as an educational and cultural centre. New schools proposed to establish in the villages where there is gap, this facility can well be housed in the Majang thereby minimising expenses which are required for constructing a new school building. Integration of official institutions with the indigenous one should be tied in the Juang area.

The need of educational institutions in the Juang area of Keonjhar district cannot be overlooked as the Juangs are still in the base level of development. Their society is extremely simple and needs are few. They have a cultural and physical isolation due to communication gap. They are governed by oral tradition interpreted by village elders and leaders of their society. The process of change is slow due to less contact with outside world. Conciousness towards developmental programmes become feeble due to lack of education. It has rightly been pointed out by a team of World Bank personnel that primary education has been found to be positively related with agricultural extension services and productivity of the farm. The agricultural extension services become effective when members of a community have developed their receptivity at least through primary education. Accordingly, universalization of primary education has been adopted to speed up the pace of developmental programmes. The Juangs have been identified as a primitive tribe in consideration of their low level of literacy, pre-agricultural technology, physically isolated from the so called civilized society. Prior to establishment of Micro-Project for the development of Juangs there was a very little progress in the field of education.

An evaluation study was made during the year 1988 to assess the progress of development after grounding of the Micro-Project.

A comparison was made about the level of literacy among the Juangs between 1978 and 1988. The data reveals that there has been a small rise in the level of literacy among both the sexes within the said period of time. General literacy i.e., 9·88 % in 1988 is higher than the literacy percentage of whole Juang population of the State (7·99 %) as per 1981 census. Similarly the male and female literacy have jumped up from 8·99 % and 0·97% to 15·49% and 6·34% respectively. The most significant phenomenon is the growth and spread of female literacy. In 1978 out of 32 villages, the incident of female literacy was seen only in 7 villages. But in 1988 literate Juang females were spread over 16 villages.

This is indeed a remarkable achievement to indicate positive development trends. As regards to Juang males, literate persons are found in all the villages. Among the literates and educated persons of the surveyed Juang households the majority, i.e., 7·12 % of the total surveyed population have received education up to primary level followed by the group of literates without any level (2·94 %). There is not a single person who has received higher or technical education. Larger number of literates belonging to first two groups appears to be the outcome of successful implementation of non-formal and adult education schemes under Gyan Mandir, Adult Literacy Centres and Anganwadi Programmes and more specifically due to the sincere and dedicated effort of the village workers known as "Gram Parichalaka" and "Gyan Maa's" working under the Project. Larger number of literate and educated persons are found in the villages like Gonasika, Guptaganga, Kadalibadi, Baitarani, Kanjipani, Phulbadi. Talpada and Tal Champei. The reason is that, most of these villages are accessible, nearer to Project headquarters and have educational facilities within their easy reach. Moreover inhabitants of these villages have become conscious of the benefit of education through their exposure to external agencies of change and development. Due to these reasons the incidents of secondary education has been reported from only six villages, i.e , Gonasika, Guptaganga, Kadalibadi, Tal Raidiha, Upper Raidiha and Kanjipani. The first five villages are nearer to Residential High School situated at Gonasika while in the last one i.e. Kanjipani, there is a Residential M. E. School. Still the achievement made in the field of educational development is below expectation. The handicaps have been outlined in the previous chapter. For example the primary school in the village Jantari is located in a central hamlet to impart education to the children from the neighbouring four to five Juang villages and hamlets which are 2 to 3 Kms. away from the school. Juang parents who are generally indifferent about their children, do not like to send their small children to attend the primary school covering this distance. There are 2 teachers posted in this school. One of them who is staying inside the village attends the school regularly and the other teacher who comes from a distance village is not regular as a result of which quite a small number of Juang children attend school every day though a large number of students have been enrolled in the school register. Thus inconvenient location of the school, absentism of teacher and indifferent of Juang parents are the main obstacles in the progress of education. Findings from the recent survey conducted for the preparation of techno-economic report in 32 villages under the jurisdiction of the Juang Development Agency, Gonasika reveals that out of the total Juang population of 5,490,651 persons are literates which constitutes 11·86 % of the total surveyed population. It is interesting to note that, out of 2,733 male population there are 545 male literates constituting 19·94 % as against 106 female literates out of 2,757 population making only 3·84 %.

As regards the educational levels, 514 Juang children are in Primary Schools, of which 416 are males and 98 are females. In the M.E. Standard, there are 122 students of which 114 are males and 18 are females. Likewise there are 15 students up to Matric Standard and only a single person has read beyond Matric Standard.

As regards breakup of children under age-group of 0—4, 4—11 and 11—16 years who are going to school, it was revealed that, in the age-group of 4—11 years there are 845 children of whom 272 attend schools. Among them 201 are boys and 71 girls. Similarly in the age-group of 11—16 years only 76 are going to school which include 68 boys and 8 girls. This shows that there are large number of drop out from Primary level to higher level and a very negligible portion of female children go to school. Tables V.10.1 and V.10.2 reflect the position of age and sexwise breakup of school going children and literacy position in the surveyed households respectively. Most of the Juang parents have not received any formal education in the school. It is therefore quite natural that, they would not feel the necessity of education in the life of their children. They engage their children for collection of minor forest produce or ask them to look after babies when the parents are out for work in the field or forest. It is quite evident that 95% of the Juang are poor and in need of their children's assistance in their economic pursuits, so that, they could earn a bare subsistence for the family. They would not be motivated to send their children if there is no provision for feeding the

children. It is therefore essential that, any programme having a provision for mid-day meal would attract tribal parents to send their children to school.

Before regular schooling, the Juang children should be motivated and made habituated when they are at pre-schooling age. Thus pre-Primary schools called Chatsali with provision of feeding and supply of reading and writing materials need to be provided. The curricular load should be simple so that they would not get frighten and run away from the schools. A gradual and slow process of motivating and making the children habituated to the school system is necessary in the project area. The process of mental preparedness of a Juang boy for formal education thus, need a system of pre-Primary school with the following components in addition to other curriculum.

(a) Play with and without toys

(b) Dancing and Acting with Action songs

(c) Visualising still and action pictures

(d) Physical discipline like going in a line, performing simple drills and keeping their body and dress neat.

(e) Story telling within the comprehension range of their understanding.

Besides, the feeding programmes to be organised along with the pre-Primary education programme so that the parents would be happy to see that their children are well dressed and well fed side by side by availing the education. The Anganwadi run by Integrated Child Development Programme under the Panchayat Raj Department in the project area will be combined with the Pre-Primary education scheme. In addition to these, a few health programme will also be combined. These will consist of : (a) Immunisation, (b) Health check-up, (c) Referal services, (d) Health & Nutrition Education.

In the project area, there are 14 Anganwadi Centres which can be harnessed for helping the primary education. These centres are located in the following villages :—

1. Gonasika
2. Guptaganga
3. Baitarani
4. Kadalibadi
5. Phulbadi
6. Budhighar
7. Tala-Raidiha
8. Upper Raidiha
9. Duarsuni
10. Kundhei
11. Tala-Bali
12. Kaptadiha
13. Kanjipani
14. Upper Panasanasa

It has been indicated in the Constitution of India under the Directive Principles of State Policy that elementary education for the children in the age-group of 0—14 years should be universalised and compulsory. This universalisation of elementary education has three distinct phases : (1) Universal provision of educational facilities, (2) Universal enrolment and retention, (3) Universal participation and attainment. It is observed during the field investigation in the J.D.A. area that the first step of universalisation programme

has not been completed. Adequate schooling facilities have not been providad in the Project area. As per the norm fixed by the State Government the Primary Schools are to be located within 1 Km. radius or one school for 200 population. These two norms of population and distance cannot be applicable in the tribal areas, particularly in the J.D.A. area for the reason that the Juang villages are too small and are located in a dispersed manner in-accessible areas. A statement of educational institutions run both by Education and H. & T. W. Department is given in Table V. 10.3. and V. 10.4.

It is seen from the Table that out of 32 schools, 7 schools do not have its own building. Such schools are located in (1) Upper Bali, (2) Tala Summatha, (3) Upper Summatha, (4) Tala Panasanasa, (5) Upper Panasanasa, (6) Budhighar and (7) Toranipani. In the absence of buildings, educational pursuits of the schools cannot be regulated. Unlike the non-tribal areas the Juang villages do not have such spacious house except the bachelor's dormitory to accommodate the students. The bachelor's dormitory primarily meant for the unmarried Juang youths is commonly and frequently used by the villagers and as such cannot be spared for running the school for a period of longer duration.

Provision of quarters to the teachers and school building are very essential in the tribal areas. Availability of residential accommodation to students will help in the educational progress of the tribal children as these will stop long absence of the teachers causing irregular attendance in their duties.

As a policy decision taken by the Education Department, all the Lower Primary Schools having at least two teachers should be upgraded to Upper Primary Schools with classes from I to V and will be called as Primary Schools. Thus all the Primary Schools in the J.D.A. area have been upgraded to Upper Primary Schools.

The most important factor in educational sector, is to ensure large scale enrolment of students in the primary level. The total population of the Juang as per the survey conducted is 5,450 of which 1,079 (19·79 %) belongs to the age group of 4—11 years. Among them 272 children are attending school (25·20 %). Similarly out of total population of 5,450, 572 belongs to the age-group of 11—16 (10·49 %) years. Out of the children of this age-group only 76 are attending schools (i.e. 13·28 %). Thus the enrolment position of school going children happens to be very poor. But in actual practice, admission into schools in Orissa State, there are provisions for admitting children of age-group of 5 plus. Hence almost all children admitted in Class I are outside the ambit of child population of 6—11 age-group.

Normally, in tribal areas, tribal children are admitted at late age. It is therefore necessary to calculate the net enrolment position by deducting 20 % from the gross enrolment. In this case it will be seen that, in case of net enrolment there will be about 54 % of the child population. The poor enrolment position in this area is mainly due to lack of schools in the smaller villages and adequate incentives to attract the parents to send their children for education. The villages of this area, are situated in such a manner that, no child of school-going age can attend school crossing thick forests and mountains to a neighbouring village.

Second reason for poor enrolment may be attributed to their poverty. Some of the school-going children of the villages where schools have been established, are admitted and some others are not enrolled mainly due to poor economic condition. The parents cannot afford to pay for education of their children. On the other hand, the parents desire that their children should be engaged in some activities to supplement the family income or to rear babies when parents are out for work in the forest or field. It is also evident from the role strength of different educational institution that, there are a large number of cases of drop out of tribal students from the schools. It is therefore necessary to undertake a systematic study over a period of time to assess the cause and effect of drop outs. The overall drop out position in the State of Orissa as per the information indicated in the Techno-economic Survey Report of "Kutia Kondh Agency" is 46% between Class I and Class V. In case of Juang Development Agency area, this per cent goes up to 70 %. This large scale incidence of drop out can only be checked by providing incentives to attract the children for next higher education.

It is therefore suggested that mid-day meal facilities should be extended to all the Primary and Middle Schools of the Project area. In addition to these, reading and writing materials, maps, charts, models, etc. with tribal background should be supplied to attract the Juang children to attend schools. The Operation Black Board Scheme started by the Government of India, provided funds for supply of globes, maps, charts, blackboards, game materials, musical instrument and other materials at a cost of Rs. 7,315 for each Primary School. Under this scheme, it was also decided to supply Two-in-one radio to all schools and T.V. sets to these Primary Schools where electricity is available and located within the range of transmission of T.V. pictures. Besides, science kits and tool-bags are also to be supplied to Primary Schools to serve as teaching and learning aids.

The educational institutions of H. & T.W. Department have some aids but are inadequate. But in case of institutions run by Education Department no aids are found to be utilised for teaching the tribal students. Most of the schools having buildings and teachers are found to be vacant due to poor percentage of attendance. Adequate steps are necessary to mobilise the parents, the students and the teaching staff for better performance in future.

One Ashram School in Gonasika has been upgraded to High School level and after upgradation, the H. & T. W. Department sanctioned funds for construction of new building both for classroom & hostel. During the survey it was found that, the progress of work is very slow. Immediate steps are necessary to complete the construction work of the school to accommodate all the boarders. There is heavy demand for admission in residential schools. Students from other districts have also come for admission. But it is the Juangs who should get first preference for admission into the schools located in the Project area. The Residential Ashram School at Gonasika has 16 teachers out of the total strength of 17. As regards the accommodation facility of teachers, there are only 8 quarters now available. Hence it is felt necessary to construct 9 more quarters to accommodate all the teachers for better performance in the school.

The literacy position among Juang females is very poor. In the Juang society women are laborious and work for the family from early age. Hence no girl student is seen in the higher class and number of girls in lower classes is also very negligible. Another important factor of poor educational standard in the Project area may be attributed to the delay in the supply of reading and writing materials. Such delays are mostly responsible for unsatisfactory results of the students, because the students do not get adequate time to complete their syllabus. The amount of stipend should be enhanced and disbursed timely.

In the terrain of Juang pirh, the general health condition of the students is deplorable. It is therefore necessary to look after the health condition of the school-going boys and girls by an authorised medical practitioner with adequate medicines both for preventive and curative purposes.

It is observed during the survey that, no educational institution has provision for vocational training. But there are opportunities for introducing vocational courses like goatery, piggery, poultry, etc. so that the students after passing out from the school would take up these professions to earn their livelihood.

It is surprising to point out that, educational development of the Juangs is not considered a responsibility of the Juang Development Agency, Gonasika. Since education and health are State sector responsibilities, the project functionaries do not bother themselves about the educational development of the Juangs. It is therefore felt necessary to recommend that, the Special Officer of the Micro-project should have direct control over the educational institutions located in the Project area.

In order to boost up educational advancement among the Juangs, a general approach may be adopted. Hence, adequate importance should be given to traditional leaders who are strictly followed and obeyed by all the villagers. The community leadership should be the focal points which will help to spread education among the Juangs. The traditional village leaders known as Pradhan and Panchayat Ward

Member should be a via-media between the authorities, teaching staff and the villagers. Moreover the youth organisations and the 'Majang' (Dormitory) will play important role in the spread of education. These institutions are primarily responsible for training of the future generation. The adult members of the youth organisation in respective villages should be entrusted with some responsibilities for the smooth running of the educational institutions. They may be regarded as liasioning agents between the educational institution and the Micro-project authorities.

Since the Project area is covered under total literacy programme there is no need of allocating any funds under this sector. Only a follow-up programme will have to be organised for the new neo-literates for the retention of literacy. As per the guidelines of Government of India, the "Gyan-Sikhya Nilayam" are to be organised to follow-up the educational standard of neo-literates. The norm for establishment of 'Gyan Sikhya Nilayam' particularly in this area should not follow the norm fixed for the plain areas. More number of such centres may be opened in the J.D.A. area. The entire financial liability will be borne by the Government of India under the Ministry of "Human Resource Development". The programme wise and yearwise financial requirement is indicated in the statement annexed.

V. 11. Rural Electrification

The Agency area is situated on the hill terrains of Juang-pirh mountain ranges surrounded with thick forest growth. Moreover, the scattered nature of small-sized settlement pattern situated on the top, slope and foot of the hills stands as a barrier in providing electricity to the area as it will involve massive investment to stretch transmission lines to such long distance for comparatively small loads. That is why most of the villages are not electrified till 1975. Apart from these, financial and technical difficulties, the Juangs being a primitive tribal community are not yet aware of the use and benefits of electricity who generally go to bed in the early hours of the evening after day's hard work. It is for such habit of living they normally do not come forward to take such initiative for domestic electrification. Moreover, they are indifferent to this scheme because of their poor living condition for which they are also unable to bear the cost of domestic electric connection and its monthly energy charges. However, by the initiative of J.D.A. in collaboration with Rural Electrification Organisation, electricity was provided to 7 villages out of 32 villages in the area both for domestic and agricultural purposes. Villages like Baitarani, Bayakumutia, Baya-Pandadhar, Tala Raidiha, Remulighati and Jantari have been provided with electricity for agricultural purposes and villages like Kanjipani, Kandhei, Bayakumutia, Remulighati, Gonasika, and Guptaganga have been provided with electricity for domestic consumption.

A total number of 67 households have taken connection for their domestic use. The cost of installation and recurring energy consumption charges are borne by the J.D.A. from its normal grant. There are some Government establishment at Bayakumutia, Bayapandadhar on the National High Way No. 6 are also electrified. It has been reported that, a sum of Rs. 1,97,279·00 has been spent on Rural electrification programme out of Special Central Assistance. Gonasika, Jantari, Guptaganga and Talaraidiha villages have put under the map of electrification by extending the street light facility besides agricultural connection provided to pump sets for lifting water from the Lift Irrigation points at Talaraidiha and Jantari villages.

Though street light connection have been given to the aforesaid villages, most of the time the lights do not glow either due to power failure or frequent fuse of the bulbs. The Juangs as such, do not even care to replace the fused bulbs with a new one but keep the village in darkness until some Governmental agency comes to their help. But it is an important point to note that, presently the Juangs who have taken electricity for their domestic consumption are keen enough to look after the regular power supply and use of electricity. Keeping the low standard of living conditions and lack of awareness of the Juangs in mind, the development agencies like J.D.A. or Integrated Tribal Development Agency should come to their rescue and see that the facilities are maintained uninterruptedly. Otherwise most of these village connections will remain only in paper without serving the intended purpose.

The Executive Engineer, Keonjhar Electrical Division has proposed to electrify 5 more villages during the 8th plan period with an estimated cost of Rs. 5,00,000·00 @ one lakh for each village. The cost has been calculated on a higher side due to the fact that the villages are situated in the hilly terrain. The remaining 20 villages which are yet to be electrified may be taken up for electrification in a phased manner so that the heavy financial requirement will not be a burden. Apart from the State Electricity Board, funds may be earmarked from the organisations like I. T. D. A. & J. D. A. for this purpose. The I.T.D.A. can take up some villages under "Kutir Jyoti Programme". Local Rural Electrification authorities may be entrusted with installation, maintenance and repair jobs by opening a Section Office at Gonasika. A fully equipped technical team may be stationed at project headquarters either under the Section Officer or under the J. D. A. to take-up routine repair and maintenance jobs immediately after getting information of break-down of power in any of the Juang villages.

It is found that, the electrified villages do not take care to report frequent power failure and fuse of electric bulbs provided for the adult education centres (Gyan-Mandirs) and street lighting. Nor do they care

to replace the fused bulbs till the Agency staff come to know the problem and take remedial measures. More so, there is enough electrical maintenance staff available at Gonasika to render prompt service. The actions as suggested would go a long away in taking electricity to the interior Juang villages and persuading them to avail the benefits of electricity in their day to day life by ensuring regular and uninterrupted electricity supply to regular repairs & maintenance of electric installations. The multipurpose workers working in the Juang villages may also be trained to take up minor repairs & maintenance jobs. A Linesman may be posted at a central village to look after a group of some neighbouring villages. Proper use of electric power in domestic life as well as in agricultural operations would certainly bring a new light in the life cycle of the Juangs.

Yearwise break up of Electrification Programme

Name of villages to be electrified	Amount required					
	1st year (in Rs.)	2nd year (in Rs.)	3rd year (in Rs.)	4th year (in Rs.)	5th year (in Rs.)	Total (in Rs.)
1. Two villages @ Rs. 1,00,000·00 per village.	2,00,000·00	..	..	..	..	2,00,000·00
2. Two villages	..	2,00,000·00	..	..	..	2,00,000·00
3. One village	..	..	1,00,000·00	..	..	1,00,000·00
Total ..	2,00,000·00	2,00,000·00	1,00,000·00	..	..	5,00,000·00

VI
SUMMARY, CONCLUDING SUGGESTIONS

VI. 1. Summary

Basing on the diagnostic criteria, like pre-agricultural level of technology, low literacy, diminishing or near stagnant population, seclusion and archaic modes of living etc. a number of tribal groups have been identified as primitive Tribal Groups (PTGs) at the first instance during the Fifth Five Year plan and brought within the ambit of all-round development through micro-projects. As such, in Orissa12 primitive tribal groups have so far been identified and 16 micro-projects are now in operation in different tribal pockets. The Juang Development Agency, Gonasika in the district of Keonjhar is one of these micro-projects which is enagaged in lunching multifarious developmental schemes to bring all-round development of the Juang people of that area.

It was found that the development programmes which have been launched during last decade have not brought sustainable socio-economic development of the Juang people to a desired extent. For this purpose it was felt necessary to prepare a Hand book as development based on Techno-economic survey for all-round development of the Juang people of the Juang Development Agency area.

The Juang Development Agency, Gonasika started functioning with effect from 10-3-78 with its headquarters at Gonasika.It consists of 29 villages and 3 hamlets (Treated as 32 villages) for the purpose of development with a total number of 5,490 Juang population. The project area is situated in the hill ranges of Juang Pirh with a total geographical area of 64143.6913 Hects.

The juang country is locally called "Juang pirh" refers to a maximal traditional territorial unit i. e. a combination of several contiguous villages having well dafined tarritorial limits led under the command of a hereditary tribal chief called "Sardar" . There are four hemogenous Juang Pirhs namely Satkhand , Jharkhand , Kathua, Rebena and two hetrogenous Pirhs namely Hunda and Charighar covering most of the Juang villages in which the bulk of Juang population is concentrated.

They constitute about 80% of the population of these pirh areas. Formerly this area was under dense forest coverage and they were thriving upon a forest dependant economy . They were semi-nomadic people , shifting their habitation in cyclic rotation between certain shifting cultivation sites under their respective jurisdiction. Like most other primitive tribal groups hunting and collection of minor forest produce including the edibles constituted their supplementary livelihood.

The Juang country was practically devoid of communication. This has caused isolation. Besides, lack of other basic adequate infrastructures for education, health services etc, has made the area under developed.

The soil of this area is generally red laterite having light texure and poor humidity content. It becomes dry and hard after rainy season making it unsuitable for a second crop.

The Juangs have their traditional oral system of education which is informal, practical and need based. The chief objectives towards which it is directed are the maintenance of tribal solidarity and the loyality to tribal customs and traditions. It is carried through the process of socialisation and adaptation to the natural environment. But in respect of modern formal education, their level of literacy is very low. It was 5.72 per cent in 1971 as against 9.46 per cent of the tribal population of the State. It has gone up to 7.99 per cent in 1981 which is much lower than those for the tribal population in general (13.96 per cent) and State population (34.23 per cent). Again among the sexes, the rate of male literacy is much higher than those of the females which is almost negligible to say.

The Juangs have their own language which they retain even now despite considerable charges which have taken place in the tribal life of the country in general and the State in particular. Very little is known about their history, but they have their oral folk tales and legends about their origin and social

tradition. According to Varrier Elwin, the word. 'Juang' in the tribal dialect means simply 'Man'. Their neighbours call them 'Pattua' meaning the wearer of leaf-dress though leaf-dress has long been abandoned.

Racially they belong to Proto-Astroloid stock. They are medium in stature with long head, pointed cheek bone and broad nose having depression at the root. They have dark wavy and coarse hair and their skin colour varies from brown to dark brown.

They mostly live in small unician villages located on hill tops, slopes or valleys covered with forest. The plain stretches of valley lands are used for settled wet cultivation and the hill slops and tops are used for shifting cultivation.The villages are generally culturaly homogenous inhabited by members belonging to a single clan.Some families of Panos, (Sch.castes) and Gouds (milkman) are found in hill Juang settlements.

The settlements are found near hill streams or rivers ensuring supply of water for domestic consumption. Most conspicuous central structure in the Juang village is the community Centre-*cum*-Youth Dormitory called *Mandaghar. It* is the most conspicuous house in the centres of the village with walls on three sides and open in front.Fire is kept burning always in the centre of the *Mandaghar*. People spend their leasure hours in this place gossping and smoking. The Mandaghar serves several purposes such as meeting place of the village Panchayt, rest house for guests, sleeping place for the guests and the bachelors of the village during night. All the inhabitants especially the unmarried boys and girls have to join hands to maintain the Mandaghar in good condition.

Most of the communal activities take place in and around the 'Mandaghar'. The specious place in front of Mandaghar is used for dance by boys and girls during night.

The individual houses are scattered here and there around the Mandaghar. Their houses are small made of wooden logs planted vertically close to each other and plastered with mud and cowdung. The roof is thatched with wild grass. There is a small door for entrance with no windows for ventilation. The interior of these single roomed houses are functionally divided into three distinct parts. Pigstays and cattlesheds are closely connected to the living house surrounded by wattle fencing. Sometimes goats are kept in the living room.

The Juang habitat is endowed with clean air and pollution free atmosphere . Inspite of such natural gifts, the Juangs do not enjoy good health. They are not conscious of health hazards of the unhygienic habits and living conditions.

The males wear a piece of loin cloth. Children up to 6-7 years of age usually go naked. Women wear small and coarse coloured sarees. Few of the males have shirts, shawals, which are used on festive occasions and when visiting the market and relatives.

The Juang women are fond of adorning their bodies with tatoo marks and various kinds of ornaments. . They are also very fond of coloured beads which are purchased from the local market.

The diet of the Juang is neither regular nor standardised. Rice is their staple food which is often substituted by millet and maize. They usually take meal twice daily.

Like some other tribals, the Juangs are also addicted to alcoholic drinks which are either prepared at home or purchased from markets. They take rice beer , mahua liquor and sago-palm juice as their alcoholicdrinks. Sexual division of labour is conspicuous in their society. Men attend to more arduous works where as women do lighter works. Certain strenuous works like ploughing, hunting, house thatching, sowing, climbing trees etc. are strictly tabooed for women. The money lenders and liquor venders exploit them in many ways. They are very often cheated by the local Mahajans (traders) at the time of exchange of their surplus agricultural and forest produce for rice, food grains and daily necessities of life. They are grouped in to a number of exogamous clans or gotras known as *Bok*. The members of a clan believe that they have descended from a common ancester and thus regarded themselves as brothers and sisters.

Rearing of livestock such as cattle, goat, sheep, pig and poultry birds is a part of traditional Juang economy. A number of plough bullocks are also allotted to the beneficiaries to carry on cultivation. But the animals are found to be in poor health condition as they are underfed and illcared for. The veterinary services available in this area are not enough to take care of the livestocks. Two livestock centres, one at Gonasika and the other at Kanjipani are unable to deliver the goods.

Agriculture is the mainstay of the Juang economy. Due to lack of irrigation, there is frequent crop failure and the second crop is impossible. Of late the C.D. Block of Banspal and the J.D.A. have constructed some irrigation structures for adoption of modern farming practices. So it is felt that, the land use pattern should undergo change to some extent. The physiography and soil condition in the study area is not so favourable as to enable the farmers to introduce those crops which need more water. Thus instead of extensive paddy cultivation, oil seeds should be grown extensively. High yielding varieties of paddy and hybrid wheat should be cultivated in places where conditions are favourable, as and when irrigation facilities are available cultivation of such crops should be extended.

In the project area, shifting cultivation has created serious problems which cannot be stopped suddenly as it is more a way of life than a means of living of the people of that area. What is involved in shifting cultivation is that, people hold land for two years-first year for growing oil seeds and second year for food crops. Soil erosion takes place to some extent in the first year but as the land is made barren,the soil-erosion becomes extensive in the second and subsequent years. Flat valley bottom should be reclaimed and rendered suitable for paddy cultivation. Similarly area of gentle slopes should be made suitable for terraced cultivation. Minor irrigation projects and cross bunds should be given top priority for providing irrigation water to crops grown in valley bottom and terraced fields. Lift irrigation points wherever necessary should be installed for irrigating terraced lands. Where irrigation facilities cannot be provided but the slope and soil conditions are favourable for paddy cultivation the lands should be reclaimed to make terraced fields and one kharif crop should be grown in such land under rainfed condition. The measures if taken systematically, should put a stop to shifting cultivation.

The agro-climatic conditions in J.D.A. area are favourable for horticulture and there is already a demand for fruits in urban centres and around industrial mining belts. The Taila lands, which are to be vacated by the shifting cultivators by suspending second year shifting cultivation, are ideal for horticulture development. It is recommended that in the lands which are under first year taila cultivation, seeds or seedlings of fruit trees (Jack fruit, mango, papaya, guava, banana, etc) should be planted at the end of the monsoon so that by the time of harvest of the first year, these fruit trees will come up to stage of safe growth and people after harvest will get time to take care of them.

The Baitarani Gramya-Bank opened two branches at Gonasika and Kanjipani to provide banking services to the Juangs. The bank has been financing the Juang beneficiaries sponsored under I.R.D.P. and I.T.D.A. shemes.

There is a LAMP functioning at Gonasika with branches at Duarsuni, Kanjipani and Bayapandadhar to provide credit and marketing facilities to the Juangs. For a number of reasons this co-operative institution is not functioning properly which should be revived immediately.

There is no important daily market and commercial centre in the project area. The Juangs attend weekly hats at Gonasika and Kanjipani held on Wednesday & Saturday respectively to sell their surplus produce and to buy daily necessities. However, Gonasika the project headquarters is slowly growing as a small market centre in the heart of the Juang country.

Administrative Structure and Personnel Policy:

It is needless to say that the success of tribal development programmes depend largely on effective developmental administration guided by some fundamental principles, like preservation of the basic structure of tribal life and authority, and secondly their participation and gradual integration in the general life of the country without the loss of their individuality. The administrative structure meant for implementing tribal

development programmes should be a simple one. The level of development of tribal communities is so low that the multiplicity and complexity of the administrative machinary helps only in confusing them.

Problems of tribal communities are of special nature and the tribal areas are in many ways different from the plains. In view of peculiar ecology of the tribal areas and varied cultural features, it is necessary to be very careful about selecting officers in-charge of development of tribal areas. To encourage sound guided development,the officers and workers should be handpicked for their mind to work with the tribal people and heart to understand and solve their problems. An officer who regards his posting to tribal areas as a punishment posting, is a misfit in the administrative machinary specially designed for tribal development. Posting of willing, experienced officials to development stations in tribal areas will solve many administrative & developmental problems. Officers of high calibre and sufficient service experience will be able to give proper guidance to their subordinate staff and inspire their respect and stimulate team spirits in day to day activities.

Officers selected to work in tribal areas should learn the local dialect to run their developmental and regulatory administration effectively. Adequate incentives by way of cash awards should be provided to them for learning tribal language.

Monetary incentives are not enough to compensate for their services in the tribal areas. Officers working for a long time in tribal areas deserve accelerated promotion and special incentives by way of special increments in the scale of pay for the good work they do in areas of difficult terrain.

Moreover, in all these developmental programmes and administrative arrangements sufficient care should be taken to ensure that the tribal people are trained and made skilled for deriving direct benefits from them. Certain developmental programmes may be as much gainful as harmful to the tribal communities. For example, roads may be as much as blessing as a curse to the tribal people whenever the tribal areas have been subject to corruption and exploitation. It is difficult to check all the evils coming into the tribal areas through improved transportation system but for quick and easy movement of men and materials net-work of communication and transport system is indispensable. In view of this the planning should be done in such a manner that its evil effects are minimised to a great extent and every road made a pilgrim's way to richer and happier life.

VI. 2. Concluding Suggestions

Some of the important and useful suggestions for launching development programmes under different sectors are furnished below :–

1. Forest:

As the project area is covered with hills & forest introduction of Agro-Forestry practices, commonly known as "SALT" (Sloping Agricultural Land Technology) has been thought up for the project area :–

(a) "SALT–1" technology may be applied to the lands with gentle slopes where agriculture can be practised for increasing crop yield and reducing soil erosion ;

(b) "SALT–2" technology otherwise known as "Simple Agro-live Stock Technology" may be introduced on uplands and hill slopes for minimising soil erosion, improving soil fertility and providing a regular descent income to the target community ;

(c) "SALT-3" for a sustainable Agro-forest Land Technology may be adopted in steep slopes where the Juangs practise 'Podu' in the absence of any other alternatives.

2. Soil Conservation

(a) Due to hill terrain, the wetland available in the area, is found to be very megre in comparision to the population. There are still, large acres of cultivable waste land available in the area which may be developed in way of bunding and levelling for allotment among the Juang households ;

(b) The project area is infested with a large number of gullies near high bank and foot-hills which may be properly harnessed ;

(c) A number of new water harvesting structures may be constructed and the existing structures may be maintained to provide water to the field for better yield.

3. Agriculture

(a) Due to the limited wetland in the project area, most of the Juang households practise podu cultivation. It is therefore found necessary to train those podu cultivators in new techniques of crop production in order to attract them towards wetland cultivation and to wean them away from podu cultivation;

(b) Demonstration on paddy cultivation may be organized in order to provide them the latest scientific knowledge about paddy crops both during Kharif & Rabi season ;

(c) Shifting cultivation is considered to be the most unscientific way of cultivation which gives less yield as compared to wet cultivation. It is therefore proposed to rehabilitate the podu cultivators by providing input assistance for growing different crops in land available for the purpose in a regular manner through better and scientific way;

(d) Suitable training may be imparted by the experts to the Juang cultivators to make them self-sufficient in crop production ;

(e) Improved type of agricultural implements may be supplied to the Juang cultivators in place of their age-old traditional agricultural implements ;

(f) One Junior Agriculture Officer may be posted exclusively for J.D.A. area to guide them constantly on agricultural operation ;

(g) There may be a single line administration for the agricultural personnel posted in the J.D.A. area.

4. Horticulture

(a) It is proposed to introduce mix-plantation programme in J.D.A. area ;

(b) Besides mix-plantation programme, vegetable cultivation may be popularised among them ;

(c) Attempt may be made to educate the Juangs to develop habit of eating vegetables ;

(d) Grazing of cattle may be confined to Gochar land and other lands not covered under any crop ;

(e) Contact-men may be appointed to educate the farmers to take up horticultural plantation ;

(f) Second year podu lands may be used for horticultural plantation to wean them away gradually from podu-cultivation ;

(g) The use of improved seeds, fertilizers & pesticides may be popularized among the fruit-growers for better production ;

(h) Short-term fruit plantation like papaya, banana, pineapple may be popularised ;

(i) Demonstration of spice cultivation may be organised both during Kharif and Rabi seasons ;

(j) Adequate irrigation facilities may be provided to the plantation field along with improved high-yielding varieties of planting materials.

5. Irrigation

(a) It is proposed to install two lift irrigation points i. e. one at Talapada and another at Toranipani villages, the estimated cost of which will be Rs. 7,50,000.00 and Rs. 3,75,000.00 respectively;

(b) Potato, Wheat, Ground-nut crops may be introduced in the ayacuts of these L. I. points.

6. Animal husbandry

(a) Poultry farming may be introduced in five Juang villages for commercial purpose ;

(b) The landless Juang households may be covered under such benefits ;

(c) Landless and Marginal farmers may be assessed to take up broiler farming ;

(d) The landless and marginal farmers may be asked to rear goats for upliftment of their economic lots ;

(e) Each beneficiary will be provided with 10 number of Does with one buck ;

(f) The beneficiaries who are willing to rear pigs may be supplied with ;

(g) Each beneficiary will be provided with 3 sows and one boar ;

(h) A mobile treatment-*cum*-motivation unit may be introduced to propagate the animal husbandry scheme among the Juang beneficiaries ;

(i) A study should be conducted by the Animal Husbandry Department to determine the nutritive value of the forest fodder.

7. Health

(a) The additional P. H. C. Gonasika may be strengthened with a Mobile Health unit equipped with necessary medicine, equipment, vehicle & staff quarter ;

(b) A willing worker (Medical staff) may be posted ;

(c) The hospital building and staff quarters need major repair ;

(d) Since malaria is regarded as the main cause of mortality in the region, control of malaria should be given top priority ;

(e) Health education may be imparted by the staff by using audio-visual aids by staging of smallmelo-drama in Juang language on various diseases ;

(f) Exhibition of health matters may be made with the help of maps, charts, clay-models especially during their festive occasions;

(g) Use of ORS may be encouraged to control diarrhoea ;

(h) The district tuberculosis office Keonjhar may arrange camps for detection of T. B.cases with the help of local health staff ;

(i) Immunisation and maternal services may be intensified through the female multi-purpose workers;

(j) The simple rule of providig one sub-centre to each 3,500 persons in tribal region should not be applied here ;

(k) Seven tube-wells may be sunk in seven scarcity villages like Nadam, Upper Bali, Talabali, Phulbadi, Talapanasanasa, upper panasanasa & Remulighati to provide safe drinking water to the villagers.

8. Rural Electrification

(a) More number of villages may be provided with electricity both for domestic consumption and agricultural purposes ;

(b) The I.T.D.A. Keonjhar may provide electricity to some Juang villages under the scheme of 'Kutir Jyoti' programme ;

(c) A fully equipped technical team may be stationed at project head quarters (Gonasika) either under the Section officer or under the Special Officer J.D.A. Gonasika to take up routine repairs and maintainance ;

(d) The multi-purpose workers working in Juang villages may also be trained to take up minor repairs or maintenance job.

9. Communication

(a) Road connecting Bayapandadhar with Kaptadiha, via- Talabaitarani and Bali should be completed early ;

(b) Road connecting Gonasika with Boxibariagaon should be completed. (Bayapandadhar to Gonasika has been completed).

10. Credit & Marketing

(a) The Branches of LAMPS located at Gonasika & Suakati may be strengthened to provide more facilities to the Juang beneficiaries ;

(b) Financial assistance may be given to these LAMPS as transport subsidy for quick and easy transportation of essential commodities from F.C.I. godown to project headquarters ;

(c) Share capital contribution @ 1.00 lakh may be provided to each such LAMPS as revolving fund.

A Word For Development Practitioners

Any development intervention would bear three significant aspects planning, implementation and evaluation. The development administration has the chief concern for effective implementation of development progarmmes as envisaged by the policy makers and planners. The principal proposals of development administration constitute the development practitioners of various categories of different grades arranged in hierarchy of rank and status in tune with responsibilities. The successful implementation of development programmes pre-eminently depends upon the sincere efforts of development practitioners' or developers' as they are to translate the norms and conditions of plans among the people in any areas. The development practitioners especially at the grass-root level, while interacting with the people are expected to discharge their duties in such a manner so that the intended beneficiaries realise the purpose of activities of their development. Often it is noticed that the development practitioners feel superior in ability, experience and work than the intended beneficiaries who are ignorant of various activities. Such an attitude is not desirable. The development practioner is ought to visualise the entire situation, create a congenial atmosphere, utilise the available resources, inclusive of human resources and skill of people to go ahead with the programme. The relationship between the intended beneficiaries and the development practitioners should be complementary rather than contradictory.

The opportunity of taking due advantage of traditional institutional arrangements, decision to act on certain reasoning , a carry over of enthusiasm from one situation to other etc. are some of the important techniques which may help the development practitioner for motivating the tribal people in the process of development. Several traditional institutions and behavioural patterns will lead to successful achievements

with due weightage to their community ethos. The native system of authority and power, ideologies and values, cultural ethos and social net-work are to be taken into account by the development practitioner to ensure the co-operation, and involvement of the people. Social and personal qualification, the prestige rating, social connections of the development practitioner are some of the significant considerations. He should seek unanimous group decision, secure spotaneous commitments and make compromise with the people for whom he intends to work. One must try to resolve conflicts and promote co-operation before inducing innovative trait in the development programme. Quick and unimaginative actions invite danger, hence one should learn from the people and apply for their benefit. The development practioner is expected to explore appropriate strategies for sustainable socio-economic development by overcoming the barriers. It would be most desirable to convert hostility of the people in order to make constructive use of their energy, ability and intelligence.

The development practitioners with their co-ordinated efforts shall assume responsibility in taking decision for people's development. The development practitioner who plays the vital role in co-ordination and control of the programmes, shall be a person with vision, outlook & ambition. Decisive actions to get rid of the problems of the people should be initiated without delay and diversion, otherwise it may create unhealthy attitude and give set back to the ongoing development programmes. Before embarking upon any innovative programme the developer has to establish adequate support with the people and gain people's support. Pragmatic approach of a development practitioner and his insight into the community's real situation can sort out major problems on the spot without giving any scope for recurrence. However, confidence in the people, confidence in himself and confidence in his approach will bring success in goal. The development practitioners as a key person have to work with team spirit so that joint-handed efforts are ensured.

ABSTRACT

Sl. No.	Name of the Sector	1st year (in Rs.)	2nd year (in Rs.)	3rd year (in Rs.)	4th year (in Rs.)	5th year (in Rs.)	Total (in Rs.)	Remarks
1	2	3	4	5	6	7	8	9
1.	Forestry	1,92,500·00	1,92,500·00	1,75,000·00	1,75,000·00	1,22,500·00	8,57,500·00	
2.	Agriculture	3,83,062·00	3,83,062·00	3,48,062·00	3,48,062·00	1,58,750·00	16,18,998·00	
3.	Horticulture	10,44,936·00	10,44,936·00	10,44,936·00	10,25,936·00	10,19,936·00	51,79,680·00	
4.	Soil Conservation	6,92,000·00	6,92,000·00	6,92,000·00	6,92,000·00	6,92,000·00	34,60,000·00	
5.	Irrigation	3,75,000·00	3,75,000·00	..	..	..	7,50,000.00	
6.	Animal Husbandry	2,97,100·00	2,40,600·00	2,40,600·00	1,32,600·00	1,32,600·00	10,43,500·00	
7.	Co-operation & Marketing.	2,20,000·00	20,000·00	20,000·00	20,000·00	20,000·00	3,00,000·00	
8.	Health	2,19,000·00	1,69,000·00	79,000·00	79,000·00	79,000·00	6,25,000·00	
9.	Education	13,44,025·00	13,44,025·00	13,52,025·00	12,54,025·00	1,14,60,125·00	64,40,125·00	
10.	Communication	23,80,000·00	23,15,000·00	22,15,000·00	11,96,000·00	20,000·00	81,26,000·00	
11.	Rural Electrification	2,00,000·00	2,00,000·00	1,00,000·00	..	..	5,00,000·00	
	Grand Total ..	73,47,623·00	69,76,123·00	62,66,623·00	49,21,623·00	33,90,811·00	2,89,00,803·00 or 2,90,00,000·00	

Financial lever for development

Sl. No.	Name of the programme	1st year (in Rs.)	2nd year (in Rs.)	3rd year (in Rs.)	4th year (in Rs.)	5th year (in Rs.)	Total (in Rs.)
1	2	3	4	5	6	7	8
1. **Forestry**							
(a)	Category I village SALT Programme.	1,05,000·00 (6)	1,05,000·00 (6)	1,05,000·00 (6)	1,05,000·00 (6)	1,05,000·00 (6)	5,25,000·00 (30)
(b)	Category II village SALT Programme for.	70,000·00 (4)	70,000·00 (4)	70,000·00 (4)	70,000·00 (4)	17,500·00 (1)	2,97,500·00 (17)
(c)	Category III village SALT Programme for.	17,500·00 (1)	17,500·00 (1)	..	..	..	35,000·00 (2)
	Total ..	1,92,500·00	1,92,500·00	1,75,000·00	1,75,000·00	1,22,500·00	8,57,500·00

N.B—(The total amount of Rs. 8,57,500·00 is projected for 5 years for three categories of village. If it will continue for rest 3 years, the amount will be Rs. 12,56,000·00).

Financial level for development

Sl. No.	Name of the programme	1st year (in Rs.)	2nd year (in Rs.)	3rd year (in Rs.)	4th year (in Rs.)	5th year (in Rs.)	Total (in Rs.)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2. Agriculture								
1.	Dev. of high-yielding paddy and other cereals.	25,600.00	25,600.00	25,600.00	25,600.00	25,600.00	1,28,000.00	
2.	Prevention of Shifting cultivation.	1,75,862.00	1,75,862.00	1,75,862.00	1,75,862.00	..	7,03,448.00	
3.	Training of farm-families	21,600.00	21,600.00	21,600.00	21,600.00	21,600.00	1,06,000.00	
4.	Distribution of Agri implements having one acre to 7.5 acres land to 689 H. Hs.	40,000.00	40,000.00	20,000.00	20,000.00	17,800.00	1,37,800.00	
5.	Distribution of Agril. implements to 625 H. Hs.	30,000.00	30,000.00	15,000.00	15,000.00	3,750.00	93,750.00	
6.	Staff Support and agricultural development.	90,000.00	90,000.00	90,000.00	90,000.00	90,000.00	4,50,000.00	
	Total ..	3,83,062.00	3,83,062.00	3,48,062.00	3,48,062.00	1,58,750.00	16,18,998.00	
3. Horticulture Development								
1.	Mixedplantation programme.	9,69,936.00	9,69,936.00	9,69,936.00	9,69,936.00	9,69,936.00	48,49,680.00	
2.	Assistance for vegetable cultivation.	75,000.00	75,000.00	75,000.00	55,000.00	50,000.00	3,30,000.00	
	Total ..	10,44,936.00	10,44,936.00	10,44,936.00	10,24,936.00	10,19,936.00	51,79,680.00	
4. Soil Conservation								
1.	Soil and wate conservation measures.	5,00,000.00	5,00,000.00	5,00,000.00	5,00,000.00	5,00,000.00	25,00,000.00	
2.	Gully control	1,00,000.00	1,00,000.00	1,00,000.00	1,00,000.00	1,00,000.00	5,00,000.00	
3.	Water harvesting structure	92,000.00	92,000.00	92,000.00	92,000.00	92,000.00	4,60,000.00	
	Total ..	6,92,000.00	6,92,000.00	6,92,000.00	6,92,000.00	6,92,000.00	34,60,000.00	

Sl. No.	Name of the Programme	1st year (in Rs.)	2nd year (in Rs.)	3rd year (in Rs.)	4th year (in Rs.)	5th year (in Rs.)	Total (in Rs.)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5. Irrigation								
1. L. I. Points		3,75,000.00 (Talapada L.I.P.)	3,75,000.00 (Toranipani L.I.P.)	..	..	..	7,50,000.00	
	Total ..	3,75,000.00	3,75,000.00	..	..	..	7,50,000.00	
6. Animal Husbandry Programme								
1. Poultry rearing								
(a) Layer poultry farm		54,000.00 (5 units)	1,08,000.00 (10 units)	1,08,000.00 (10 units)	..	..	2,70,000.00 (25 units)	
(b) Poultry farming		1,10,500.00 (5 units)	..	..	..	..	1,10,500.00 (5 units)	
2. Goat rearing		42,200.00 (10 units)	42,200.00 (10 units)	42,200.00 (10 units)	42,200.00 (10 units)	42,200.00 (10 units)	2,11,000.00 (50 units)	
3. Pig rearing	90,400.00 (10 units)	90,400.00 (10 units)	90,400.00 (10 units)	90,400.00 (10 units)	90,400.00 (10 units)	90,400.00 (10 units)	4,52,000.00 (50 units)	
	Total ..	2,97,100.00	2,40,600.00	2,40,600.00	1,32,600.00	1,32,600.00	10,43,500.00	
7. Co-operation & Marketing								
1. Share capital contribution for two LAMPS @ Rs. 1,00,000.00 per LAMPs		2,00,000.00	..	..	..	..	2,00,000.00	
2. Transport subsidy for transport of essential commodities.		20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	1,00,000.00	
	Total ..	2,20,000.00	20,000.00	20,000.00	20,000.00	20,000,00	3,00,000.00	

Sl. No.	Name of the Programme	1st year (in Rs.)	2nd year (in Rs.)	3rd year (in Rs.)	4th year (in Rs.)	5th year (in Rs.)	Total (in Rs.)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8. Health								
1. Organisation of Training Course								
(a)	For village elders	2,000·00	2,000·00	2,000·00	2,000·00	2,000·00	10,000·00	
	(50 camps per year)	(10 camps)	(10 camps)	(10 camps)	(10 camps)	(10 camps)	(50 camps)	
(b)	For mothers	1,000·00	1,000·00	1,000·00	1,000·00	1,000·00	5,000·00	
	(50 camps per year)	(10 camps)	(10 camps)	(10 camps)	(10 camps)	(10 camps)	(50 camps)	
(c)	Organisation of debate and essay competition	6,000·00	6,000·00	6,000·00	6,000·00	6,000·00	30,000·00	
(d)	Strengthening of Addl. P. H. C.							
(i)	Renovation of P. H. C.	1,00,000·00	..	..	..	..	1,00,000·00	
(ii)	Quarters for A.N.M.	..	50,000·00	..	..	..	50,000·00	
(iii)	Supply of Medicine	30,000·00	30,000·00	30,000·00	30,000·00	30,000·00	1,50,000·00	
(iv)	Sinking of tube-well	80,000·00 (2 Nos.)	80,000·00 (2 Nos.)	40,000·00 (1 No.)	40,000·00 (1 No.)	40,000·00 (1 No.)	2,80,000·00 (7 Nos.)	
	Total ..	2,19,000·00	1,69,000·00	79,000·00	79,000·00	79,000·00	6,25,000·00	

Sl. No.	Name of the programme	1st year (in Rs.)	2nd year (in Rs.)	3rd year (in Rs.)	4th year (in Rs.)	5th year (in Rs.)	Total (in Rs.)	Remarks
1	2	3	4	5	6	7	8	9
9. Education								
(a)	Mid-day meal	8,45,520·00	8,45,520·00	8,45,520·00	8,45,520·00	8,45,520·00	42,27,600·00	
(b)	Supply of reading & writing materials.	1,97,505·00	1,97,505·00	1,97,505·00	1,97,505·00	1,97,505·00	9,87,525·00	
(c)	Supply of B/W TV sets.	40,000·00	40,000·00	48,000·00	..	..	1,28,000·00	
(d)	Enhancement of stipend from Rs. 100.00 to Rs. 150.00 per each student of Ashram School for 700 students.	35,000·00	35,000·00	35,000·00	35,000·00	35,000·00	1,75,000·00	
(e)	Vocational training for students of Gonasika H. E. School @ Rs.15,000 per year.	15,000·00	15,000·00	15,000·00	15,000·00	15,000·00	75,000·00	
(f)	Strengthening of Mandaghar @ Rs. 1,000.00 per Mandaghar for 32 Mandaghar.	8,000·00	8,000·00	8,000·00	..	8,000·00	32,000·00	
(g)	Construction of 7 School buildings @ Rs. 50,000.00 per each building.	1,00,000·00	1,00,000·00	1,00,000·00	50,000·00	..	3,50,000·00	
(h)	Construction of 9 teachers, quarters @ Rs. 50,000·00 per quarter.	1,00,000·00	1,00,000·00	1,00,000·00	1,00,000·00	50,000·00	4,50,000·00	
(i)	Honorarium to the M. O. Gonasika Addl. P.H.C. to look after the health of Juang students @ Rs. 250.00 P.M.	3,000·00	3,000·00	3,000·00	3,000·00	3,000·00	15,000·00	
	Total ..	13,44,025·00	13,44,025·00	13,52,025·00	12,54,025·00	11,46,025·00	64,40,125·00	

Sl. No.	Name of the programme	1st year (in Rs.)	2nd year (in Rs.)	3rd year (in Rs.)	4th year (in Rs.)	5th year (in Rs.)	Total (in Rs.)	Remarks
1	2	3	4	5	6	7	8	9
10. Communication								
a.	Construction of proposed new roads.	23,80,000·00	23,15,000·00	22,15,000·00	11,96,000·00	20,000·00	81,26,000.00	
	Total ..	23,80,000·00	23,15,000·00	22,15,000·00	11,96,000·00	20,000·00	81,26,000,00	
11. Rural Electrifications								
a.	Electrification of 5 new villages @ Rs. 1,00,000.00 P/V.	2,00,000·00 (2 villages)	2,00,000·00 (2 villages)	1,00,000·00 (1 village)	..	..	5,00,000·00 (5 villages)	
	Total ..	2,00,000·00 (2 villages)	2,00,000·00 (2 villages)	1,00,000·00 (1 village)	..	..	5,00,000·00 (5 villages)	
	Grand Total	73,47,623·00	69,76,123·00	62,66,623·00	49,21,623·00	33,90,811·00	2,89,00,803·00	

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