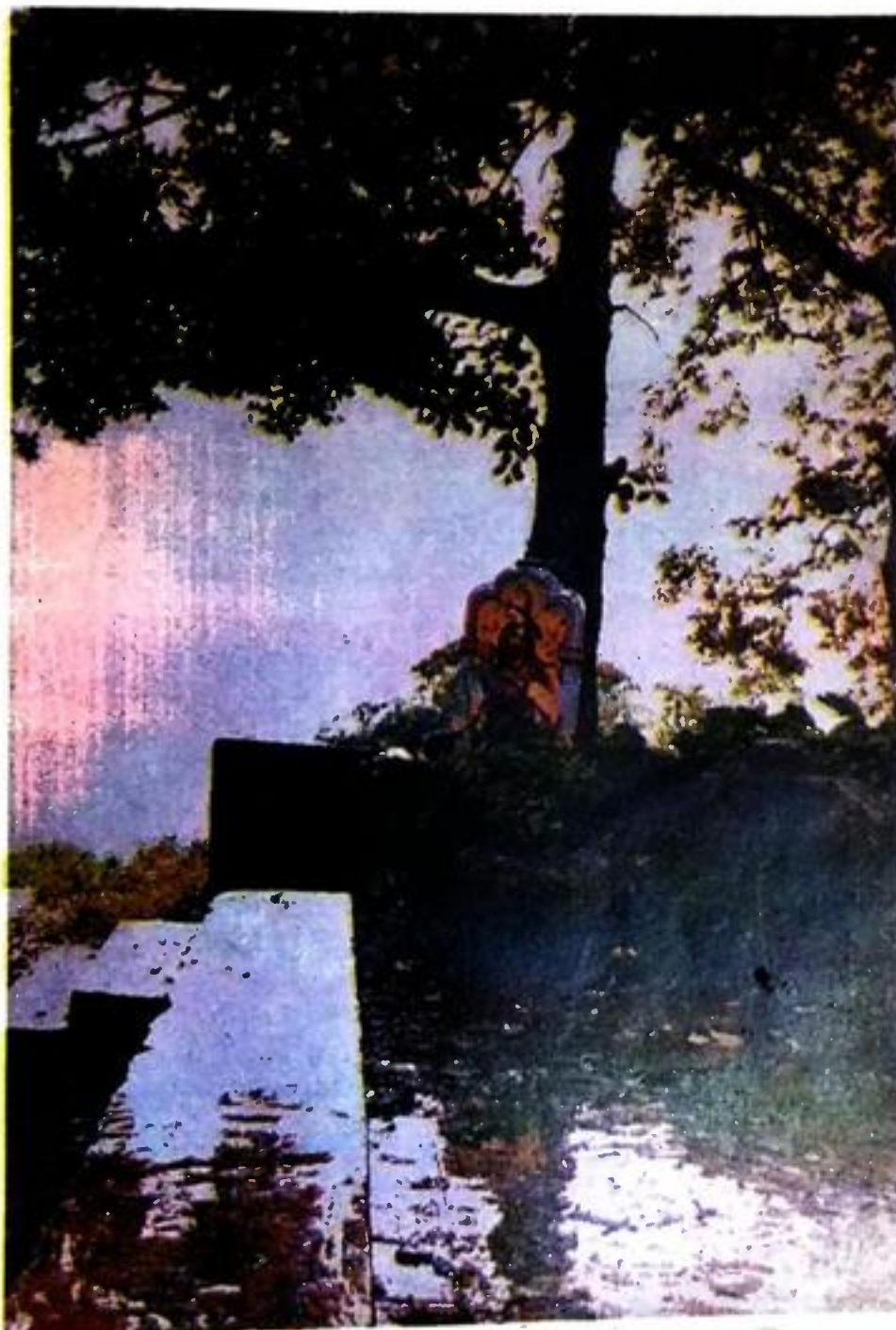


# DEVELOPMENT HANDBOOK FOR THE BONDO OF BONDO DEVELOPMENT AGENCY AREA, MUDULIPADA, MALKANGIRI DISTRICT

( AN ACTION PLAN BASED ON TECHNO-ECONOMIC SURVEY )



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



**GOVERNMENT OF ORISSA**

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*YEAR OF PUBLICATION : 1996*

*PUBLISHER :*



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*Cover page photograph:*

**BANA PACHERI: Entry Point to Bondo Hills.**

**By courtesy:**

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**Director,**

**Academy of Tribal Dialects and Culture,**

**Bhubaneswar**

*PRINTED AT :*

**ORISSA GOVERNMENT PRESS,  
CUTTACK-753010**

*PRICE :*

SHRI M. K. PURKAIT, I. A. S.  
Commissioner-cum-Secretary to  
Government

T. W. Department & H. W. Department



BHUBANESWAR

*Dated the 12th July 1994*

## FOREWORD

The present volume of Development Handbook, which is second in the series pertains to the Upper Bondo, a primitive tribal group of our State living in and around Mudulipsda area of Malkangiri district. The chief objective of the preparation of Development Handbook is to formulate action plan for achieving sustainable development within a time frame with multi-sectoral and holistic approach. It is based on techno-economic survey conducted through the expertise of the experienced specialists called Project Consultants, in their respective sectors in collaboration with the Director and Research staff of SCSTRTE. It incorporates the past development efforts including physical and financial targets and benefits accrued to the beneficiaries, the present socio-economic status of the people; and felt-needs and requirement of funds and personnel for implementation and management of location-specific and need-based development programmes. In spite of the accrual of benefits to the PTOs during the post-Fifth Plan period, there is need for more efforts for their all-round development. In this context, the Development Handbook will act as a source book for the development administrators associated with the implementation of various multi-sectoral programmes among the people in the area.

I hope this book will be of immense use for all those who are interested in the field of tribal development in general and the development of primitive tribal groups in particular.

**M. K. PURKAIT**

## PREFACE

The present volume is second in the series of publications of Development Hand Books for the Primitive Tribal Groups (PTGs.) of Orissa State. It is practically an action plan based on techno-economic survey conducted among the Bondo tribe. The Bondo Highlanders or Upper Bondo as a tribal group are relatively isolated and live in inaccessible areas presently under the jurisdiction of Khairput Block of Malkangiri district but while conducting the study it was under the undivided Koraput district.

The Upper Bondo group are mainly concentrated in two Grampanchayats—Mudilipada and Andhrahah and a micro-project is operating with its headquarters at Mudulipada. The micro-project for their all-round development started functioning during 1976-77. In course of planned development intervention something has been achieved but the achievement is not in consonance with the aspiration. Hence, there is need for more and more efforts for sustainable development. The present exercise is possible through join-handed co-operation of experts known as Project Consultants from various sectors of development and the Director and Research staff of our Institute. While preparing the report due care has been taken to take cognizance of the location-specific felt-needs of people. The principal objective of the action plan is to achieve sustainable development for the Upper Bondo.

We hope the book will be helpful to scholars and development administrators.

(K.K. Mohanti)  
DIRECTOR, THRTI

## ACKNOWLEDGEMENT

The present volume was prepared under the stewardship and unstinted co-operation of Shri R. M. Senapati, I.A.S., Former Commissioner-cum-Secretary to Government of Orissa, Harijan & Tribal Welfare Department and we are deeply indebted to him.

We are grateful to Shri M. K. Purkait, I.A.S., Commissioner-cum-Secretary to Government of Orissa, Harijan Welfare Department and Tribal Welfare Department for writing Foreword to this volume.

We offer our gratitude to nine Project Consultants from various disciplines who have contributed their experience and expertise to prepare write up in sections as stated below :

- |  |  |
|--|--|
| 1. Shri R. Mishra,<br>Conservator of Forests (Retd.)             | .. Forests                                       |
| 2. Shri D. Sahoo,<br>Joint Director, Soil Conservation (Retd.)   | .. Soil Conservation                             |
| 3. Shri R. N. Mishra,<br>Deputy Director, Agriculture (Retd.)    | .. Agriculture                                   |
| 4. Dr. B. Mallik,<br>Director of Horticulture (Retd.)            | .. Horticulture                                  |
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| 9. Dr. P. C. Rout,<br>Director, Elementary Education (Retd.)     | .. Education                                     |

We sincerely thank our colleagues Shri B. Chowdhury, Deputy Director, Dr. M. Champati, Deputy Director, Dr. A. C. Sahoo, Officer on Special Duty who have prepared write up for various sections and helped us in several ways.

We are thankful to Shri J. P. Rout, Research Officer and Shri S. C. Biswal, Statistician who have rendered necessary help in preparing the present volume. Shri B. B. Sahu, Research Assistant, Shri B. C. Sahu, Primary Investigator, Shri R. N. Purohit, Primary Investigator and Shri D. K. Mishra, Research Investigator (Temporary) and Shri L. K. Panda, Research Investigator (Temporary) have rendered necessary assistance as supporting staff and thanks are due to them.

Lastly, but not the least, we are thankful to Shri B. B. Mohanty, Research Officer and Shri S. C. Biswal, Statistician in making the volume press-ready for printing.

The present publication has been funded jointly by Government of India, Ministry of Welfare and Tribal Welfare Department, Government of Orissa under Centrally Sponsored Scheme (Research & Training) grants, 1990-91.

(K. K. Mohanti)  
EDITOR & DIRECTOR

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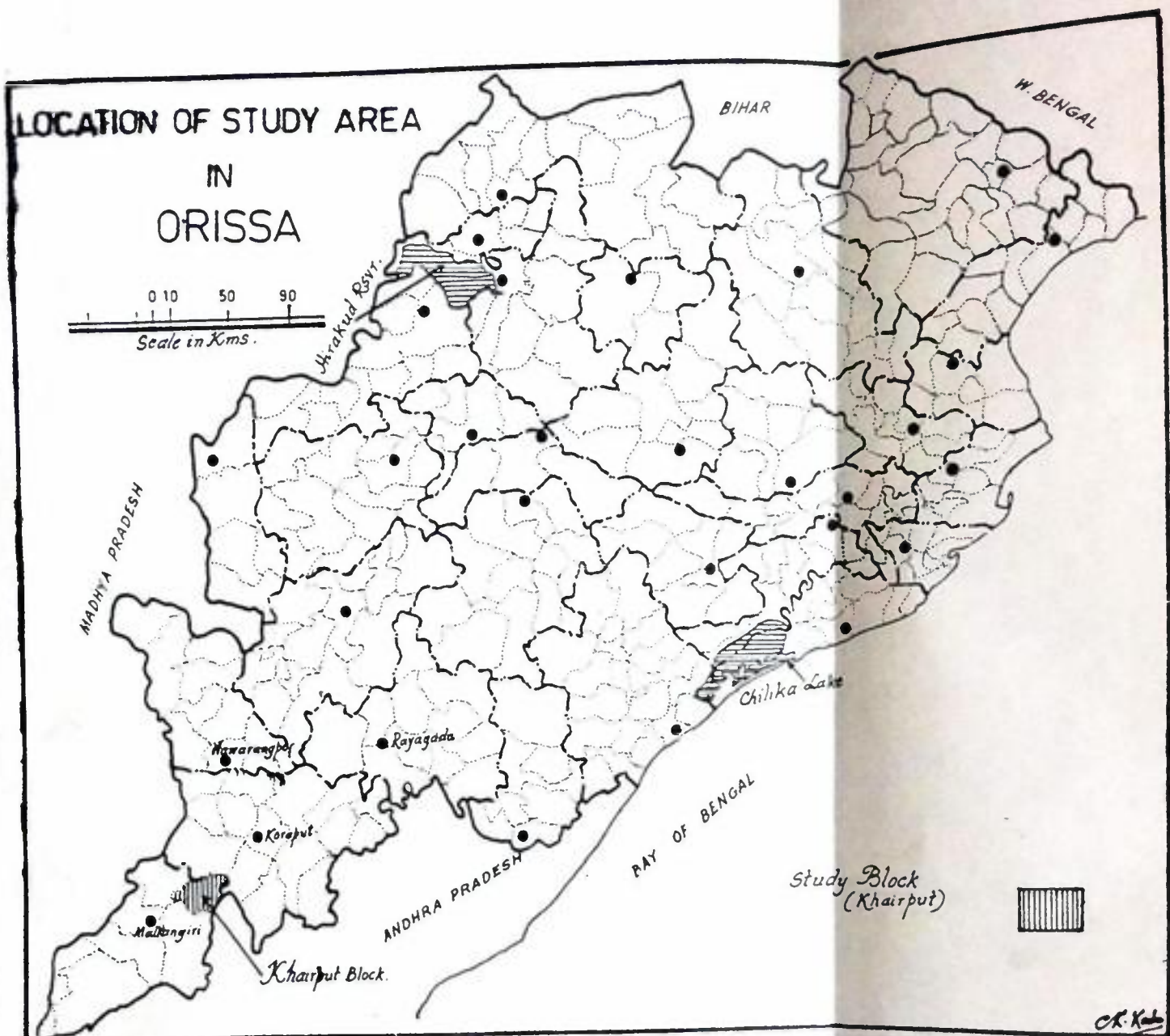
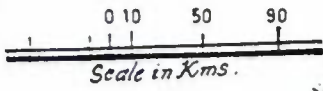
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# LOCATION OF STUDY AREA IN ORISSA



Study Block  
(Khairput)



O.K. Kish

## CHAPTER-I

### INTRODUCTION

The development situations prevailing in the tribal areas were reviewed on the eve of the Fifth Five-Year Plan. It was realised at different levels that the tribal development needs a fresh strategy and approach basing on the diversity and complexity in the socio-economic condition and population distribution pattern. Areas having 50 per cent tribal concentration have been delineated as Tribal Sub-Plan and outside it, tribal pocket have been declared as MADA pockets for the dispersed tribal population, and extremely backward and isolated tribal communities as Micro-Projects for massive tribal development programmes.

The inaccessible area inhabited by pre-farming and pre-literate tribal communities were given special attention for their all-round development. Tribal communities occupying inaccessible areas and at pre-agricultural level of technology having low literacy rate, diminishing or near stagnant population, seclusion, archaic mode of living have been taken as the primitive tribal groups. For their all-round development special approach known as Micro-project has been adopted. In Orissa State so far 12 tribal groups have been identified as primitive and at present 15 Micro-Projects are in operation for their development. On the basis of the parameters mentioned earlier, the Bondo tribe of the State was considered as a primitive tribal community. Accordingly, a Micro-Project was established with its headquarters at Mudulpada and formally registered in the year 1977 May under Societies Registration Act, 1960. Since then, various development programmes under income generating schemes and infrastructural development programmes have been implemented for their all round development. Assessment of the progress and evaluation of different development schemes have revealed that the new approach has not brought desired result. It is felt that the Bondos still require considerable protection, a policy of control and guided change at different levels of socio-economic development. It was in this context, the Government of Orissa felt that the solution of various problems of the Bondos requires suitable plans to be drawn up with the assistance of a group of specialists from different disciplines, like Soil Conservation, Agriculture, Horticulture, Irrigation, Forestry, Veterinary and Animals Husbandry, Health, Public Health, Communication and Education not attached to the Government services. With their help it was proposed for the preparation of a handbook on development based on techno-economic survey and action plan formulation. The experts thus designated as Project Consultants in a group visited the Bondo area and discussed with the people, project development practitioners, other officials and non-officials associated directly and indirectly with the development of the Bondos. On the basis of the findings of the fresh studies undertaken acceptance and rejection of development programmes and felt-needs of the Bondos and resources available, the Project Consultants have given valuable suggestions and recommendation for policy decision. Their integrated approach to study and find out possibilities for solving age-old problems of Bondos may work as a guideline for the development practitioners in pooling and disseminating meaningful work programmes. Keeping in view the long term and immediate objectives of sustainable economic development of the Bondos and proper management of human and natural resources the Project Consultants have gone deep into village and zonewise survey and investigation for assessment of resources and best way of its utilisation. Therefore, careful attempts have been made, by the Project Consultants concerned with land problems, to bring out culturally determined values to bear upon the problems of land management and wider implication of the cross cultural approach to land use pattern in the Bondo area. By and large, endeavour of experts from different sectors have been put into this work to find out suitable approach for utmost use of local resources and technology along with practicable new innovations.

There is little diversity in the physiography and social-cultural life of the Bondos living in different regions of the same area. According to the earlier authors the entire Bondo area (not the Upper Bondos only) can broadly be classified into three groups of village. They are the Bara-jangar group, the Gadaba group and the Plain group. The Bara-jangar or Bar-jangar-des or Bodajangar or Jangar comprises Villages, (1) Mudulpada (2) Kirsanipada (3) Tulaguram (4) Bandapada (5) Bandiguda (6) Basupada (7) Salampada

(8) Gokrupada (9) Pindajangar (10) Kichapada (11) Datipada and (12) Pandraguda. The Naiko of Bodajangar has special socio-cultural and magico-religious functions and gets support of the Maharaja. These 12 villages are considered as the original Bondo settlements and there is cultural homogeneity among the villagers. They are the great devotees of Pat-Khanda Mahaprabhu and Maharaja.

The Gadaba group of villages includes Andrahal, Dumuripada, Katang-guda, Antamguda, Bodbel and Bodapada. The Bondos of these villages have come under the influence of the Gadabas. Their dialect to some extent varies from that of the Barajangar villages. The Gadab influenced Bondos are known as a Guto-Remo or Gadaba Bando by their counterpart.

The plains group of villages (1) Kadamguda (2) Pandraguda (3) Puchaguda (4) Similiguda (5) Pak-Kanguda and a few others are in close contact with large number of Hindu castes. The Bondos inhabiting the plains villages have abandoned the traditional life style and culture. Bondos of two other groups of villages avoid this group because of their breach of ancient taboos and customs.

But, at present, the Bando highlanders or the Hill Bondos or the Upper Bondos are the names given for a distinctive section of the Bondos. They are relatively isolated and maintain their traditional customs and manners over years without much perceptible change. A Micro-Project is functioning for all-round development of these hill Bando villages with its headquarters at Mudulipada, the core Bando village. The Upper Bando area at its entry from Khairput on the approach road to the agency headquarters Mudulipada starts from Banapacheri, a massive rock formation, a significant landmark conspicuous in the Bando landscape. The agency area, on the basis of socio-cultural similarities and differences, geographical set up, agro-climatic condition, influence of neighbouring ethnic groups, impact of development programmes, access to modernity and acceptance or rejection of innovations, can be divided into four eco-cultural sub-zones, such as :

1. Mudulipada Sub-zone
2. Andrahal Sub-zone
3. Pindajangar Sub-zone, and
4. Patraput Sub-zone.

These eco-cultural sub-zones are briefly described as follows :—

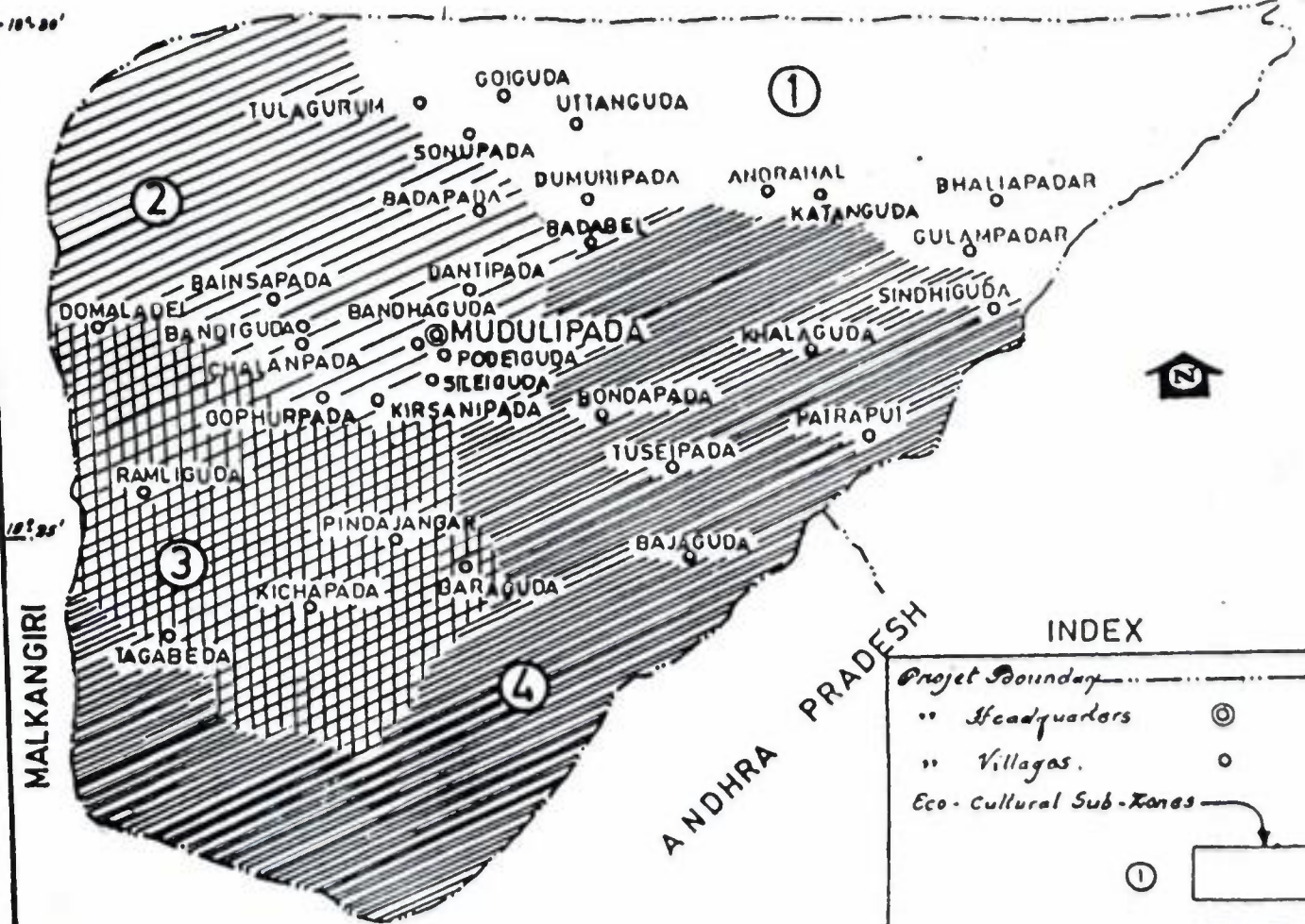
#### 1. Mudulipada Sub-zone

The average height ranges from 400 metres to 900 meters. The northern portion of the sub-zone is plain and patches of fairly mixed dense forest are found. Two important rivers, mainly Damaladei Nadi and Champanala flow near Mudulipada. There is a jeepable road which connects Mudulipada with Khairiput block headquarters. Open-mixed jungle is connected near Mudulipada. The villages which are located in this sub-zone are mostly found concentrated in the forest areas. Few springs are spotted in this section, the Sitakunda spring being the most perennial one.

This is considered as the original seat of the highland Bando, chiefly influenced by the Patkhanda cult. The tribal people of this area are having better exposure and receiving benefits from various development programmes more in comparison with their brethren in other sub-zones. Cultural homogeneity among the villages of the area is more striking and cluster of settlement are comparatively closer. The Bondos are also frequently in close contact with large number of outsiders and Government Officials. A good number of boys and girls have changed their life-style particularly in dress pattern, adornment and girls keeping long locks of hair, rather than a complete shave on head. Due to the practice of axe-cultivation and more concentration of tribal population, pressure on the forest is comparatively more, hence the far-stretching hills are exposed to rain and sun without vegetational cover. As per

# MAP OF BONDA DEVELOPMENT AGENCY.

(DIST-MALKANGIRI)



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MALKANGIRI

ANDHRA PRADESH

18° 20'

82° 15' CK. Kalinga

82° 20'

82° 25'

the ancient legends and historical practices the traditional secular and magico-religious authorities of this area exercise some special powers in connection with their socio-cultural customs and practices. The historically significant Sita-Kunda and Banapacheri Ghati are located in this sub-zone. Most of the villages are facilitated by perennial streams and beautiful terraced land. The economic condition of the people of this sub-zone is somehow better than that in other sub-zones because of its proximity to micro project headquarters. By and large, this sub-zone and its inhabitants are a little better off, but the original ecological condition is deteriorating faster.

## 2. Andrahal Sub-zone

This sub-zone constitutes the highest elevated upland in the entire upper Bondo area. The minimum and maximum height ranges from 600 meters to more than 1,000 meters. Open mixed jungles are found throughout. Generally springs are found in the mountain fall abruptly with dip in between. The main mountain over here is Barhamali Parbat which is more than 1,000 meters in height. The area is highly inaccessible. Villages are dispersed in the sub-zone.

The Bondos of this area are comparatively more inward-looking, resist change and stick to their traditional life style. The villages are influenced by Gadaba culture and come frequently in contact with other tribal groups living in Onakadeli and Bada-duracl. A group of villages coming under this sub-zone reveal almost same outlook because of their cultural and social similarities. Forest coverage is comparatively much better and fertility of the area is revealed by green foliage. The villages of this sub-zone are more attached to Gadaba areas. They depend more on forest collection, Drinking habit, quarrel, conflict and tension among the people are some of the remarkable features. However, true Bondo character and mind yet have been retained by the inhabitants of the area, percentage of literacy is very low and people of this area are yet to be touched by the development administration. Economic disparities among the tribal people in this sub-zone are reflected in several socio-cultural and economic spheres. The people are very hard working but due to lack of adequate knowledge in better technology and modern values they have remained far behind. The people mostly make bamboo mats and baskets not only for personal use but also for sale in the nearby market.

## 3. Pinda Janger Sub-zone

This sub-zone has elevations ranging from 500 meters to 900 meters in different places. Springs are found here and there. Since this sub-zone is within dense forest, settlement and habitations are very much limited. Even there are a number of inhabited villages. There are some pathways which the people negotiate for collection of minor forest produce. The contour lines are so close to each other that it is very difficult for the people to construct any road or culvert. This area is full of fairly dense and mixed forest with bamboo as the dominant species. available Limgar jungle is found near the Kichaparha village which is situated at the height of 900 meters above the sea-level.

The group of Bondo villages in this sub-zone is having some similarities with the villages of Andrahal sub-zone as well as Mudulipada sub-zone. Socially, they are more similar to the Mudulipada group and economically they are having similarities with the Andrahal group of villages even though the area is closer to the Patraput sub-zone. Due to quarrel conflict and murder among the villagers new settlements are formed but they are more traditional and resist change. Ecological set up, forest coverage and agro-climatic condition of the area are better for agricultural practices. This sub-zone is full of bamboo forests and the main source for collection of tender bamboo shoots for the Mudulipada group of villages. The area and resources are yet to be exploited and Bondos should be approached very delicately. The degree of exploitation by non-Bondo people is to be tackled very carefully. Among the villages there is certain degree of cultural homogeneity. On the basis of the festivals, mode of agricultural practices and distinctive Bondo character, the Bondos of this sub-zone can be identified as a separate sub-group. It may be understood, keeping in view several socio-economic practices, that true Bondo character or real Bondo life one can find among the Bondo people of this sub-zone. The influence of modernity and success of development programmes are not noteworthy among the Bondos of this sub-zone. From geographical setting point of view, this zone is centrally located being ecologically more balanced and culturally more indigenous.

#### 4. Patraput Sub-zone

In comparison with the above two sub-zones, Patraput area is plain having elevations within the ranges of 500 metres to 800 metres. The most significant feature of this sub-zone is that Machh kund river and its tributaries are flowing and the vegetations are plenty. Since the rivers are flowing here, the people of this area catch fish. The habitations are mostly found away from the river banks. The Sileru river and Machhakund river on the Ghats flowing northward directions demarcate the boundary between the States of Orissa and Andhra Pradesh. Small patches of reserve forests in large numbers are found scattered on the Ghats.

There is little difference in the scene of the villages under this zone. The area is flat, fertile, full of small perennial streams, and stretches of land are found suitable for good harvest. The zone is covered with good forest growth. People from other sub-zones specially Andrahal group of villages collect forest produce, fish and particularly tender bamboo shoots and varieties of tubers and green leaves from this area. Some parts of the area are submerged. Tribal people relish fish abundantly available in the river. Food scarcity is rarely seen. However, the Bondos living in this zone are less exposed to modernity and very much traditional. They rarely come in contact with the outsiders. They have close contact with other tribal groups called, the Didayi, and the Gadaba. Hence their intimacy with Andrahal group of people are comparatively more because of proximity and accessibility. The agro-climatic condition is very much suitable for summer vegetable crops and all varieties of foodgrains and oil seeds. The tribal people feel very much isolated and more confined to their area and people. With regard to education and socio-economic development activities a lot is yet to be done. This sub-zone, due to its isolation remains untouched by Development administration. But taking into consideration the natural resources and virginity of the soil it may top the list among all the sub-zones. The sub-zone by and large, is quite lovely and the climate is pleasant.

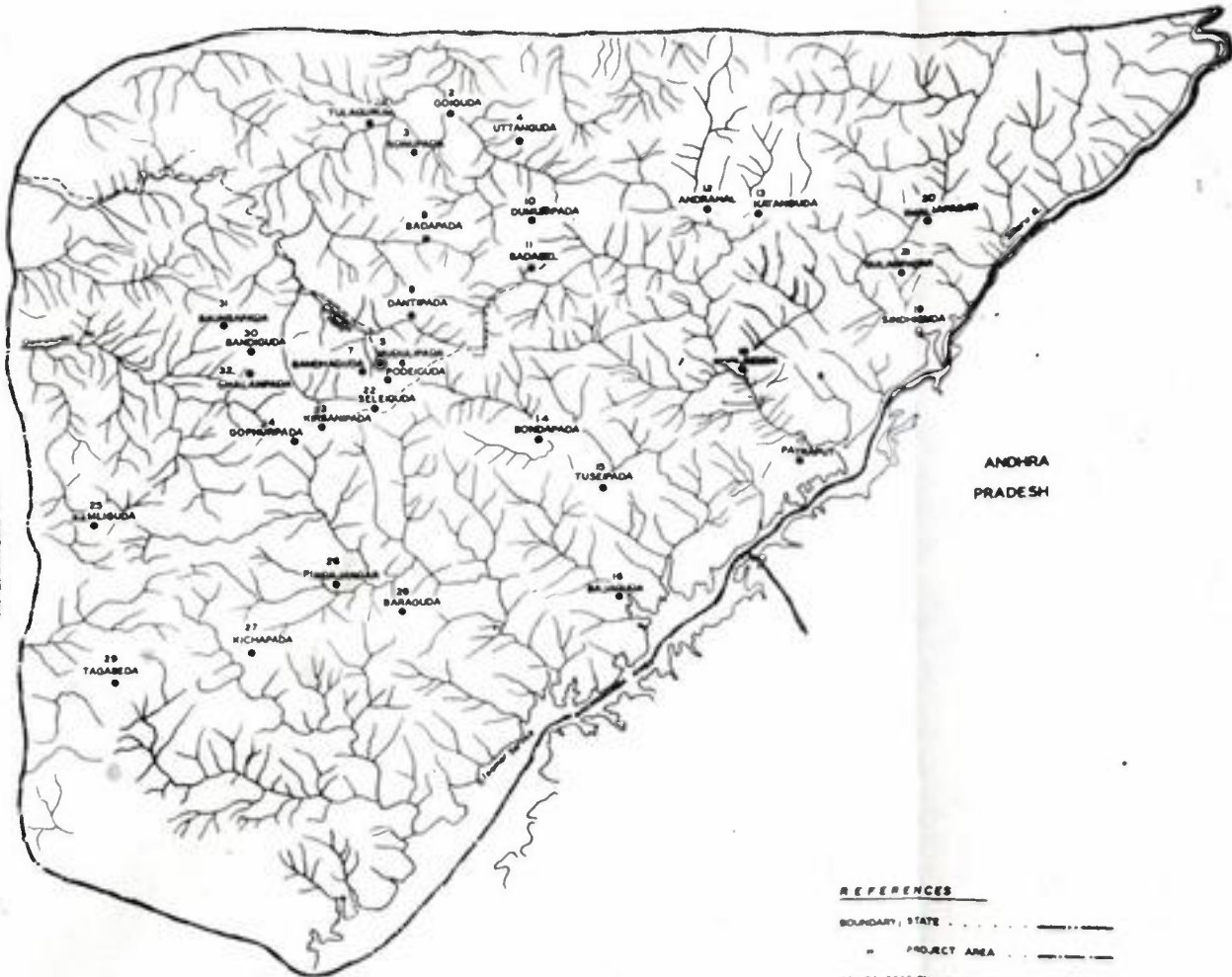
But similarities in different spheres among these groups of villages are much more than the dissimilarities. Each group interact with the other but within the group the degree of relationship is comparatively striking.

The Bondos are well known all over the world for their unique socio-cultural characteristic features. They are people of Austro-Asiatic language speaking group and known among themselves as "Remo". They live in wild and mountainous regions situated towards north-west of the Machhakund river and their area is almost segregated from the mainstream of culture. Even today plainsmen and outsiders recognize the Bondos as classic primitive group. They are more known for their strange costumes, and typical appearance of the women, violent homicidal tendency and aggressive personality. According to several authors they are a section of the Gadaba tribe and others are of the opinion that they belong to the Paraja community. Whatever presumptions there may be the Bondos are a distinct tribal community having the life-style of their own and they are sharply distinguished from the neighbouring ethnic groups.

The hills in the Bondo area ranges from 3,000 feet height to 5,000 feet above the sea-level. The hills lie within the boundaries of Jeypore. When Orissa emerged as a separate province in April 1, 1936, Jeypore was a partially excluded area under the Government of India Act. with a view to protecting and developing the aboriginal population. Since then the Bondos are loyal to their ruler and obliged to their King in all respects. The cult of sacred sword ( *PATKHANDA* ) is directly linked with the royal patronage of the then King. One can reach the Bondo area through four different routes. The nearest and easiest approach to the Bondo hills is through Kadamguda, a large and well-known plains village of Bondos and is connected with Govindapally by a Kacha road of 11 Kms.. One has to climb up from Kadamguda to Tulaguram, then to Goiguda or Dumuripada. From Dumuripada one may proceed towards Mudulipada, the core village of the Bondo area or one can also go to Andrahal, the village with largest Bondo concentration.

The second route is from Khairiput to Mudulipada via Banapacheri Ghat where the traditional mountain deity "Dalkhai" has a shrine since time immemorial. From Khairiput after crossing almost a plains area of 2 to 3 Kms. one has to climb up high mountains in zig-zag way and reach Banapacheri top which is the boundary of the highland Bondo

MAP OF  
**BONDO DEVELOPMENT AGENCY**  
 DISTRICT KORAPUT



**REFERENCES**

- BOUNDARY, STATE . . . . .
- PROJECT AREA . . . . .
- POLICE STATION HEADQUARTERS ●
- BONDO VILLAGE ●
- URBHAHITO VILLAGE ○
- ROAD . . . . .
- RIVER . . . . .

area and serves as the watershed between the Bondo territory and other world. To reach Mudulipada one has to go down the hills about 2 to 3 Kms. The third route is from Mundiguda to the Bondo area, one has to reach Challanpada for which very high and rough terrains are to be crossed. The fourth route is from Onakadeli to Katanguda via Bad-Durael, a Gadaba village. To go from Onakadeli to Bad-Durael one has to cross a series of terraced bed land and from Bad-Durael one has to climb up steep mountains and pass through perennial streams. The first Bondo village through this route is Katanguda and from Andrahal one can reach Mudulipada via Badbel village. But there is less diversity in the scene when one approaches the Bondo area from all the directions and routes. Everywhere green hills full of luxuriant growth of trees, herbs and shrubs are seen at the entrance of the Bondo territory.

Inside the Bondo area, one will definitely fall in love with the extremely charming landscape, villages, mountains, terraced bedland meant for long duration paddy cultivation, perennial streams and also the fascinating people busy in multifarious activities. In some places on the hills there are extremely bare and clean shaved patches which have resulted from 'slash and burn' type of cultivation. A few Bondo girls have abandoned their costumes and grown hairs on their head and pierced nose for ornaments and forgotten their hand-woven textile clothes and deserted their sacred 'Sindibor'. But drunkenness is more endemic and murders frequently occur even now-a-days. The most striking hill-men character is rapidly vanishing from among their minds.

The Bondos have been living in their area since quite long. They have developed certain culture and technology which favour to exploit and balance their ecology. To meet their requirement for survival they have developed a mode of behaviour and working pattern to exploit the environment to satisfy their need. Since the needs do not come to an end and is a continuous process the Bondos have organized and adjusted to balance the environment for future survival. Even though they are not educated or trained in modern techniques but their society and culture are on the basis of their knowledge of ecology. It is rather more appropriate to mention that Bondos have manipulated their environment instead of merely exploiting it. They have thought of not merely a survival but a comfortable life which the best their environment can contribute. The ecology, economy and technology determined the maintenance of Bondo life and their society in a sustainable way. More appropriate will be to introduce categories of works and use of labour in tune with economic and ecological set up. Economy is result of interaction of environment and culture utilising the resources and transforming them into products. The Bondo economy, in the way, which combines resources, technology and works for satisfying their material requirements, is yet to develop.

Even today the Bondos depend on hunting and gathering for their basic subsistence. Their environment support them on the basis of wild life and wild plant. They are dependant on forest for food, cloth and shelter and most of their day-to-day necessities. They practise crude slash and burn type of rotation cultivation and trained enough in settled cultivation with hand tools, such as digging stick and hoe. Whatever they need, what can be possible to grow in their soil on the agro-climatic condition, they grow with their traditional techniques. They get varieties of green leaves, fruits, vegetables, food-grains and several others from their field. They manage their soil and water utilising traditional techniques to get best result and since ages they have been surviving on their techniques, tools and resources. They know how to manage their resources so that they will be able to get different seasonal produce in their respective growing seasons. They are aware of irregularities of weather, infestations of destructive insects and birds which stand as greatest barrier against better harvest. The Bondos mostly depend on different tubers, bamboo shoots, green leaves seasonal fruits which they are sure to get from their forest. Plough cultivation, is undoubtedly an invention but Bondos have adopted it since past and are proud of their capabilities. They have become self-sufficient even in weaving their clothes, making their rain coats and umbrella out of bark and leaves. At present, one can find varieties of good containers and household appliances made by them. They keep cattle, goat, pig and poultry and are fond of non-vegetarian food items. The routine of Bondo life is regulated by seasons and varies according to the work that may be done and these occasions are remembered and enjoyed with pomp and ceremony. Throughout the year starting from house, to hills, women are found busy to support the family members in all economic activities. Even though there is division of labour the women are hard working with varieties of activities from morning to evening.



The Bondos work for production and they derive pleasure out of it. They also work with fun and laziness, but never take it to be unpleasant. In their society people are busy in different activities, such as farming, priesthood, arts and crafts, etc. All works are productive to them, but may not be in economic sense. They hardly work for material gains or money but work uniting the members of the community. They mostly adhere to their principles of the sexual division of labour which assigns works to males and females as per the approved social norms. The Bondo males do heavy and arduous nature of work and women do light jobs. In many occasions they jointly work for common goal. Various works are assigned to young and old, the elites and commoner, to the priest and laymen. Division of task and complementary allotment of work are very wide spread. It is from time immemorial the Bondos are dependent upon each other for their socio-economic existence. But the division of labour is very simple so as their social organisation.

Forest and land as their main source of production are not in short supply with minimum socio-cultural restrictions. They are available to all. The Bondos either as individual or group need land and forest not only in order to produce their material needs but to maintain privacy, cultural exclusiveness and integrity. The land they use for maintenance of livelihood is within the spatial milieu in which they interact. For these reasons territorial or group integrity exist and land is viewed as such and institutionalised. A Bondo village and its territory, comprising land and forest, belong to a group of people who are related to each other and attached to a headman. The inhabitants of the village come with authority to practise farming or any other mode of use. It is told that ingenuity plays vital role in determining the standard of living. The greater the knowledge of the environment and the greater the efficiency with which it is used the more efficient is the standard of living. The Bondos have right to use the site or area where they live and once they have worked on the field or forest they retain their rights in it as long as they want them. Like labour, forest and farm, ingenuity in the form of entrepreneurship, know-how, technological skill and background also play quite significant role in successful maintenance of the economic environment.

The Bondo culture is marked by a set of tools, appliances and materials made and used by them for various purposes. The economic value of such items do not represent the same amount of investment of works and ingenuity but resources that represent their material world. Their activities around land necessitates ingenuity motivation, capital and its ownership etc. and they are to be integrated into a system. Give and take between the people exist in the form of extra economic exchanges. The exchanges are reciprocal in some sense. Reciprocity is the essence of the Bondo culture and there are reciprocal obligations among the people. The ideas and institutions prevalent among the Bondos fulfil their material non-material needs.

## CHAPTER II

## AREA AND POPULATION

## The Area

The Bondo Development Agency (B. D. A.) was established in the year, 1976-77. Since then it has been functioning for the all-round development of the people belonging to Upper Bonda Tribe. The Agency covers 32 inhabited villages of Mudulipada and Andrahal Gram Panchayats of Khairput Block under Malkangir Subdivision of Malkangiri district. These villages are scattered in an area of about 130 Sq. Kms. The area is located in a high altitude of about 3,000 feet above the sea level and it lies roughly between 18° 22' and 18° 30' North latitudes and 82° 15' and 82° 20' East longitudes. The plateaus and the middle portion of Bonda hills are homeland of the Bondo people. Though some migration have taken place in the area, it is only confined to a radius of 25 Kms. and not beyond the Khairput Block.

Mudulipada is the headquarters of the Bondo Development Agency. It is easy to approach this village from Khairput, the block headquarters which is connected with the former by 14 Kms. long fair-weather road. This road runs through three hills, namely Kakapahar, Behada Melan and Banpacheri. There are a few other routes to Mudulipada but these are not developed and therefore, it is difficult to approach the place through these routes.

The Bondo region is surrounded by deep forests, undulating hilly terrains and high mountain ranges which in most cases are more than 3,000 feet in altitude. The land scape of Bondo area is well marked with groves of mango and jackfruit. Beautiful gardens of plantain, castor, pepper and brinjal are noticed near the villages. Paddy fields are stretched near the streams which are cultivated by the Bondos. While travelling through the Bonda hills one can view the scenic beauty of the forest land scape which is very charming and enjoyable.

Due to luxuriant growth of the trees and precipitous hill ranges the area is found to be very cool and swampy. The extreme swampiness of the region gives birth to mosquitoes and spreads endemic malaria among the Bondo people.

In the B. D. A. area three seasons are experienced viz., summer, rainy and winter. The summer usually starts from the middle of March and continues till the end of May. The rainy season begins from the month of June and lasts up to October. The winter is experienced during the rest of the months.

Animals like wild pig, wild goat, rabbit, fowl, wild buffalo, tiger, leopard, bear, sambar, deer, monkey, jackle, etc. are found in forests of the areas.

The birds like peacocks, doves, crows, kites, vultures, herons, woodpeckers, mynas and parrots are common in the area.

The streams are main stock of fish which is a very favourite food of Bondo people. They also catch fish from the low land paddy fields by the help of trap and net.

The palm trees and salap (sap) trees are available in abundance in the area from which the favourite drinks of Bondo people are prepared and consumed.

### Villages

The Bondo villages do not show any specific regular pattern as the houses in the settlement are dispersed. In some cases two neighbouring houses face each other while in other cases they face towards opposite directions. The houses look like shapeless cluster or ogglomerate with streets interveining. The foot tracts within the village become muddy and dirty during rainy season and it becomes difficult to walk.

Most of the Bondo villages are inhabited by Bondo people only. However, some villages are heterogeneous where a few families of other caste people, such as Gadaba, Mali, Rana, Paiko, Dom, Teli, Lohara and Brahmin reside. People of each caste maintain its own culture. The villages are not contiguous. Out of the total 32 villages, two were uninhabited during 1971, but subsequently these have become inhabited. This indicates that there is inter-village mobility of the Bondo households.

Out of 32 villages in the Agency, population figures in respect of 4 villages, 7 villages and 8 villages are not available in the census, 1961, 1971 and 1981 respectively. Similarly, the population figures for 1990 collected from the Agency source do not include sex wise break up and community-wise break up for 10 villages, namely, Andrahal, Chalanpada, Bajaguda, Podeiguda, Baraguda, Uttar-guda, Rameliguda, Sonupada, Gulempadar and Tagabeda. Sexwise break-up for these villages has been computed on the basis of the proportions of male and female population in all other villages taken together. A classification of the villages according to the size of population in 1990, is given below which shows that majority of the villages are small with less than 300 population each:—

Size of population	No. of villages	Percentage
(1)	(2)	(3)
(a) Up to 100	10	31.25
(b) 101 to 200	12	37.50
(c) 201 to 300	5	15.63
(d) 301 to 400	2	6.25
(e) 401 to 500	1	3.12
(f) 501 and above	2	6.25
Total	.. 32	100.00

Of all the villages, Bhaliapadar with 28 persons is the smallest and Andrahal with 920 is the biggest in the Agency. The average population per village comes to about 199 persons.

As per 1981 census Scheduled Caste people numbering 81 were residing in 3 villages and other caste people totalling 125 were found in 7 villages out of total 24 villages for which information are available.

## Population

The villagewise households and population are shown in the table. Population figures are not available for 9 villages for different census periods. Therefore these villages are excluded from the analysis. The information for the rest 23 villages indicate that there are 1,213 households in the project area as per 1981 census. The total population of the project area is 4,207 of which 2,034 are males and 2,173 are females. Thus, the female population outnumber the male population.

The total tribal population of the project area is 3,994 while Scheduled Caste population is 81 and other caste population is 125. Thus the project area is predominantly inhabited by the tribals. Among the tribals the 'Bondo' is the main tribe where as people belonging to other tribal group, viz. Didayi are very negligible.

The growth of population in the villages within the B.D.A. area is estimated on the basis of population figures of 23 villages available in 1961, 1971, and 1981 census report as follows:—

Period	Community	B. D. A.	Koraput (undivided) district	Orissa
(1)	(2)	(3)	(4)	(5)
1961—71	Scheduled Tribes	17.28	20.63	20.08
	Scheduled Castes	(—)58.33	38.71	19.79
	Total population	14.19	30.89	25.05
1971—81	Scheduled Tribes	5.11	19.14	16.68
	Scheduled Castes	1.25	27.43	16.70
	Total population	4.61	21.57	19.72

It would be seen that the growth of population in all categories in the B.D.A. villages during both the decades of 1961—71 and 1971—81 is much less than that recorded at the district and State level. The decade 1971-81 records a much lower growth rate compared to the previous decade though a little improvement is noticed in case of Scheduled Caste people in the area.

As per survey 1990 conducted by the B.D.A. the population of the 32 villages in the area is 6,355. The number of households during this period as found out by the evaluation team of T. H. R. T. I. (now re-designated as S.C. & S.T.R. & T.I.) stands at 1,557. Thus the average size of households works out to 4. The survey further indicates a sex ratio of 1.112 females per 1,000 males as against 1070 in 1981, 1,055 in 1971 and 885 in 1961 Census.

The percentage of literacy is only 2.75 as per survey conducted in 1990. Out of the total 3,003 males only 152 (5.06%) and out of the total 3,352 females only 23 (0.69%) are found to be literate. These percentage figures are much less than the corresponding figures for the district (6.31%) and the State (13.96%) levels for the Scheduled Tribes according to 1981 census.

TABLE No. II-1

Villagewise Population of B.D.A. area, Mudulipada according to Census, 1961,

Serial No.	Name of the village	1961								
		Location Code No.	No. of households	Total population	Male	Female	S. C.	S. T.	O. C.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
1	Tulagurum	..	160	20	49	26	23	..	46	3
2	Mudulipada	..	121	133	371	208	163	18	343	10
3	Dantipada	..	134	33	95	52	43	..	95	..
4	Dumuripada	..	161	40	100	55	45	..	98	2
5	Badabel	..	140	37	83	50	33	3	80	..
6	Katanguda	..	162	33	86	49	37	..	86	..
7	Badapada	..	135	54	125	66	59	..	125	..
8	Bondapada	..	122	36	107	51	56	..	107	..
9	Tuscipada	..	154	18	60	30	30	..	60	..
10	Patraput	..	151	127	635	317	318	95	481	59
11	Sindhiguda	..	129	25	117	61	56	..	112	5
12	Kirsanjpada	..	119	100	223	114	109	..	223	..
13	Gopherpada	..	132	30	67	33	34	..	67	..
14	Baunsapada	..	127	27	72	34	38	..	72	..
15	Pindajangar	..	130	54	286	152	114	62	224	..
16	Andrahal	..	126	145	348	213	135	4	339	5
17	Chalanpada	..	118	23	62	29	33	..	62	..
18	Bajaguda	..	117	23	63	32	31	..	63	..
19	Bandiguda	..	82	28	67	34	33	..	67	..
20	Bandhaguda	..	62	24	96	49	47	..	96	..
21	Podeiguda	..	65	18	93	46	47	..	93	..
22	Kichapada	..	137	43	143	60	53	..	115	..
23	Baraguda	..	105	16	198	104	94	10	188	..
				1,087	3,516	1,865	1,631	192	3,242	84
24	Khalaguda	..			Not available					
25	Goiguda	..	158	26	59	27	32	..	59	..
26	Seleiguda	..	155	37	140	75	65	..	140	..
27	Uttanguda	..	159	9	29	13	16	..	29	..
28	Rameliguda	..	123	45	201	108	93	..	159	42
29	Bhaliapadar	..			Not available					
30	Sonupada	..			Ditto					
31	Gulampadar	..			Ditto					
32	Tagabeda	..		20	68	32	36	..	68	..
	Total	..		1,224	4,013	2,120	1,873	192	3,697	205

TABLE No. II-1-1

Village-wise Population of B. D. A. area, Mudulipada according to Census, 1971

Sl. No.	Name of the village	Location Code No.	No of household	Population	1971		S. C.	S. T.	O. C.	
					Male	Female				
(1)	(2)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
1	Tulagurum	..	34	27	89	43	46	..	89	..
2	Mudulipada	..	57	158	572	292	280	..	565	7
3	Dantipada	..	51	35	142	68	74	..	142	..
4	Dumuripada	..	41	50	260	132	128	..	260	..
5	Badabel	..	52	65	242	123	119	..	242	..
6	Katanguda	..	44	50	154	76	78	..	154	..
7	Badapada	..	59	54	155	75	80	..	155	..
8	Bondapada	..	63	58	219	97	122	..	219	..
9	Tuseipada	..	89	24	78	42	36	..	78	..
10	Patraput	..	48	60	300	161	139	1	173	126
11	Sindhiguda	..	83	28	74	33	41	..	74	..
12	Kirsanipada	..	39	79	218	101	117	..	218	..
13	Gopherpada	..	84	28	75	36	39	..	75	..
14	Baunsapada	..	62	22	219	79	122	..	219	..
15	Pindajangar	..	88	46	158	73	85	36	122	..
16	Andrahal	..	14	145	540	263	277	37	503	..
17	Chalanpada	..	56	18	65	29	36	..	65	..
18	Bajaguda	..	54	5	20	9	11	6	14	..
19	Bandiguda	..	90	32	136	64	72	..	136	..
20	Bandhaguda	..	3	Uninhabited						
21	Podeiguda	..	9	26	113	54	59	..	111	2
22	Kichapada	..	87	46	111	56	55	..	111	..
23	Baragada	..	53	51	75	30	45	..	75	..
				1,107	4,015	1,954	2,061	80	3,800	135
24	Khalaguda	..	5	Uninhabited						
25	Goiguda	..		Not available						
26	Seleiguda	..	42	24	81	34	47	..	81	..
27	Uttanguda	..		Not available						
28	Rameliguda	..		Ditto						
29	Bhaliapadar	..		Ditto						
30	Sonupada	..		Ditto						
31	Gulampadar	..		Ditto						
32	Tagabeda	..		Ditto						
	<b>Total</b>	..		1,131	4,096	1,988	2,108	80	3,881	135

TABLE No. II-1-2

Village-wise Population of B. D. A. area, Mudulipada according to Census, 1981

Serial No.	Name of the village	Location Code No.	No. of households	Population	Male	Female	S. C.	S. T.	O. C.
(1)	(2)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
1	Tulagurum ..	44	33	103	40	63	..	103	..
2	Mudulipada ..	60	170	678	362	316	19	625	34
3	Dantipada ..	56	39	149	78	71	..	144	5
4	Dumuripada ..	48	99	318	152	166	..	313	5
5	Badabel ..	57	108	354	175	179	..	354	..
6	Katanguda ..	23	38	117	48	69	..	117	..
7	Badapada ..	47	67	248	105	143	..	245	3
8	Bondapada ..	63	60	201	91	110	..	201	..
9	Tuscipada ..	85	23	80	42	38	..	80	..
10	Patraput ..	53	44	202	105	97	..	134	68
11	Sindhiguda ..	82	36	143	72	71	..	143	..
12	Kirsanipada ..	26	67	183	82	101	..	183	..
13	Gopherpada ..	86	25	63	31	32	..	63	..
14	Baunsapada ..	76	17	58	26	32	..	58	..
15	Pindajangar ..	84	39	113	49	64	33	80	..
16	Andrahal ..	20	152	589	284	305	29	558	2
17	Chalanpada ..	77	18	54	22	32	..	54	..
18	Bajaguda ..	80	1	8	3	5	..	8	..
19	Bandiguda ..	79	39	148	67	81	..	140	8
20	Bandhaguda ..	9	5	14	7	7	..	14	..
21	Podciguda ..	3	24	118	67	51	..	118	..
22	Kichapada ..	93	62	190	92	89	..	190	..
23	Baraguda ..	58	24	69	29	40	..	69	..
			1,190	4,200	2,029	2,162	81	3,994	125
24	Khalaguda ..	7	2	7	5	2	..	7	..
25	Goiguda ..				Not available				
26	Seleiguda ..				Ditto				
27	Urtanguda ..				Ditto				
28	Ramaliguda ..				Ditto				
29	Bhalipadar ..				Ditto				
30	Sonupada ..				Ditto				
31	Gulampadar ..				Ditto				
32	Tagabeda ..				Ditto				
	Total ..		1,215	4,207	2,034	2,173	81	4,001	125

TABLE No- II. 2  
Villagewise Population of B. D. A. Area, Mudulipada, 1990 according to the  
Survey conducted by the B. D. A.

Sl. No.	Name of the Village	No. of households	Total population	Male	Female	S. C.	S. T.	O. C.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Tulagurum ..	36	126	57	69	..	126	..
2	Mudulipada ..	104	541	292	249	25	489	27
3	Dantipada ..	44	182	87	95	..	182	..
4	Dumuripada ..	114	407	185	222	..	407	..
5	Badabel ..	105	374	168	206	..	374	..
6	Katanguda ..	15	47	19	28	..	47	..
7	Badapada ..	80	284	121	163	..	284	..
8	Bondapada ..	58	180	87	93	..	180	..
9	Tuscipada ..	21	69	36	33	..	69	..
10	Patraput ..	22	143	77	66	..	51	92
11	Sindhiguda ..	37	242	110	132	6	236	..
12	Kirsanipada ..	77	195	83	112	..	195	..
13	Gopherpada ..	26	79	43	36	..	79	..
14	Baunsapada ..	26	56	27	29	..	56	..
15	Pindajangar ..	35	138	62	76	30	108	..
16	Andrahal ..	200	920	435	485	..	920	..
17	Chalanpada ..	25	178	84	94	..	178	..
18	Bajaguda ..	15	72	34	38	..	72	..
19	Bandiguda ..	41	173	78	95	..	173	..
20	Bandhaguda ..	68	239	108	131	..	237	2
21	Podeiguda ..	70	300	142	158	..	300	..
22	Kichapada ..	70	235	118	117	..	235	..
23	Baraguda ..	28	185	87	98	..	185	..
	Sub-total ..	1,317	5,365	2,540	2,825	61	5,183	121
24	Khalaguda ..	33	131	61	70	..	131	..
25	Goiguda ..	33	154	77	77	..	154	..
26	Seleiguda ..	17	70	29	41	..	70	..
27	Uttanguda ..	10	60	28	32	..	60	..
28	Ramalguda ..	83	330	156	174	..	330	..
29	Bhaliapadar ..	13	28	9	19	..	28	..
30	Sonupada ..	12	52	25	27	..	52	..
31	Gulampadar ..	9	46	22	24	..	46	..
32	Tagabeda ..	30	119	56	63	..	119	..
	Total ..	1,557	6,355	3,003	3,352	61	6,173	121



## Infrastructural Facilities

The Agency headquarters at Mudulipada is connected by the Khairput-Mudulipada all-weather road. The length of this road is 14 Kms. Three-fourth of this road has been black-topped and the work in rest one-fourth is yet to be completed. In addition, a number of kutchha roads of about 77.6 Kms. in length are constructed by different Agencies as given below:—

Table No. II-3

## Present Status of Arterial Road in B. D. A. Area

Sl. No.	Name of the road	Distance from Mudulipada-B. D. A. Hqs.	Type of road	Present position
(1)	(2)	(3)	(4)	(5)
1	Mudulipada-Khairput road ..	14 Kms.	All-weather black-topped	3/4th completed. 1/4th under construction.
2	Mudulipada-Andrahal road ..	12 Kms.	Jeepable	Base formation has been framed.
3	Mudulipada-Patraput via Bondapada-Biseiguda road	14 Kms.	Footpath	Footpath
4	Mudulipada-Dumuripada-Tulaguram-Badhul road.	5.6 Kms.	Jeepable	Formation has been framed.
5	Mudulipada-Tulaguram-Sonupada-Goiguda road.	10 Kms.	Footpath	Footpath
6	Mudulipada-Podeiguda-Kirsagnipada, Gopharpada-Balidonger-Pindajangar-Biseiguda road.	16 Kms.	Footpath	Fair-Weather
7	Pindajangar-Kichapada-Tagabeda-Bajaguda road.	8 Kms.	Footpath	Fair-Weather
8	Patraput-Khalaguda-Sindhiguda-Bhaliapadar road.	8 Kms.	Footpath	Fair-Weather
9	Mudulipada-Khalaguda-Bansiapada-Bandhaguda-Chalanpada road.	4 Kms.	Footpath	Fair-Weather
Total ..		91.6 Kms.		

In the Agency area there are 6 Anganwadi centres run by the Khairput block in 6 different vilages. Besides, 8 Primary Schools, 1 High School and 6 Non-formal Education Centres are functioning in the area. None of the 8 Primary Schools has a building of its own.

With regard to medical facilities available in the area, there is an Ayurvedic Dispensary and an additional P. H. C. at Mudulipada. Besides, there are 2 sub-centres of Khairput P. H. C., one each located at Mudulipada and Andrahal. The people of the area are not responding well to Ayurvedic medicines. The nearest P. H. C. is located at Khairput (14 Kms.).

There is one Live-stock Aid Centre at Mudulipada. The Veterinary dispensary facility is available at Khairput.

So far only 6 tube-wells have been provided to the Agency area for drinking water purpose. This number is low compared to the number of villages and population of the area.

As regards co-operative organisation, one LAMP S is now operating at Mudulipada with two retail sale-cum-procurement sub-centres at Andrahal and Patraput. The important markets visited by Bondo people are at Mundiguda, Govindpali, Mathili and Onakudeli. A Police-Station is located at Mudulipada to look after law and order situation in the area.

### Cultural Profile

The Bondos live in remote and elevated plateau area isolated from the general stream of population. The elevation of the hills and mountains of the Bondo area vary from 2,000 to 3,500 feet above the sea level. The Bondo villages are situated on the hill slopes or valleys or at the foot-hills. Mostly the settlements are having water resources near by and sufficient land for slash and burn type or shifting cultivation. Almost in every village one can find hill-streams flowing in the valley bottom where wet cultivation is practised. The houses in the settlement are dispersed and do not show any specific pattern. One can find two houses nearby facing each other and also some in opposite directions. But the people construct their houses within the village boundary which look like shapeless cluster or agglomerate with streets intervening. Inside the village one can find footpaths which in the rainy season become very dirty, and difficult for movement. Almost all the villages have some mango groves, jack fruit trees and also some shady non-fruit bearing huge trees having some magico-religious significance. Inside the village, one can find pigs, cattle, dogs, etc. moving here and there and making the whole village dirty which are rarely cleaned by the Bondos. In some villages the maximum number of houses vary from 22 to 30 and there are also villages like Andrahal consisting of more than 200 houses. The Dom houses are constructed little away from those of the Bondos. One can notice variations in the scene and shape of villages which depend on the size, situation, economic condition and special character of the villagers, but similarities are more in all the villages with particular reference to the natural and outward features. Geographically the Upper Bondo settlements can be divided into three major groups. The first groups of villages of which Andrahal can be regarded as the core village is mostly influenced by the Gadaba group and plains people of Machhkund area. The second group of villages known as *Boda-Jangara* group of villages of which Mudulipada forms the nucleus, and these villages are influenced by the *Pata-Khanda* cult and is considered as the area of core Bondo culture. The other villages near Pinda Jangara towards Patraput are having some sort of culture which is little different from that of the other two groups. Apart from the geo-physical features these three areas differ from each other, with regard to dialect, agro-climatic condition, subsidiary occupation and personality of the people and the degree of acculturation. But the socio-cultural interaction among these three groups of villages and cultural similarities are comparatively much more common for which one can identify them as a single cultural group.

The special cultural characteristic features of a village is the prevalence of 'Sindibar' and the village deity, 'Hundi' installed in the middle of the village or in a convenient place. The cremation ground is one of the landmarks apart from other specific centres and dormitory, houses.

Each Bondo house in the settlement shows its uniqueness and size, shape and quality which vary from one house to the other. The houses are grouped closely together but each house is having its individual feature and each house is demarcated by fence around its front-yard. Each family may have two or more houses which depend on the number of wives and other members in the family. The cattle shed is set apart where the Bondos may sit and work in the leisure hours. The sheds usually have fence but in some places they are open in all sides.

A well-to-do family may construct a spacious house for family members and two or more cattle sheds within the homestead area. A man thinks of constructing a new house when his son marries or number of family members increases. Before construction of a house the traditional astrologer-cum-magico-religious specialist is consulted to forecast the merits and demerits of the spot for construction of a new house. The 'Sisa' after a series of ritual observations confirms and conveys the approval of the divine will, for construction of the house. Each typical Bondo house consists of two rooms, one bigger than the other and the bigger room is utilised as sleeping-cum-kitchen room. The smaller room attached to the main room is used as the store room, where the ancestral spirits are installed in a corner. They construct the ceiling under the roof about 6 ft. above the floor, for storing most of their foodgrains and other household materials. The other side of the house is extended and enclosed with bamboo splits and later on plastered with mud and is again divided into two parts with a partition wall. The small one that is the last portion or the back portion is used as pigstay and the exit is towards the outside, whereas the other portion is enclosed with a bamboo split and the shutter opens towards the front which is used as pen for the goats. Since the goats and pigs are usually attacked by the tigers and the wild fox, the Bondos keep them attached to the main house to keep watch over them. The length and breadth of a typical Bondo house is about 12 of 14 feet and 8 to 10 feet, respectively.

At the time of construction after the ritualistic observances, the area is demarcated by putting small earthen pillars at its four corners and further it is partitioned to make two rooms. Before raising walls they make the area elevated by putting soil from the outside. The walls are made either of mud or bamboo splits plastered with mud. They construct the wall in phased manner because the layers put one after another should dry up, when the walls are about 6 feet, the ceiling work is done for which wooden planks are kept on the beams. Then the roof is prepared by bamboo splits and further thatched by the jungle grass collected from the local forest. The construction of roof requires four wooden beams which are placed horizontally from one end to the other on each of the four earthen pillars raised on the walls, the roof is constructed in such a manner that air, rain, fog, cannot disturb the inhabitants. The door is made of wood which is 4 to 5 feet long, 2 feet wide and set on wooden frame fixed at the entrance of the house. There are traditional carpenters among the Bondos who are expert and perform the work in their respective villages. The door is kept locked when all the members go out. In front of the house, the verandah is having the enclosure from three sides, which serves as the place for husking millets and paddy and grinding ragi. Some people also keep fire to make themselves warm and a few people keep their poultry there. The Bondos do not keep windows and since the front verandah is enclosed the inside of the house is always dark.

The house is mostly constructed by the family members. According to the necessity they take the help of the traditional skilled people for special works like making the door frame and shutters and fixing the beams of the roof. When the house is almost ready they give the finishing touch by plastering it finally with clay soil mixed with cowdung. The division of labour between sexes for construction of a house is strictly observed. Co-operation of the villagers, kith and kin, and hiring of labourers on payment of wages are also noticed while constructing a new house.

Only husband, wife and their small children take shelter in a house. When somebody is having two wives, two separate huts are constructed and even for the old parents a separate house is earmarked. The elderly children particularly above the age-group of ten usually sleep in their respective youth dormitories. The Bondos take adequate care of their houses, particularly the women folk plaster the house regularly and decorate by plastering red clay. They regularly plaster floor of the hearth in cow-dung every morning before cooking. The house wife sweeps the house regularly and on all festive occasions she plasters with mud and cow-dung. Inside the house, one can find number of hunting weapons, agricultural implements, household materials and different nets and traps used by them. They use bamboo mat for sleeping and some of them use Siall fibre woven wooden cots for this purpose. They keep their hearth burning for keeping the room and the people warm against cold in the winter. The same compartment may be used as sleeping-cum-kitchen room. The utensils and earthen pots are kept on the platform raised about one foot above the ground for keeping water pots. Most of their items are preserved in the ceiling. A little apart or inside the village the girls are having a separate house known as 'Selanidingo', where a number of unmarried girls sleep and unmarried boys from other villages come to meet them for developing friendship and to select their respective spouses. Sometimes the girls may use the house of a widow as their dormitory. The boys also construct their dormitory or may use one of the widower's house for the purpose. In front of the typical

Bondo house, one can find heaps of fire-wood stored for use all over the year. The kitchen garden may be developed near the main house for raising vegetables, beans, maize and other crops.

The Bondos are very much fond of ornaments. They decorate their body with multifarious costumes. Regarding their clothes, the males use loin cloth and the females use a small fibre skirt known as *ringca* which is woven by themselves. Among different ornaments mention may be made of aluminium and brass neckbands, cross headbands made of beads, leaves and fibres. They use headbands and huge cowry fastener necklaces and brass rings hung on ear-lobes. The Bondo women put on bangles from the wrist up to the elbow. The girls in the leisure hours keep themselves busy in designing the coloured cowry necklaces. They feel proud of their ornaments. Even the little girls are also fashioned in the same manner. But the weight of ornaments put on varies according to the age of the girl and economic condition of the family. The unmarried young boys also decorate themselves by putting on varieties of ornaments and keeping long hair. Male Bondos comb their hair very nicely.

The Bondo women are very careful to keep their spinning and weaving instruments in a safety place which is made of wood and bamboo. All over the year except a few girls all the women stick to their traditional clothes woven by themselves. The weaving work is exclusively feminine. They start weaving after celebration of 'Sumegilirak' before which 'Kerang' fibre collection is prohibited. A number of tobacco are associated with this Kerang shrub. They mostly collect 'Kerang' branches on the first Friday after celebration of 'Sumegilirak'. These branches are submerged in the stagnant water and a heap of mud is kept over it to shorten the gap for processing the fibre. They use some jungle barks for dyeing the yarn. Then the women weave their clothes out of these fibre.

Bondos use varieties of dreaded weapons. Among the weapons mention may be made about the use of bow and arrow for which Bondos are famous all over the world. Their aim seldom fails to reach the target as they have expertise in archery. They use triangular projected type of blades made of iron for making arrows. At the time of hunting they also use varieties of traps and snares. The sharp knives of the Bondos are quite dangerous but most intimate item to be taken by an adult male. A Bondo adult carries bow and arrows and a sharp knife when he leaves the village. The knife is kept hanging from the waist belt or string. It is arch shaped having aluminium handle and mainly used for cutting and piercing. The sickle is used by the Bondos exclusively for reaping crop and also for cutting grass, shrubs, weeds and bushes. They also use chisel wooden grinders, drill, hammer and many other implements. The Bondo women use pestle about 3 feet length and 6 inches diameter. At its one end an iron ring is fitted and mainly used for husking grains. The hoe and crowbar are used as digging tools by them. As regards agricultural implements they use spade, sickle and hoe etc. Apart from all these materials like broom stick, basketry, such as winnowing fan, containers and baskets of different shapes and sizes are of special mention. They use various musical instruments like drums, blowing pipes, harpoon etc. They use a large drum made of earthen-ware having the opening covered with cow-hide and, another drum known as 'kidding' is double membrane cylindrical shaped drum which is covered with goat skin at one face and beaten with hand whereas the other face is covered with cow hide and beaten with stick. They also use 'Guitar' with one string played with finger. They use bow like violin and flutes. The girls use Jews harp made of bamboo out of which low sweet sound is produced. The women in the dormitory or in the dancing ground produce sound out of their bangles. At the time of hunting expedition and in communal dance horn trumpet is blown by the magico-religious specialist. All the musical instruments are made by the Bondos themselves or as per their specifications.

The major part of the economic life of the Bondos revolves round the forest. They mostly depend on food gathering, hunting, shifting cultivation and settled agriculture. Some of them also have adopted wage earning and rearing of animals and birds for additional income. Almost all the households carry on slash and burn type of shifting cultivation in the hill slopes. Even today maximum number of Bondo people depend on food gathering, hunting and fishing for their subsistence. A few people are having the wet land for paddy cultivation. In order to meet most of their day-to-day necessities they collect materials from the local forest. The Bondo economic calendar implies that the environment and the skill of the people together somehow help in earning their livelihood.

Since time immemorial Bondos have accepted food gathering as the unavoidable source of subsistence, they collect different mushrooms, roots, tubers, stems, leaves, flowers, fruits, seeds and even some parts of trees to use them as food available in different seasons. Mostly the females are engaged in the collection of food items in the jungle. Incidentally some male members also collect minor forest produces used as food. But food gathering is accepted as feminine pursuit. The Bondo females in group go even kilometres together for the collection of forest edibles. They use digging sticks and small crowbars sometimes a sharp iron piece for digging tubers from the land. They have sufficient knowledge about the availability of various types of forest materials which are available in different seasons. Accordingly they reach the spot and find no difficulty in gathering them. But they are very conscious of the seasonal ceremonies and their relations with the collection of different items in the forest. Even today the Bondos collect varieties of food materials from their native jungles. Although food gathering is the principal economic pursuit of the Bondo women, males at times are also engaged in this pursuit.

According to the Bondos, hunting was an important aspect of their economic life but due to the paucity of game animals and the introduction of reserve forest rules, the Bondos have ceased to accept it as a permanent occupation. Only on festive occasions they go for hunting as per the social custom. Among the hunting game animals mention may be made of wild boar, hare, sambar, wild goat, deer, porcupine, peafowl and wild chicken etc. All the villagers proceed for hunting after performance of traditionally prescribed magico-religious rituals. They follow a number of taboos at the time of hunting in the forest. The hunting groups are equally distributed but the person whose arrow or weapon touches the prey first gets a special share. The hunting weapons used are traditional bow and arrow, a sharp knife, heavy axe, spear, different types of snares and traps. In spite of sharp iron piece, a globular wooden piece may be used as the working end of the arrow. Sometimes dogs are also quite helpful at the time of hunting. The Bondos have developed varieties of devices for catching different games, particular method to be adopted is determined according to the prey as well as number of hunters. Before the day of hunting the people drinking liquor and sleeping with their wives are tabooed. They are also expected not to put on any dress of light colour. They use different technology for killing varieties of birds and animals which show their skill and expertise in this field. By means of indigenous contrivances, they catch fishes to supplement their food materials. Particularly in the summer season the women go in long procession keeping fishing nets on their head to the nearby perennial stream or Patraput river. Both men and women go for fishing but it is more enjoyable when the women perform this function collectively in a group. Different methods are also adopted by the Bondos to catch fish in the hill stream. Varieties of fishing nets they use for fishing depend on the depth of water and types of fish expected. Apart from fishing, crab-catching by the Bondos is also quite interesting.

Apart from all these items, they also collect firewood from the forest. They collect and store firewood for future use in front of the main hut. The size of the heap determines the number of working woman of the family. Collection of firewood is an every day activity for the women. The male and female members while coming back after the whole day work in the field bring some firewood with them. A few varieties of restricted firewood are never brought at home.

In so far as their economic efforts concerning forest is concerned with life of the Bondos it is clear that forest provides them many of their day-to-day necessities and also fodder for their cattle. Almost all the cattle in the Bondo area are healthy because of availability of sufficient fodders. The flock of cattle graze in the forest under the supervision of the Bondo boys. The herdsman finds no difficulty for satisfying his hunger and thirst inside the jungle. The forest in the Bondo area is quite rich in different medicinal plants, herbs and shrubs. According to some of the herbal medicinemen there is no disease which cannot be cured by the medicines available in their local forest. The Siali creepers have its own importance in socio-cultural activities and in the economic life of the Bondos. Until their important festival (Sumegalrak) in the month of February is performed, nobody uses the Siali fibres and fruits. They prepare their waterproof hat, storing baskets and plates out of Siali leaves and coat out of its fibre. The Bondos use wild date-palm leaves and "Pirhi" the thatching grass available in their forest for house construction. The tender bamboo shoots (Karadi) and the sap of the sagopalm trees which is the most favourite drink of the Bondos are available

in the nearby jungle. They also relish the worms which take shelter inside the wild date-plam trees. Apart from all these there are several items, like hill brooms kerong fibres, honey etc. which they collect from the forest.

The Bondos have developed their own method for survival by exploiting their natural resources. Since there is no sufficient land for cultivation and ploughing was unknown to the people, the crude practice of shifting cultivation was adopted by the people since long. The slash and burn type of rotation cultivation practised by the Bondos is interesting in terms of socio-cultural habits. The industrious Bondos are compelled to adopt this disadvantageous and unproductive method because that was the only way to produce something for survival. They cultivate hill slopes even at an altitude of about 4,000 feet above the sea-level. A particular patch of forest is cultivated for a consecutive period of 3 years and then left fallow till it recupes adequate growth of vegetation. The selection of a plot for (slash and burn) type of rotation cultivation does not create any problem because of existing ownership of land in the lineage level and followed since time immemorial. This comprehensive practice keeps the family members busy in the field for getting something for survival. In the same year a family chooses two plots for cultivation.

In the first one the owner practises cultivation for the current year and the second one is made ready for cultivation in the next year. The selection of a plot does not create any problem as the ownership has already been fixed since generations. But the whole process of 'slash and burn' type of cultivation includes a number of ceremonies, sacrifices and ritualistic observances.

The shifting cultivation process, among the Bondos, is very comprehensive. The family members remain busy in two different plots, hence the works are sometimes overlapped. According to a senior Bondo man who has lived in the area for about eighty years, their life without dreams and women is useless and their society and economic life without shifting cultivation is meaningless. They follow systematic process for practising shifting cultivation. The ceremonial cutting of forest patch is made on village level through magico-religious specialist and subsequently it is followed in the individual family level. The collection of branches in the field and burning of the branches and removal of unburnt materials and spreading of ash over the swidden plot, sowing of seeds and tilling the soil, watching, reaping and harvesting, storing, preservation and consumption, etc. are usual activities.

Ceremonially in the 'Samugelirak' festival, the community level magico-religious specialist, locally known as SISA offers sacrifice and performs ritual observances after which he proceeds to the swidden of his own to clean the branches to bestow divine approval for the others for cutting the forest to take up shifting cultivation in their respective plots. In many forest cultivated areas the Bondos offer sacrifices to the concerned spirit expected to be living there. A man having no suitable patch for shifting cultivation in a particular year may have a patch from another man having surplus land to take up cultivation temporarily. The owner never demands to get back the plot till the cultivator completes 3 years of agricultural cycle. In some cases an owner may allow only for one year for which the conditions are made clear at the outset. Mostly all the family members and some of the lineage members may work in the shifting cultivation patch of the owner on a co-operative basis. Some economically better off Bondos hire labourers for which they have to pay some nominal charges as a formality but offering of food and drink to the village labour force is the traditional practice followed with sincerity and care. At the time of cutting of the forest, they leave untouched the fruit-bearing trees and medicinal plants. While cutting the big trees the male members leave stumps about 3 to 5 feet, whereas all the herbs and shrubs are removed completely.

In the second phase of operation, they set fire in the heaps of dried twigs. They arrange the heaps in such a manner that the entire area is covered up with ashes. Some branches and stems are found lying unburnt but those are not brought at home unless the GIAGIGE (CHAIT PARAB) ceremony is celebrated. After the prohibition period, the women go home after the whole day work in the shifting cultivation field, with a head-load of unburnt fire wood. The male members also return with heavy wooden logs on their shoulders which are used as fuel. Before the first shower of monsoon all the unburnt twigs are cleared and ashes spread over the patch. Sometimes during this period new branches are generated which are cleaned before sowing. Before the third phase of operation, that is sowing, the Bondos make fence or plot boundary to

demarcate the area and to save the crops in future from the wild animals. They may raise watching hut and sleeping platform to take rest during leisure hours. Sowing and digging are taken up according to the rainfall and convenience of the weather. During this operation Bondos in general do not celebrate any ceremony or offer any communal sacrifice but at family level they perform rituals and offer sacrifices. They offer fish and rice to the deity-in-charge of production in expectation of better harvest. One of the male members having necessary experience in the techniques of sowing, throws the seeds by hand after which the women work the soil by hoe. For digging they also use a hard and sharp wooden piece. Crops sown varies from year to year or from one plot to the other. They mostly grow millets, like Ragi, Suan, Kangu, Kakadanki and oil-seeds like niger and many others. They also grow varieties of vegetables in the shifting cultivation fields. The Bondos sow varieties of seeds in one plot which are harvested in different times. At the time of sowing the Bondos first use the sanctified seeds with the belief that it gives better yield.

Fourth stage is weeding which is generally the job of the women. Usually after sowing heavy rainfall taken place in this area which give rise to growth of weeds. Therefore, the women weed out the injurious parasitic and unuseful plants which are harmful for the crops. The rich Bondos use village labour force by paying food and formal charges in cash. Usually the shifting cultivation fields are weeded twice in succession. The third weeding if needed may be done which helps in getting better harvest. For digging they use sickle and digging sticks. Sometimes small axes are also used to cut the branches that grow out of the upburnt stems.

When the crops are found bearing corns, the Bondos start watching the fields. The birds are menace to the crops right from the time of sowing till the completion of the harvest. Hence guarding becomes an important agricultural operation. The male folk watching the field against the depredation of wild animals. During the guarding several preventive measures are taken by uttering or producing sound or by fixing structures in the field to keep the animals and birds away from the field. Sometimes even after several precautionary measures the Bondos fail to save their crop from wild boars, rabbits and varieties of birds. When the crops are ready for harvesting the family members keep on watching the standing crops days and night. Sometimes the entire family shifts to the cultivation patch and remain there to watch the fields till the harvest is over. They usually shift temporarily from the village to the field specially when the distance of the shifting cultivation fields is far away from the original settlement.

The next phase of the shifting cultivation is reaping of the crops and the associated ritualistic observances. As soon as the formal offering to the spirits is performed, the needy people start consuming the crops harvested. All the family members and also some male members remain busy at the time of reaping the crops. They sing traditional songs while working in a group. After observing 'Sumegehirak' (Pusparaba) they thrash crops and store for future use. Just after the harvest they pay back the crop loan and consume the rest within few months. Only well-to-do people store crops for future use.

The process of shifting cultivation as mentioned above is almost same all over the Bondo area. But there are exceptions, for instance due to paucity of swidden land one may practise shifting cultivation in the same patch for more than three years. In some cases also one may leave the area after cultivating only for one year. The fallow period varies from 3 to 10 years and it depends on the fertility of the land. The problem is connected with the rise in population in the area. All the difficult and painstaking tasks are shouldered by men but all time-taking and boring, comparatively easy and light works are done by the female folk. By and large all the works are done by both the sexes in one or different forms and strict practice of division of labour is not seriously observed. The man days spent for the shifting cultivation are much more in case of the females than the males.

Bondos like other people are very much fond of land. The land in the Bondo area can be divided into several types on the basis of its physiography and ownership pattern. The main types of land in the Bondo area are land used for slash and burn type of cultivation (*Donger*), the plain valley land which remains dry and situated at the base of the hill (*Pada*). The third category of land is the irrigated wet land or terraced land meant for paddy cultivation (*Beda*).

Apart from all these forest land and waste land over which communal ownership is exerted is left free to everybody for use. The sago-palm, tamarind, jack-fruit and some other fruit-bearing trees even though found in any communal land is owned by specific families whose forefathers have planted them. Some families have traditional right over trees in the jungle and in unsettled land because they have been using them over years since their forefathers. All the concerned lineage members can have liberty to share the fruits. Unauthorised use of these items is considered a theft and results into quarrel, conflict and murder among the Bondos.

Every Bondo family manages a kitchen garden located either adjacent to the courtyard or very close to the homestead plot. With all possible care this garden is manured, ploughed and fenced properly. They grow various vegetable crops, maize and tobacco in the kitchen garden. Sometimes they provide natural irrigation to the kitchen garden and raise vegetables like brinjal, tomato, chilli, tubers, pumpkin, gourd, cucumber, banana etc. They use all these produces and the surplus is sold in the nearby weekly markets. Agriculture in one form or other is practised by almost all the families due to diminishing forest edibles. People are gradually developing the tendency to produce more in the agricultural fields. By using the traditional agricultural implements and the age-old technology they work very hard to get better harvest. Although the male folk take up major works but the women have a greater share in various agricultural pursuits. The area to be cultivated is determined on basis of the size of the family and also the land ownership. Soil structure and fertility in the Bondo area vary from one land to the other and also from one village to the other. By and large there are lands exposed to the pernicious effects of soil erosion and shifting cultivation fields are affected much in comparison to other categories of land. The Bondos are found busy in some way or other in the shifting cultivation field or in the land along the foothills 'Pada' or in the irrigated 'Beda' land throughout the year except on the festival days. The definite system of crop rotation is specially noteworthy. They grow in the shifting cultivation patch niger in the first year which needs more fertiliser and in the second year they grow ragi and in the third year small millets which need comparatively less fertiliser. In the 'Beda' land they regularly grow paddy and use their traditional seeds which they preserve carefully after following the prescribed ritualistic observances.

The best type of land which attracts the attention of the Bondo is the irrigated terraced and fertile 'Beda' land where they grow traditional long duration paddy. In the valley of hills and mountains where the streams flow all over the year they have terraced those lands to grow paddy. Almost every year they work very hard on these lands to level the plots and bring these in to order because the entire water of the area flows through these irrigated patches and management of water etc. exhibit special skill and expertise in this line. They use a type of leveler which makes this surface plain and ensures constant water level all over the plot. They never use broadcasting method for paddy seeds rather practise the method of transplantation. They preserve seeds in baskets made of bamboo splits and clean them thoroughly and cover them with straw and for continuous five days a little warm water is sprinkled according to the necessity. When the seeds germinate they are sown in a small patch for raising seedlings. They regulate water flow to allow regular growth of the seedlings and to make them ready for transplantation in time. When the seedlings get ready in the plot, the men-folk plough and level the land and the women pull the seedlings out and put them in to small bundles which are subsequently carried to the field for transplantation. All women stand at the centre of the plot in a circle and move in different directions to complete the work of transplantation. After transplantation the field is left without water for two to three years. But afterwards special care is taken to keep two to three inches of water all over the plot. Then after a month weeding work takes place. When grains are ready, they may watch the field provided that is amidst the forest and away from the village settlement. When crops are ready the family members go with sickles to reap the crop. They never reap at the base of the crop but only the grain portion is taken out and the straw is left on the field. Till the 'Sumeg-lirak' is celebrated the ripe crop is not carried to the threshing floor. The threshing floor of the Bondo is regarded as one of the ritualistic centre which demands special observances and precautionary measures. A number of taboos are associated with their threshing floor. Food prepared outside the floor area is not eaten and traditional drinks except sago-palm is not allowed. While harvesting the crop gossiping is not allowed and the husband and wife relationship during the days of harvest is strictly prohibited. A magico-religious rite is performed in which eggs and crabs are offered before lifting the



grains at home. In the 'Susugage' (Magha parba), a magico-religious rite is performed on community level and the seed grains are sanctified to ensure better harvest for the next year. In the entire agricultural operation the division of labour between the sexes is not strictly observed. Due to environmental change, climatic variation and limited means of subsistence the Bondos are facing several economic hurdles. All the members of the community share their activities and perform jointly several works. Distribution of works in certain sphere is connected with customs, conventions, traditions and physical fitness but not on the basis of physiology or natural principles. Menfolk usually perform heavy and arduous works but women are assigned light works.

In different economic activities men are expected to do all the works connected with hunting, trapping, house construction which need courage, strength, skill etc. The women are busy in cooking, taking care of domesticated animals, food gathering and weeding. Climbing the trees, watching the field in the night, ploughing, levelling the land and some other heavy painstaking works, like threshing, winnowing seeds are done by males. The females collect edibles in the forest, fetch water and collect fuel wood. The children are assigned many minor jobs which demands less or physical strain. Both boys and girls are sent to the jungle to graze the cattle. The old persons are prohibited to perform strenuous labour and only assigned lighter works. They take care of the children at home and manufacture various materials like nets, traps, snares and baskets. Some other works which are done by them are sharpening of the hunting weapons and agricultural implements.

On the basis of economic status the Bondo community may be categorised into three broad divisions, well-to-do families who have sufficient land to cultivate middle standard people who depend on land and forest for survival and economically poor people who depend absolutely on forest. The people of low economic status have to work hard for their food and they hardly get a full meal for consecutive weeks and are exploited by the two former categories of people. Even today the well-to-do Bondos keep permanent labourers who may be a male or female. Mostly the poor debtors work for food and cloth in the house of the creditors and perform all the works which they are ordered to do. Mostly the Bondos borrow for marriage expenses and later on work to repay the loans. Sometimes the cattle as bride price is paid by his master and if the worker is a female and receives bride price it is taken by her master. Most of them lead a life full of struggles for survival. Payment for any work can be made either in cash or in kind but the provision of giving food and drink is compulsory for any strenuous work. Sometimes the well-to-do Bondos give food grains or one animal for the village labour force to secure their labour at the time of necessity.

Apart from agriculture, the Bondos also earn from several other sources, such as forest collections and wage earning. Some of them also earn as Witch Doctor-cum-herbal medicine men. Their major source of expenditure is on magico-religious functions and on food stuff. They purchase few articles which are not usually available in their own area from the weekly markets such as clothes, ornaments, etc. Some of them also purchase kerosine, mustard oil, onion, aluminium utensils, match-boxes and few other necessities. They celebrate a series of ceremonies all over the year which compell them to go for loan. Some other items of expenditure include the purchase of agricultural implements, payment to Government officials and hiring of labourers for certain household and agricultural works. Many of them spent much in drinking and paying interests to the traditional money lenders. Some well-to-do Bondos have the propensity to save and they control their expenditure as much they can and also work very hard to earn more. The savings is used for giving loans to fetch interest and for purchase of cultivable irrigated land either in their own area or in the nearby plain villages. Some of them also purchase cattle, goats, pigs, sago-palm trees, jackfruit trees out of their savings and by selling the cash crop specially niger and pulses. They also purchase gold ornaments and brass utensils.

Majority of Bondos are indebted for several reasons. Many debtors have lost their immovable property which were mortgaged with the creditors. Due to indebtedness some male as well as female youths are working as permanent labourer in the house of the creditor. The major factors of indebtedness is low income, less production in the field, inadequacy of rain or damage of crops by the wild animals, ill-health and expensive magico-religious ritualistic observances, heavy bride price, costly ceremonial feast and festivals etc.

Apart from these drinking habit of the people, idleness and aggressive personality also are some of the additional factors which cause indebtedness. Once a Bondo borrows after mortgaging the land mean rarely recouped within the stipulated time. For cash loan as high as 50% interest is charged whereas for the crops the creditors collect 100% interest. The period of maturity of a loan is calculated every year and for a few months the borrower has to pay interest for the whole year. Repayment by the debtors is usually made in the harvesting season and if anybody fails to repay the initial debt the loan is multiplied. It is very heart touching to note that some of the Bondos suffer from carrying not only the load of their own loan but also inherit such burden from their forefathers. Many of the creditors are their fellow tribesmen. Rarely the Dombs inhabiting the area and other ethnic groups in the plains area advance loan to the Bondos. In spite of very high rate of interest the Bondos get no alternative to sort out these ongoing unavoidable problems. It is seen that a Bondo debtor is more afraid of Bondo creditor than the loan taken from the Dombs, Gadabas, Didayis and other ethnic groups.

In almost all societies food and culinary practices are the mirror of culture which reflects the social and economic life of the community. The highland Bondos do not give much stress on nutritive value, food composition, preparation and contents of food. The only thing which matters is its availability and quantity. They manage very simple kitchen and their traditional food habit is more intimate with their ecology, fire, water and pot are enough to prepare anything either by roasting or frying or boiling. They use very little spices and serve food in leaf plates and cups. Very often they are found worried for food but never for culinary practices. They do not have any specific kitchen room but a part of the dwelling house is used for kitchen purpose. Among the materials that are associated with kitchen are the earthen and aluminium pots, leaf plate and cups, gourd containers of different shape and size. They use simple type of oven in which three stones are arranged in a triangular shape which can sustain the weight of small and big pots. Sometimes hearth is made in the varendah which depends on the space available and interest of the family. They preserve fire in the oven but inside the forest they rely on fire drill. Neatness and cleanliness of the kitchen is not emphasised much but they wash their utensils daily in the nearby stream.

In the dietary habit they follow minimum social rules and enjoy special type of food items. In certain festive occasions many of their new food items are associated with certain ritualistic observances. Some food taboos are also observed. Quite a few number of food items are denied to pregnant women, parturient mothers and infants. They eat several varieties of mushrooms, roots, tubers, shoots, leaves, fruits etc. Various tubers of different tastes, size are available in different seasons. The popular shoots are tender bamboo shoots well known as Karadi. The trunk of sago-palm trees is husked to make powder and eaten after boiling along with ragi gruel. They also take different types of leaves which are found in the jungle. One may be astonished that some of the family members depend on the bamboo shoot and green leaves for weeks together. Among the fruits they take jack-fruits, mango, date-palm, orange, tamarind, kondou, black berry, dummer, kusum, wood sorrel and several others. The mango carnal is one of the important food items used by the Bondos during the lean period.

Several other items they eat such as ragi gruel, maize, rice of small millets paddy, pulses of beans black gram and vegetables such as sweet gourd, pumpkin, brinjal and many others. They like very much chilli and tomato. Among all the food items they like the ragi gruel. Even they eat twice and thrice a day when it is available. The life-style and culture of the people is associated with ragi and they express that their working strength, stout and strong body and energetic behaviours as the result of the consumption of ragi gruel. Apart from the ragi, rice is the second important staple food of the Bondos. Apart from several varieties of vegetarian food items Bondos are also very much fond of non-vegetarian food items. They consume beef and like meat of the rat and the mouse most. Apart from that pork, mutton, fowls, dried fish, eggs, fish, crab are also eaten by the Bondos. They like to eat the worm inside the wild palm-trees and varieties of birds available in the forest. On festive occasions non-vegetarian food items are communally relished. Among the jungle animals mention may be made of deer, sambars, wild boar, porcupine and many others. Among the birds mention may be made of fowls, peacocks, pigeon and some varieties of sparrows. More or less in every week cattle are slaughtered for consumption. The Bondos preserve non-vegetarian food items for future use.

Apart from different food items, Bondos take a varieties of intoxicated drinks. All over the Bondo area one can come across several Sago-palm trees which provide sufficient saps for consumption of the Bondo. Also in every village the Bondos possess a number of distilling equipments by means of which they prepare Mohua liquors. They consume enormous quantities of sago-palm juice. The whole social system of the Bondo is linked with their drinking habit. According to the Bondos sago-palm juice is essential not only for their personal use but also for their labours. They also earn by selling Sago-palm juice and wine in the nearby markets. Daily in the morning and evening they collect Sago-palm juice and for bitter secretion of juice they perform special magico-religious rites. They drink Sago-palm juice by boiling it and in the collection pot they kept herbal medicines which acts as preventive against diarrhoea and stomach troubles. The Bondos prepare rice beer out of rice and rice of small millets to which they add some jungle herbs. This is mostly used in festive occasions and at the time of agricultural works. They also use varieties of narcotic like tobacco leaves in smoking pipes and tobacco paste inside mouth. Use of tobacco paste by people of different age and sex groups is a regular phenomena.

The Bondos eat twice a day. The children are given special privileges with regard to the number of times of eating. Food is usually served by the mother. When any outsider arrives they offer him raw food items and other requisites for cooking.

In the Bondo community, social grouping is manifested on the basis of sex-age relationship, association, locality status, function and various aspects of social life. Different goals associated with social groupings and sub-groupings are of emotional, social economic, religious and institutional in nature. These are more influenced by magico-religious activities and kinship affinity. Important social institutions are family, lineage, clan and tribe as a whole.

Basically the Bondo family is patrilineal, patrilocal, patriarchal and nuclear type. It consists of husband, wife and unmarried children. As soon as a son gets married he lives in a separate house. During their childhood the sons and daughters are allowed to sleep with the parents in the night but at their life childhood they sleep in their respective youth dormitories. Relationship between the husband and wife is cordial and children are always brought up with love and affection. A couple gets special status in the community. In almost all cases the husband is younger in age than their wives. Extramarital relationship is strictly prohibited and repeated unfaithfulness of wife may lead to divorce. There are Bondos having two wives who live in two separate hutments. The husband attends them in every alternate days. Even though the wife is elder in age she observes the formal rules of submission. In the family the husband claims his superiority. All the valuable and immovable property belongs to the husband. After the death of the husband the woman may marry one of the uterine brother of her late husband when the wife is tortured, her kinsmen may take serious action against the husband. A divorcee may marry to a man who returns bride price of the first husband. At the time of second marriage she has to leave her children in her first husband's family. Parents are responsible to arrange bride price for their son's marriage.

Family among the Bondos is an economically self sufficient unit. All the members perform their respective tasks according to their age, sex and as per the traditional division of labour. Perhaps maintenance of co-operation and mutual understanding among the family members throughout their life is the striking characteristic features of the Bondo family.

The clan organisation locally known as 'Manda' or 'Kuda' plays a significant role and one Bondo is a member of this organisation by birth. 'Kuda' unit is patrilineal and exogamous. They believe that all the members of same Kuda are the descendants of a common ancestor. There are nine Kudas among them named after the village functionaries. They are Badnaik, Challan, Sisa, Dhangda Majhi, Kirsani, Muduli, Dora, Jhigidi and Mandra. According to several myths the clans are originated with a view to perform various socio-cultural functions. Perhaps due to increase of population and occurrence of quarrels and conflict they migrated to reside with their respective clansmen in separate settlements. Most significant characteristic feature of the Kuda is the feeling of group solidarity. The Kuda name is used as a term of address. With regard to the functions of Kuda, people belonging to Sisa are expected to perform all community level magico-religious activities. The Badnaik Kuda people have absolute right over the post of 'Naik', the secular head. Lineage among the Bondos is a corporate group having

stronger functional unit of socio-economic life particularly on birth, marriage, death and magico-religious functions. The ownership over immovable property like hills and mountains meant for 'slash and burn' type of rotation cultivation, wet-land and groves are on the basis of the lineage. The lineage may work together and distribute the harvest. Previously all the lineage men were residing together within a limited area but due to economic factors they are now found in separate settlements. Even today one can find great affinity between the lineage men. Property of an issueless man goes to his close lineage men.

The Bondo community as a whole is divided into two totemic groups may be called as moiety. Each group is an endogamous division and they are two in number, 'Ontal' means Cobra and 'Kille' means tiger. New-a-days due to unequal division of the tribe into two broad groups they are unable to retain the restrictions particularly to avoid problems of marriage. Though theoretically marriage between the people of Ontal group is not possible, people are compelled to deviate because of symmetrical reciprocity. People of two different moieties may inhabit in the same or different villages.

Village as a social unit is a distinct and important organization from functional points of view. A number of families under the traditional village council and *Handi Deota*, are grouped as a single unit for different socio-cultural and economic purposes. Previously the villages were unclan in composition but new-a-days people of other clans are also living there. Village exogamy except in Adrahal is strictly followed. Village solidarity is also revealed in inter village feuds, group hunting, observances or rituals, kidnapping of girls from other village girls' youth dormitory and many other spheres. The Sindbor which is the centre for different community level activities plays a vital role to bind the families of a village together. Few neighbouring villages like Mudulipada, Padeiguda and Banghaguda are considered people of one village and regularly join in various co-operative activities.

The patrilineal clan organisation of the Bondes is clearly reflected in their network of relationships. In several socio-economic activities kinship plays an important role. Joking with wife's younger brothers and sisters and between grand parents and grand children are socially stereotyped. Avoidance relationship is maintained with wife's mother and elder sister. From the kinship terminologies it is understood that the structural arrangement is closer to bifurcate co-lateral which is due to the existence of dual organisation.

Apart from consanguineal and affinal relationship the Bondes have another important social bond known as ritual kinship. *Moitur* is the terms of address for a ritual kin or ceremonial friend. Once this relationship is established, it continues for a life long. They share each other's misery and two 'Moitur' friends never quarrel or deny each other any help and assistance. Practically ceremonial relatives are more important than the consanguineal and affinal kins. They do not speak each other's name and manage the relationship following all social decency and decorum.

One of the very important institutions among the Bondes is the prevalence of youth dormitory. Two types of dormitories are for boys 'Ingersing' and the other for the girls 'Selandingo' are found in every village. These are meant for the unmarried youths where they are socialised in a particular pattern. Regarding the location of the dormitory there is no definite pattern. Sometimes house of an widow and widower may be used for this purpose by the girls and boys respectively. Dormitories are main centres for mutual acquaintances and preliminary negotiations for marriage. There are centres for planning, discussing and deciding hunting expeditions. By the evening or in early night members of the respective youth dormitories assemble after finishing their dinner. Boys from other villages and clan groups meet the girls and spend long nights by singing and enjoying jokes. When two opposite groups of boys attend the same dormitory it may lead to quarrel and conflict. Sexual relationship inside the dormitory is not allowed. But there is no bar to develop intimacy between two opposite sexes. The dormitory organisation also facilitates many economic activities of the villages. No doubt the dormitory plays pivotal role for several social, economic and marital activities in the Bondo society.

The highland Bondos have developed bad reputation for their homicidal tendency. The neighbouring communities are afraid of them. They are straight forward, fearless, outright, and they attack with weapons to their tribesmen without warning. The major reasons are intoxication, dispute over property and women, age-old enmity and short tempered. When one's family members falls sick for long time and there is loss of life of cattle and human beings, no production in the field. These are believed to be the effect of sorcery and the person who is suspected as the main cause may be murdered. Sometimes a Bondo kills someone out of revenge or suspicion. But by and large alcohol is the predominating factor and main cause of their criminal propensity. Other important factors are related to indebtedness, mortgage of immovable property and continuing feuds of lineage level. Before going to jail as well as after coming back from imprisonment the culprit is offered special diets.

The political life of the Bondos is based on rigid democratic spirit and continuing since several generations. Along with the indigenous political council the modern Panchayat system is also in existence in the community. The 'Naik' is the secular head assisted by 'Challan' the deputy leader and 'Bariko' the messenger-cum-helper. The 'Naik' is usually selected from the 'Badnaik' 'Kuda' but some other 'Kuda' man if found capable may be selected for the post. In some villages two 'Naiks' may be found specially when the elder 'Naik' grows old and unable to render adequate services. With his consent a second man is selected who functions under the guidance of the first one. The Challan belongs to 'Challa' 'Kuda' and some procedure may be adopted in his case also. The authorities of a village have their own area of operation and jurisdiction which is clearly demarcated by territorial boundaries. But by and large village is the unit for this.

Within the political boundary the above leaders exercise their power to settle cases of different types with the aim to establish social cohesion and community happiness in their respective areas. They also help the magico-religious functionaries for smooth management of several community level ritualistic observances. In certain matters the political council also seeks advice of the religious specialists for giving decisions. The cases brought to the notice of the council are connected to indebtedness, property dispute, marriage disputes, magic, witch-craft, sorcery, quarrel, conflict and tension. Cases are decided in the presence of the village leaders and other influential individuals and senior persons.

The 'Sindibar' is the place for the political council where decisions are finalised. This place is made by the villagers by setting flat stones underneath a shady tree. Apart from the special occasions where the council meets, one may also find male members sitting together in the 'Sindibar' discussing and spending leisurely hours. Females usually avoid this place because of its special importance. The post of Naik may be inherited and may not be also. Every year on the basis of his performance and achievements he may be reappointed by the village elders or may be replaced by a suitable manoeuvring personality. Among the Bondos a secular leader gives voluntary resignation or his frequent absence in the political council compel the villagers to reappoint someone. But preference is given to an aguate of the 'Naik' or 'Badnaik' 'Kuda' and that is officially done in 'Susugige' festival which takes place in the month of 'Magh'. According to the Bondos an ideal 'Naik' posses a good moral character and a fearless, dynamic and honest man. He is not dishonest and short tempered but very helpful and always impartial to giving decision. The post of Bariko may be from a Scheduled Caste community. Selection or reappointment of 'Naik' in the 'Susugige' is very enjoyable and socially meaningful.

Most of the cases are decided then and there in the 'Sindibar' and some after a communal drink. Very rarely a case is referred to police-station or court particularly when involved with murder and bloodshed. But minor injury cases are decided in the village and suppressed. Both the victim and culprit are fined and the amount is utilised for purchase of traditional drink. A well-to-do and influential Bondo murderer may be excused in the traditional council if he gives a grand feast of beef and rice to all the village members.

After the introduction of the modern Panchayat system the traditional council has been comparatively weakened. The entire highland Bondos are under the two Gram Panchayats, Mudulpada and Andrahal. In case of Mudulpada the Sarpanch was belonging to Bondo community whereas in Andrahal area it was held by a Domb, a person from Scheduled Caste community. The ward members were mostly the village 'Naik' or 'Challans'. By and large the posts of the traditional and the modern political council are occupied by the same members. In several cases the traditional council is stronger and powerful. The elected ward members are working as administrative as well as developmental guides in their respective areas.

The entire happenings in and around the Bondo areas, as the people believe, are controlled by unseen powers. The magico-religious specialists exercise enormous power in day-to-day activities and special ritualistic occasions. There are a number of centres which in one way or other associated with varieties of magico-religious performances. Apart from these there are a lot of feasts and festivals which are associated with agricultural cycle or socio-cultural life of the people.

The Bondos are influenced by a number of supernatural beings for their survival. From the Bondos it is known that they have unlimited faith on 'Mahaprabhu' or 'Mahapuru' who is regarded as Almighty and holds all the power of creation and destruction. They tell that 'Mahapuru' is present everywhere. He is omnipresent, omnipotent and unchallenged and tops the hierarchy in the theological pantheon. He is one and all-powerful, just, compassionate and always benevolent. He takes shelter in the heaven and witnesses every one's good and bad deeds. He is propitiated and evoked and never feared. He can be offered anything anywhere as a matter of obligation because, he is the owner of everything. The Bondos believe that their social system, value and all that they practise are the contributions of the 'Mahaprabhu'.

They also believe in the Sun god and the Moon as his wife. According to them both are offered sacrifice for prosperity of the family members. 'Bhimai' which causes rain, cold, fog and dew is offered sacrifice by the villagers.

The Bondos are influenced by Patkhanda cult to a large extent. The Patkhanda is represented by a sacred sword placed on the high branch of an old banyan tree which is surrounded by many other trees, herbs and shrubs. A number of folktales are heard from the Bondos about the origin and placement of this sword. Some tell that this sword was given by the king of Jeypore and others speak that the Patkhanda Mahaprabhu for its special power and function represented by their forefathers by a strong sword. It is regarded as a male deity and appeased by offering sacrifice on all important festive occasions. The regional religious specialist offers the sacrifice where all the Bondos in general and people of adjacent twelve villages in particulars participate. A series of ceremonies and formal ritualistic observances are associated with the Patkhanda Mahaprabhu. People remember this deity on all good and bad occasions. According to the Bondos if any one commits some mistake is warned in dream by the Patkhanda. When angry this deity can create several problems specially for the people, their cattle wealth and area as a whole. Any such indication is seriously viewed and necessary steps are taken to satisfy the deity.

The 'Hundi' is very powerful deity of each village and it looks after the safety and security of the village. In many villages, 'Hundi' is enshrined inside the villages, somewhere near the 'Sindibor' and also at one end of the village. It is marked by a huge stone encircled by few small stones. All the villagers in group offer sacrifice through the village magico-religious specialist. In all ceremonial occasion 'Hundi deota' is given sacrifice of a pig, a hen and an egg. Apart from 'Hundi deota', there are other deities, like 'Mali deota', 'Kotdeota', 'Nisani deota' and many others responsible for good and bad of the village members.

Inside the house, each Bondo family worships the household deity represented by a twig of black berry and a gourd shell. In all socio-religious occasions the family deity is offered with ritualistic performances.

Inside the village settlement one may come across flat big stones known as 'Gunom stones' in several places. Each stone rests on three small stones installed for the purpose. These are ancestral stones placed after celebration of expensive ceremonial rite by the concerned family for their respective deceased family members. These Menhirs are never forgotten on any ceremonial occasions for propitiation and any negligence in this matter may cause heavy loss.

Apart from all these there are numerous spirits who take shelter on the hills, trees, at the junction of foot-paths, in the stream, wet land, shifting cultivation field, etc. in some spots of the village. They are usually malevolent in nature and individually responsible for creating specific type of problem.

The Bondos believe in *Thakurani* which is very harmful because of its malevolent activities. It causes chicken pox, blood dysentery, serious fever, cold and cough, etc. They believe in earth Goddess, hill spirits. All these spirits are appeased by offering sacrifices along with magico-religious performance. Along with its secular importance

"Sindbor" has some magico-religious significance. Bondos tell that in the night all the spirits of the village take shelter in the "Sindbor". Many types of community level sacrifices are also offered near "Sindbor".

Some of the magico-religious centres are situated outside area, some are outside the village settlement, but many centres are inside the village and a few inside the house. The magico-religious spots may be permanent or temporary but many of them are commonly used and very few by specific families. Public shrines and centres are offered sacrifice on village level in which all the families subscribe and jointly enjoy.

The Bondos have their traditional magico-religious specialists who work as intermediary between the living being and Gods, Goddesses, Deities and numerous spirits. A number of villages or few adjacent villages may be attended by one magico-religious head known as 'Sisa'. He offers sacrifice and performs rituals in all community level occasions. He is really a dedicated person who observes fasting, prohibitions, food taboos, sex taboos, and has given up many comforts. This post is inherited. Usually 'Sisa' is appointed from 'Sisa Kula'. On village level other Kuda people are also doing the job of 'Sisa'. The special 'Sisa' who worships the *Patkhanda Mahoprabhu* does not belong to 'Sisa Kula'. But everywhere the man doing the job of 'Sisa' is quite knowledgeable with regards to magico-religious affairs and he is respected by all the members. He is expected to get special share on the ceremonial hunting. The divine musical instrument 'Kidding Sagar' is kept in his house. Apart from 'Sisa' another important person who performs magico-religious activities is called as *Dissari*. He possesses vast knowledge about the power functions and nature of the spirits who have control over the inhabitants. *Dissari* has also acquired some extra knowledge in astrology, astronomy and social psychology and is very intelligent and tactful. For all practical purposes he is regarded as very important figure and admired for his special quality and personality. His manner of diagnosis of diseases, prescribing preventives and curatives measures very often make the outside astonished. The post of *Dissari* may be inherited but it is not a rule. The knowledge is acquired by training, hence it depends on one's will power and interest. He is not confined to a village but he has wide range of practice and goes as per summon. Bondos tell that *Dissari* is very helpful in most critical situation specially when individual's life is in danger. He is respected and paid for his service. Sometimes he observes tedious taboos and painstaking trainings in comparison to which payment made to him is not high. A few *Dissaris* are also involved in practicing sorcery. Some eminent '*Dissaris*' of their neighbouring ethnic groups have better reputation in the Bondo community.

The Bondos have their own way of appeasing different spirits, Gods, Goddesses and Deities. In almost all ceremonial occasions and magico-religious performance they offer sacrifice along with series of prayers, trance and obligatory spells.

The magico-religious activities of the Bondos are associated with prayer and trance. Their prayers are spontaneous, overflow of emotions, and according to prescribed norms. There is no prescribed paragraph or phrases but keeping in view of the meaning the expression vary. Prayer associated with several types of actions and postures has their respective significance. The magico-religious specialist conveys on behalf of the people or individual where as all others present there keep silence. The God, Goddesses, deities and spirits are flattered and praised at the time of sacrifice and words like we are guilty, we are paupers, save us, help us, be with us, pardon us and be merciful and satisfied etc. are uttered. Finally they expect forgiveness, fulfilment of their desire, health and happiness of the people concerned and area.

Bondos refresh themselves with different new food items in some specific feasts and festivals. Their feasts and festivals have special significance with reference to changes in season and economic activities. By and large, the feasts and festivals are associated with their age-old practice of hunting, food gathering, fishing, shifting cultivation establishment of social happiness, enjoyment of songs, dance, merrymaking, dormitory life and new food items. Feasts and festivals are celebrated on village level or community level and associated Gods, Goddesses, Deities and spirits are appeased in their respective prescribed manner.

The most exciting and colourful festival is 'Glagige' known as *Chaltapada* ceremoniously celebrated with much pomp and show. The significance of this festival is to eat mango ceremonially, after performing ritual for first fruit eating. Mangoes collected by female folk

hunting animals brought by men folk are offered to the Deities and spirits and then consumed on community level. There is restriction to go out or allow the outsiders to come to the village. They sow seeds in the shifting cultivation fields and paddy in the wetland during this ceremony. After celebration of this ceremony the Bondos are allowed to eat mango, go for hunting and fishing and start sowing of seeds in the field.

The 'Sume glirak' or *Pusparab* is quite enjoyable for the Bondos. It is celebrated just after the harvest of agricultural crops. All the community people wait eagerly to celebrate this occasion. This religious rite is associated with feast and drink and ceremonial eating of beans, collection of fibre branches for weaving their traditional cloth 'Ringa', collection of thatching grass, consumption of harvested grains, and collection of certain forest produces both males and females go for fishing in their respective groups to collect fish and crab. The Bondos also catch rats for this very occasion. The boys, adult and old male members enjoy the stick play. This is the occasion when all the Bondos are without food shortage.

The Bondos enjoy '*Susugige*' (Mogha Parab) with feasts and drinks. During this festival they consecrate the seeds and appoint their secular leader 'Naik'. On this occasion the measuring of the seeds in the basket before sacrifice and after sacrifice are of great relevance. The increase and decrease in quantity while measuring indicates the success and failure of crops in the year. It has socioreligious link with the jungle and kitchen garden produces.

The Bondo youth celebrate *Geursuggige* during which they collect grains from each family and purchase a pig and chicken out of the money they get by selling the grain. They celebrate *Geurgige* or *Bandapana parb* for eating bamboo shoots and attending dormitories. They also celebrate by worshipping spirits responsible for health and prosperity of the cattle wealth.

A lot of rituals are associated with marriage, birth, death and other events of the life of the Bondos. They perform *Gupasing* for difficult labour pain, *Dubokgige* for birth of a child, *Sindigige* when a child is three years old, *Sindigige* for the first menstrual cycle of the girl, *Dagolgige* when a couple do not have child, and *Kungdak* the series of death rituals.

The Bondos believe that any disease or ailment is due to dissatisfaction of the spirits, Gods, Goddesses and deities living in and around. Some of the common diseases are malaria, diarrhoea, skin infections, stomach pain, pneumonia, eye trouble and bodily deformation etc. According to the Bondos main causes of ailment and diseases are due to breach of taboos, dissatisfaction of spirits, black magic, witch-craft and sorcery. Hence they follow a series of process to ascertain the cause and manner of appeasement for remedial measures. Treatment of any disease needs a complex magico-religious rites. Use of herbal medicine without legal permission is believed as dangerous. Some diseases are also cured by counter magic.

The Bondos have been influenced morally by two words, the '*Bissas*' which means pollution and '*Angto*' means prohibited. The '*Bissas*' can pass from one individual to the other like a contagious disease. In case a Bondo has done something against the social rule, which has been noticed by another man then the *Bissas* passed to the second man. '*Angto*' covers a lot of social behaviour and practices which are prohibited due to various factors. Both for '*Bissas*' and '*Angto*' one has to undergo complex magical rites by calling a *Dissari*. Otherwise it can cause several unavoidable problems in the family and village as a whole. Several magico-religious deeds are performed out of fear only to keep the Gods, Goddesses, deities and spirits happy and get their blessings. According to the Bondos they receive a lot of things indirectly from the unseen power, hence it is obligatory to satisfy them.

The life cycle of the Bondos passes through such events which are full of love and affection, pleasure and merrymaking, cares and anxieties, struggle and strive, aspirations and aggressions. After marriage to have children is great ambition of the couple. They establish their status and get social recognition by giving birth to children. A female child is preferred by them. The conventional attitude towards sex of a child is affiliated with cultural background than biological significance. Unless the husband is too young every married woman is expected to conceive within a few years of marriage. If within half a decade she failed to procreate then help of herbal medicinemancum-magico religious specialist and diviner is absolutely necessary. Child birth is a highly welcoming event even though the husband is below fifteen years old. According to the Bondos the conception of



a woman depends on her fertility power, sexual enjoyment as well as mercy of the 'Mritaprabhu'. As soon as a woman knows that she has conceived, she informs to her husband and other elderly female members. The recorded physical symptoms of a pregnant woman are darkening of breast nipples, slight protuberance of lower part of the belly, morning sickness, vomiting tendency, uneasiness in body and cessation of menstrual cycle. They count the gestation period according to their agricultural calendar. She gives birth her child on a bamboo mat over which tender leaves are spread. Except mother-in-law and some other elderly women any other, particularly male members are strictly prohibited to enter inside. At the time of difficult delivery her family members call for the magico-religious specialist-cum-herbal medicine man.

The family members follow pollution rules and the mother and the child are allowed to stay inside the house. The purificatory rite is performed after a week of the child birth. Mother takes a ceremonial bath in the stream and sacrifice of a fowl is required for purification of the house. When umbilical stump falls down 'Dubokgige' is celebrated in which maternal uncle of the child gives gift of a cock if the child is male and a hen if the child is female along with a basketful of rice required for the occasion. After performance of this ritual the parents and lineage members are relieved free from the pollution. Up to three years the child is brought up with love and affection. The Bondo mothers give less importance to the hygienic aspect rather woefully ignorant of sanitary rules. In the rain and sun, winter and foggy weather infants are carried to the forest or agricultural field. Hair cutting ceremony 'Sendigige' is celebrated by the parents when the child is three years old. They call for a 'Domb' man belonging to a Scheduled Caste Community who propitiates and gives the name as per the cultural norms. It is believed that if a lower caste man keeps the child in his lap and performs the function then no evil spirit can cause any harm to the child. At the time of marriage this Domb is given special gifts. Name giving ceremony may be celebrated nicely in case of, the first child but the process is minimised in case of the subsequent children. For this, no date is fixed but a suitable day is performed in which maternal uncle's presence is a necessity along with other relatives of the parents of the child. For name givings day of birth and sex of the child are more relevant.

Late childhood socialisation process and development of personality of a Bondo child is very important because of its socio-cultural significance. It is really meaningful to note how a Bondo child turns aggressive, and hostile in explicable and restricted territory. Whole family members look after the baby. A child from very infancy stage likes the sounds of the animals and birds, bears intolerable cold wind, rain and sun, comfort accidental disturbances and uneasy situation. Children in Bondo area from the very childhood explore the surrounding and given small bow and arrow as play materials. The children run to the village stream water and spend their time in playing and searching for fish and crab. Even during their childhood they start fighting among themselves and do harm to the domesticated animals. On attainment of three to four years children are not cared much. They are expected to manage themselves. Since then they are accustomed to learn from their respective sex groups. The Bondo children develop friendship among themselves from the age of nine to ten. They are confronted by coherent and consistent social standards. The influence of age mates of the boys share their personality in terms of ridicule abuse or slays, ostracism, hostility, aggression and individualism. The girls from the contemporary period when start going to their dormitory and come in contact with other girls learn to love, melodious songs, heart touching music, meaningful tales etc. Boys and girls even up to their marriage are left free. They talk, joke, discuss and never hesitate in meeting other sex groups. Inside the dormitory boys and girls following clan exogamy meet together and engage in singing, merrymaking and discussion. The girls always remain in their dormitory but the boys of other clan groups and other villages meet them. Boys are a little bit lazier and keep aloof from hard work. But the girls are painstaking workers and shoulder greater economic responsibilities of their respective families. This depends on the family tradition and their economic condition. It is found that poor boys and girls are more free. Among the groups of boys and girls equality is maintained. The late childhood of the boys is mischievous but it is not true in case of the girls. Boys are sent for grazing cattle, ploughing field, they catch fish, crabs and trap birds. They climb high trees and help in several economic activities. Except hunting, climbing trees and ploughing field the girls do many other works which are done by the boys. Their additional works are husking of paddy and small millets, grinding of ragi, preparation of leaf cups and plates and many other works. For the adolescent boys and girls no special initiation ceremony is celebrated.

in case of the girls a formal ritualistic observances are made. During adolescent period they are expected to learn the etiquette of entertainment, establishment of formal relationship according to the social sanction, participation in family level and community level occasions. In the dormitory the boys force bangles or ring in the hand of the girls by singing songs. After several nights of attempt and repeated persuasion and endeavour he may be able to win the heart of a girl. She is betrothed if accepted the bangle. Sometimes a boy may fail in his attempt and if so desire, may kidnap the girl in collaboration with his lineage men and friends. The process of acquiring a mate is romantic, explorative, adventurous and exciting. Girls and boys are not closely guarded by their parents but work and co-operate in all possible economic activities. They are trained properly by experience to adjust themselves in their eco-cultural niche and social ethos. The basic initiatives of revenge, aggression, knowledge of magic and special behaviours are inculcated during this period.

Marriage among the Bondos has socio-economic and sexual significance. Their traditional regular type of marriage is locally known as 'Sebung'. It is not only expensive but also elaborate and time taking process. The different stages of marriage and ceremonial observances associated with it give insight of the socio-cultural life of the Bondos. In the month of July after celebration of 'Bandapana' festival in the village the boys alongwith some adults attend the girls dormitories of the villages where they can establish marriage relationship. The young ones are encouraged and motivated by the elder ones. On the way itself the group plan out their proposed activities before arrival at the dormitory. The target girl may be inside the dormitory or hide herself somewhere which is detected by the intending youths. Somehow or other the boys find her out and force the bangle. She does not accept the bangle in the first day attempt. However, repeated attempts are made. In due course the bangle may be accepted by the girl. This phase is known as 'Selagboi' that is the adventurous journey to woo a girl. Sometimes the girl may avoid by hiding herself. If after repeated avoidance the girl is not left then her group men may resist and these are the occasions of disputes and group fight. After acceptance of the bangle frequent visit from boy's party is necessary otherwise there is possibility that an enterprising youth may intervene to break up the tie. But once formally the bangle is accepted this means that any other party never dare to interfere and since then both the boy and girl are frequently in touch. Then in a suitable day either on Saturday or Tuesday boy's party go in a group and before the adventure they enjoy rice and blackgram dal at the outskirts of the village. The utensils used for cooking are brought by an old man as it is taboo for others to come back and desert the party. They proceed to the girl's village. They bring the girl with them who is kept in the girl's dormitory of the boy's village. She cooks food for the village youth but never eat herself. Because once she takes food means she has given her consent of a formal wife. During this period she proves her worth by working in kitchen and field as well as in all possible economic activities. Then she returns back alongwith her would-be husband. Her husband is treated well by her parents and other villagers. Then he comes back home. Then the bride price that is 'Segur Taka', a few pots of rice, beer liquor and sagopalm sap are paid by the boy's party to the girl's party alongwith some quantity of rice and non-vegetarian food item. This time the girl eats rice at her husband's house. The marriage is confirmed in presence of the village leaders. After this both the parties get ready for the most expensive ceremony that is 'Damungiang'. Girl's parents on a suitable day preferably Sunday in the month of March send their daughter to the boy's village where dance, song and special feasts are enjoyed. In the next day morning she alongwith her friends return back. About a year after the boy's group go to bring the girl. The day after her arrival she cooks food for everybody and stays in the house as wife. After completion of marriage girl's party return and collect the bride cattle. After all these a purificatory ceremony for making the couple free from all evil spirits is performed. After some days they go to girl's village to pay a formal visit. The regular type of Bondo marriage ceremony is very expensive and time taking process.

Other types of marriages are marriage by elopement in which a boy and a girl due to their deep love may elope because of the inability of the boy's parents to celebrate the function in regular manner. Marriage by intrusion in which a woman voluntarily goes to stay with a boy but the concerned woman does not get due status. Matrimonial tie with the first wife is found to be permanent in nature but as the number of wife increases friction between the co-wives arises. Divorce cases are very few. The important causes responsible for divorce are repeated unfaithfulness of the wife, laxness. Some other

causes are inhospitable behaviour of the wife to husband's kinsmen and frequent absence in the village and agricultural field. A wife may divorce her husband for his ill treatment, inability to supply food and excessive drinking habit, When the wife breaks the wedlock husband's party demand back the bride price so also when she is divorced her parents may take revenge.

In case of the regular death, the corpse is cremated but when death occurs due to epidemics like small pox, cholera or at the infancy stage the corpse is buried. A child if dies just after birth is buried inside the house under the hearth. In the third day of the death the traditional astrologer-cum-diviner is invited to find out the cause of death. The 'Kingdak' is the purificatory ceremony takes place on the 10th day from the day of death. It is very expensive and elaborate. All the kith and kin arrive with ceremonial gifts like animals and birds as well as pots of wine and baskets of rice. A series of rituals, sacrifices and feasts are the special observances of the occasion. Again after three years of the death 'Gunom' stone, that is placing of a memorial stone for a well known Bondo may take place which depends on the economic condition of the family members of the deceased. For placing of the memorial stone the owner has to spend a lot and give sacrifice of animals and birds for magico-religious as well as consumption purpose. All these are done to keep the deceased happy and for seeking his blessings for prosperity of the family members.

They are absolutely faithful to their traditions and values of life. One and all like their area and people inspite of several hurdles and manipulations. The Bondos of new generation have developed a habit that everything should be given and done by or on behalf of the Government. They have developed some sort of hatredness towards the outsiders and demand something directly or indirectly whosoever visits them. In spite of all these their core culture and hard core of lifestyle have remained unchanged.

## CHAPTER-III

## EMPLOYMENT, INCOME AND EXPENDITURE

In order to gain comprehensive idea about the economic condition of the Bondos an attempt has been made in this chapter to assess the magnitude of their employment/unemployment, income/expenditure, savings/loans, etc. for arriving at income from cultivation (both settled and shifting). Particulars regarding land holdings, cropping pattern, cost of cultivation, agricultural production, yield rate, money value of produce etc. have been dealt with in detail. The analysis is based on the data collected as per the schedules designed for the purpose from all the 210 households of the 3 sample villages selected using stratified simple random sampling method. Difficulties, such as accurate conversion of the land area, operational holding, yield rates expressed in indigenous terms, etc. have been encountered in the field while collecting the data. However, utmost care has been taken to elicit the required information as far as possible with the help of local interpreters and by cross checking the data with their neighbours.

Agriculture is the main occupation of the Bondo highlanders which includes both settled cultivation in plain and valley lands and shifting cultivation in hill slopes. Seasonal crops like, paddy, maize, ragi etc. are raised in the plain and valley lands while ragi, kangu, gagei, maize, gurji, kandula etc. are the main crops of the swidden.

The agricultural operation begins in the month of June and continues till December. Besides, they collect minor forest produce throughout the year and hire out labours in agricultural fields and sometimes in the road works for some days in each month. All the persons (411) in the working age-group (15—57 years) and 129 (43%) children out of total 300 are engaged in these economic activities either in the form of main or subsidiary workers. In both the cases of adults and children, females outnumber the males. Table-III: 1 shows village wise break up of occupational structures of the sample villages. All these persons do both wet and shifting cultivation, hire out labour and collect minor forest produce.

**Employment:**

Table-III. 2 depicts data regarding monthwise average hours of work put by a working person in different activities. It is revealed that on an average a full time work is engaged for 1934 hours (242 days) in various productive works in a year. He does not find any work for 555 hours (69 days) and is engaged in some form of unproductive works for 431 hours (54 days) in a year. If availability of work for 270 days is considered as full employment, it seems that a Bondo is more or less fully employed. The table further reveals that the maximum period of engagement is devoted to the collection of minor forest produce (785 hours or roughly 98 days) and shifting cultivation (635 hours or 79 days). As such this type of employment involves a lot of disguised unemployment. A Bondo worker gets better income from the wet cultivation where he devotes less time (50 days) due to lack of scope of employment in this field. Monthwise analysis of employment situation indicates that there is not much difference in the average hours of work put by a working person in different months except for the months of January to March when there is little engagement in the field of agriculture.

**Income:**

Apart from many other sources of income, the Bondos depend mainly on cultivation. The cultivation as indicated earlier includes both settled cultivation in plain valley land and low land and shifting cultivation in the hill slopes. It is therefore, important to find out the area cultivated by them under different conditions, cropping pattern, quantum of produce received, etc. before coming to money return from this source.

The average cultivated area of a Bondo household is 0.699 hectares out of which 0.413 hectares are high and medium land and the rest 0.286 hectares low land. During the survey it was further noticed that on an average 0.753 hectares of land were utilised per household under shifting cultivation annually on the hill slopes. The area under shifting cultivation generally varies from year to year considering the working force of the household and availability of a new site. The survey reveals that out of 210 households 21 households are landless, 148 have possessed land up to 1 hectare, 40 households from 1 to 2 hectares and only one household

has land more than 2 hectares. It is also found that 12 households do not practise any form of shifting cultivation either partly or fully. One of the important reasons for practising shifting cultivation is that the land for settled cultivation is scarce. Secondly, they get a number of cash crops through swidden cultivation which they cannot produce in the low land. Lack of irrigation facility is another reason for the practice of shifting cultivation. Villagewise information on average area cultivated by the households and different types of land put under cultivation are furnished in Table III 3.

#### Area under different Crops:

Average area put under different crops by a Bondo household in the sample villages is furnished in Table-III :4. The table reveals that on an average per household maximum area is put under paddy (0.286 hectares) followed by ragi (0.220 hectares) and maize (0.193 hectares). These crops are raised at the upland and low land while mixed crops, like *Judanga, Katinga, niger, til, ragi, suan* and many other cash crops are produced on the hill slopes under shifting cultivation. Since the land under shifting cultivation have not been surveyed and the place of cultivation changes frequently, the area under a particular crop is only ascertained by the seed rate, man-power, yield obtained and eye estimate, etc.

#### Agricultural Production:

Data regarding agricultural production and its money value obtained by the sample Bondo households are furnished in Table No. III-5.

III-5. Cropwise production and the local value of produce obtained per household are given below:

Serial No.	Name of the crop	Production of crops received per household in quintals	Value of produce received per household (in Rs.)
(1)	(2)	(3)	(4)
1	Paddy	4.145	580
2	Ragi	2.098	420
3	Maize	1.860	372
4	Vegetables	0.212	42
5	Pulses ( <i>Jhudunga, Kangu, Biri, Kandula</i> etc.).	0.513	308
6	Oil seeds ( <i>Til, Alsi, Castor</i> etc.)	0.530	371
		Total	2,693

The agricultural produce, thus received by Bondo households hardly meets their requirement for 6 months only. So, nature compells them to go to the forest in search of tubers mushrooms, edible roots and other minor forest products. In spite of this low production, they sometimes sell or barter their agricultural produce which is unavoidable for them because of their subsistence economy. They use to sell a limited quantity of pulses and almost the entire oil seed crops to meet their cash requirement. Since these cash crops are raised in swidden plots, they continue practice of swidden cultivation in spite of various preventive measures taken by different agencies.

The sum of average value of the agricultural produce per household is estimated at Rs. 2,093 taking the local value of the products into consideration. As such, it is quite difficult to maintain a household in these hard days with this income from cultivation which is the mainstay of Bondo economy.

#### Yield Rate:

Table III.6 shows the yield rate of some main crops in quintals per hectare of land of the sample villages. The data reveal that the yield rate of paddy is 14.25 quintals per hectare whereas ragi and maize are 9.54 and 9.64 quintals, respectively. More Agricultural Extension Service and resources are to be provided to the Bondo families in order to increase the production of their crops.

#### Wage Earning:

It is observed that the Bondos are also engaged as wage earners in agricultural as well as non-agricultural activities, such as construction of roads and buildings. But these economic pursuits do not ensure them adequate employment opportunities. In the sample villages, 104 persons out of the total 711 (14.6 per cent) are found to have been engaged as hired labourers during the year 1990. Of these persons 43 are males, 38 are females and 23 are children.

The average number of days hired out per labour and average amount of wage received per household during the year is calculated to 15 days and Rs. 218 respectively. Thus the wage rate received by them is about Rs. 14.55 per day. Table III-7 shows the village wise particulars about hiring out of labour by the members of the Bondo households.

#### Animal Husbandry:

Domestic animals and birds are important economic assets of tribals. Table III-8 reveals that 195 households out of 210 households of the three sample villages have kept 109 cows, 129 bullocks, 31 buffaloes, 678 pigs, 319 goats and sheep and 416 poultry birds. They do not usually give them any manufactured feed. Rather, they are set free during the day time to graze in the open field and forest. Very little time is devoted by the Bondos for upkeep of these animals and birds.

The Bondos like to eat the meat of these domestic animals and birds. Apart from this, these animals and birds are killed before the deities on socio-cultural ceremonies and also at the time of the arrival of their relatives. The bullocks, cows and the buffaloes are utilised for cultivation purpose. Since these animals and birds are maintained by the household and are consumed at home, the expenditure and income from animal husbandry have not been assessed.

#### Collection of Minor Forest Produce:

The subsistence economy of the tribals is largely influenced by the forest. The Bondos remain engaged in the collection of minor forest produce throughout the year. They also collect tubers, edible roots, fruits, green leaf and flowers, mushrooms bamboo shoots, etc. in different season. They make up the deficiency of food requirement by collecting these materials. Besides they collect fuel, fodder and construction materials from forest. The collection of minor forest produce has been seriously affected due to the gradual depletion of forest due to the practice of shifting cultivation and other reasons. Sometimes the Bondos sell some minor forest produce in the weekly markets of Muniguda, Mathili, Govindapalli, Ankadalli and Kudumulugumma.

Particulars about income received from different sources by the Bondo households of the three sample villages are furnished in Table III-9. The table reveals that the total income of the Bondo households consists of the receipts from cultivation, wage earning and collection of minor forest produce. In this study income from animal husbandry has not been included as cash expenditure has not been incurred in this item and this has been mostly used for domestic consumption.

The average total annual income of a Bondo household comes to about Rs. 3,264 in the sample villages. The family income from agricultural produce alone accounts for 64.12 per cent whereas income from collection of minor forest produce and wage earning constitutes 13.85 per cent and 6.68 per cent respectively. As such bulk of the income of a Bondo family comes from agriculture which includes both settled and shifting cultivation.

Further, cut off point for household income at poverty line level was fixed at Rs. 6,400 in the beginning of Seventh Plan for rural areas. So, the annual household income of a Bondo family in 1990, is substantially lower than this.

### Expenditure:

#### Total and Itemwise Expenditure

Data regarding average annual expenditure incurred per Bondo household for the sample villages are furnished in Table III.10. The table reveals that on an average a Bondo household spends an amount of Rs. 3,418/- per year. Of this, consumption expenditure absorbs a lion's share (90%). The rest 10% is utilised for production of crops and acquiring of domestic animals.

Food items alone account for 71.8% of the total consumption expenditure. Wine and tobacco constitute 9.1% of the total expenditure followed by ceremonial and religious activities (5.1%), clothing (3.1%), treatment of guests (2.4%), fuel (1.2%), house repair (1.1%) and medicine (1.0%). No expenditure on education of children has been recorded during the survey in the sample villages. The *per capita* monthly consumption expenditure is one of the important indicators of the general economic development of a particular area. It works out to only Rs. 75.88 for the sample villages. This is quite lower than the average total monthly *per capita* consumption expenditure in rural Orissa as observed in 44th round N. S. S. taken up for the period 1988-89 (Rs. 147.34). The figure for 1990-91 will be still higher in the context of galloping rise in prices. As such the standard of living of Bondo people is perceptibly low.

### Indebtedness/Savings :

A comparative statement of annual income, expenditure and outstanding of loans of a Bondo household has been furnished in Table III.11. The statement reveals, that the Bondo families of the three sample villages run in a deficit budget. Their average annual household income (Rs. 3,264) and expenditure (Rs. 3,418) are not perfectly balanced. Moreover an amount of Rs. 82 has been credited to a family as outstanding loan which still deteriorates their economic position. Because of this unbalanced form of income and expenditure the Bondo economy gradually deteriorates and they are compelled to go to the private local money lenders for loan at an exorbitant rate of interest.

### Cost of Cultivation :

The cost of cultivation is the major production expenditure incurred by a Bondo household. It is therefore felt necessary to find out the cost of cultivation of different crops as well as the amount spent on cultivation per household.

Therefore, the data regarding cost of cultivation of different crops per hectare and per household in the sample Bondo villages are shown in Table III.12. The data on cost of cultivation exclude the cost of inputs, seeds, fertilisers supply by B. D. A. on 100% subsidy and there man power. Cropwise labour component are not taken into account in the cost of cultivation since the members of Bondo families are engaged in agricultural operation of different crops on the same day with forest collection and they are unable to indicate the actual number of days of household labour utilised for a

particular crop. As such the cost of cultivation is estimated on the basis of animal labour, wages paid for hired out labour, if any, value of seeds, fertiliser and manure used by the household either from their own source or purchased from local markets.

The average cost of cultivation of the crops per household and per hectare expenditure under different crops are as follows :

Crops	Cost of cultivation (in Rs.)	
	Per hectare	Per household
(1)	(2)	(3)
Paddy	231	66
Ragi	268	59
Maize	243	47
Mixed crops (Shifting cultivation)	203	153

The cost of cultivation per hectare tends to be very low compared to that under package of practices and that incurred in plains.

Highly undulating rocky land, ignorance of farmers regarding modern techniques of cultivation, application of inadequate fertilisers and pesticides and lack of extension facilities are the main reasons for low cost of cultivation in the Bondo highlanders.

The table further reveals that of the total 210 households, 59 households use HYV seeds and 42 households outside labours in their agricultural operation.

The cost of cultivation (Rs. 203) of mixed crops per hectares in shifting land is a little less than that the cultivation of paddy (Rs. 231), ragi (Rs. 268) and mize (Rs. 943) which are raised in the plain lands. But the expenditure incurred in the shifting cultivation per household (Rs. 153) is much more than the plain land crops i.e. paddy (Rs. 66), ragi (Rs. 59) and maize (Rs. 47).



**TABLE III-1**  
**OCCUPATIONAL STRUCTURE IN SAMPLE VILLAGES**

Sl. No.	Name of the sample villages	Total No. of household	Total population	Main occupation	Subsidiary occupation	No. of workers engaged in both main and subsidiary occupations						No. of non-workers	Work-ers as % of total population	Non-work-ers as % of work-ers			
						Adult (15 to 59 years)		Children Below 15 years		Total							
						Male	Fem-ale	Male	Fem-ale	Male	Fem-ale				(16)	(17)	(18)
1	Podriguda	59	204	Cultiva-tion	Agricultural labour, collec-tion of minor forest produce and animal husbandry.	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
						60	76	136	12	13	25	72	89	161	43	79	27
						(60)	(76)	(136)	(27)	(34)	(61)	(87)	(110)	(197)			
2	Bondiguda	40	136	Do.	Ditto	37	49	86	9	8	17	46	57	103	33	76	32
						(37)	(49)	(86)	(16)	(24)	(40)	(53)	(73)	(126)			
3	Dumuri-pada	111	414	Do.	Ditto	92	97	189	33	54	87	125	151	276	138	67	50
						(92)	(97)	(189)	(95)	(104)	(199)	(187)	(201)	(388)			
<b>Total</b>		210	754			189	222	411	54	75	129	243	297	540	214	72	40
						(189)	(222)	(411)	(138)	(162)	(300)	(327)	(384)	(711)			

(Figures within brackets indicate total population in the respective age/sex group)

TABLE III-2  
 Monthwise average hours of employment per working person in sample villages, 1990  
 Hours engaged in (From 9 A. M. to 4 P. M. daily)

Serial No.	Month	Wet Cultivation	Shifting cultivation	Wage earning	Crafts and household industry	Forest collection	Training	Socio-cultural activity	Others	No. of work	Total hours in the month	No. of days @ 8 hours per day
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	January	..	..	2	4	121	3	8	91	19	248	31
2	February	..	24	2	5	104	3	35	24	12	224	28
3	March	..	26	8	5	102	3	7	45	25	248	31
4	April	..	40	8	7	84	3	6	45	27	240	30
5	May	..	49	4	5	60	3	39	47	19	248	31
6	June	..	46	4	..	53	3	32	48	23	240	30
7	July	..	75	4	..	38	3	6	57	22	248	31
8	August	..	71	4	..	32	3	7	59	23	248	31
9	September	..	77	4	..	43	3	8	44	14	240	30
10	October	..	67	..	3	57	3	23	29	12	248	31
11	November	..	73	..	..	39	3	10	43	17	240	30
12	December	..	77	8	2	52	3	21	17	16	248	31
Total hours (Approximate)		399	625	48	31	785	36	202	640	229	2920	365
Total No. of days @ 8 working hours per day.		50	79	6	4	98	5	25	29	69	365	

TABLE III-3

AREA CULTIVATED BY THE HOUSEHOLD; IN THE SAMPLE VILLAGES

Serial No.	Name of the sample village	No. of households	Average area cultivated per household (in hectares)	Wet land (Settled Cultivation)			No. of households possessing land			Not practising shifting cultivation	
				High & medium land	Low land	Total land	On hill slopes (Shifting cultivation).	With no land	Up to one hectare		1 to 2 hectares & above
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	Podeiguda	59	0.378	0.239	0.617	0.778	9	40	10	..	5
2	Bondapada	40	0.372	0.330	0.405	0.715	4	28	8	..	2
3	Dumuripada	111	0.447	0.294	0.741	0.754	8	80	22	1	5
All households		210	0.413	0.286	0.699	0.753	21	148	40	1	12

TABLE III. 4

Area put under different crops per household in the sample villages in Bondo Area

Serial No.	Name of the sample village	No. of households	Area under crops per households in hectares			
			At foot hills			On hill slopes
			Paddy	Ragi	Maize	Mixed cropping (Jhudang, Kangu, Nizer, Castor, etc.)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Podeiguda ..	59	0.239	0.175	0.203	0.778
2	Bondapada ..	40	0.330	0.212	0.160	0.715
3	Dumuripada ..	111	0.294	0.248	0.199	0.754
	Total ..	210	0.286	0.220	0.193	0.753

TABLE III.5

Agricultural production and value of produce per household in the sample villages

Serial No.	Name of the sample village	No. of H. H. Item	Production of crops per household (In Qntl.)								Total value of produce per household (In Rs.)
			Low land		High and medium land			Hill slopes (Podu cultivation)		(11)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)		(11)
				Paddy	Other cereals	Maize	Vegetables	Pulses (Jhudang, Kangu, Biri, Kandula)	Oil seeds (Til, Alsi, Castor,)		
1	Podraiguda	..	59	Quantity 3.406	2.220	2.449	0.277	0.526	0.546	..	
				Value (Rs.) 477	444	490	55	316	382	2,164	
2	Bondapada	..	40	Quantity 4.775	2.365	1.760	0.155	0.450	0.542	..	
				Value (Rs.) 668	473	352	31	270	379	2,173	
3	Dumuripada	..	111	Quantity 4.310	1.937	1.582	0.198	0.529	0.516	..	
				Value (Rs.) 603	387	316	40	317	361	2,024	
	Total	..	210	Quantity 4.145	2.098	1.860	0.212	0.513	0.530	..	
				Value (Rs.) 580	420	372	42	308	371	2,093	

TABLE No. III. 6

YIELD RATE OF PRINCIPAL CROPS IN THE FOOT HILL LANDS  
IN THE SAMPLE B. D. A. VILLAGES

Sl. No.	Name of the sample villages and No. of households	No. of households	Yield (in quintal) per hectare of Land		
			Paddy	Ragi	Maize
(1)	(2)	(3)	(4)	(5)	(6)
1	Podeiguda	.. 59	14.25	12.69	12.06
2	Bondapada	.. 40	14.47	11.16	11.00
3	Dumuripada	.. 111	14.66	7.81	7.95
	<b>Total</b>	.. 210	14.49	9.54	9.64

TABLE III. 7

PARTICULARS ABOUT HIRING OUT LABOUR BY MEMBERS OF THE BONDO HOUSEHOLDS

Serial No.	Name of the sample villages	No. of households	Total No. of members hired out labour and total amount of wage received						Average wage received per household			
			Male			Female						
			No. of persons hired out	No. of days hired out	Wage received	No. of persons hired out	No. of days hired out	Wage received		No. of children hired out	No. of days hired out	Wage received
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	Podriguda ..	59	11	494	7,410	8	413	6,195	10	137	1,370	254
2	Bondapada ..	40	9	347	5,205	11	342	5,130	1	4	40	259
3	Dumuripada ..	111	23	738	11,070	19	534	8,010	12	141	1,410	185
	Total ..	210	43	1,579	23,685	38	1,289	19,335	23	282	2,820	218

TABLE III-8

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

Serial No.	Name of the sample village	No. of households	No. of households owning animals	No. of animals owned					
				Cow	Bullock	Buffalo	Pig	Goat/sheep	Poultry
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Podraiguda	59	56	23	37	8	263	90	103
2	Bondapada	40	38	13	42	5	98	80	95
3	Dumuripada	111	101	73	44	18	317	149	218
	Total	210	195	109	123	31	678	319	416



TABLE III-11

Income and Expenditure

Particulars about the Surplus/Deficit in the Bondo households in the sample villages

Serial No.	Name of the sample village	No. of families	Total income received per household per year from all sources (in Rs.)	Total expenditure incurred per household per year on all items (in Rs.)	Balance amount left per household (+) or (-)	Loans outstanding per households (in Rs.)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Podraiguda	59	3,378	3,507	(-) 129	85
2	Bondapada	40	3,274	3,339	(-) 65	20
3	Dumuripada	111	3,173	3,396	(-) 223	125
	All sample villages	210	3,264	3,418	(-) 154	82

TABLE-III-12

## COST OF CULTIVATION OF DIFFERENT CROPS RAISED BY THE BONDOPADAPADA PER HECTARE AND PER HOUSEHOLD

Sl. No.	Name of the sample village	Per household (P. Hh) per Hectare (P. H.)	Cost of Cultivation (in Rupees)				Total in (Rs.)	No. of household using	
			Paddy	Ragi	Maize	Mixed crops (shifting)		H. Y. V. seed	Outside Lab.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Poderiguda (59)	.. Per household Per hectare	58 242	47 268	41 202	161 207	307 ..	Yes-9 No-50	Yes-9 No-50
2	Bondapada (40)	.. Per household Per hectare	63 191	55 259	39 244	149 208	306 ..	Yes-11 No-29	Yes-8 No-32
3	Dumuripada (111)	.. Per household Per hectare	72 245	67 270	53 266	150 199	342 ..	Yes-39 No-72	Yes-25 No-86
	Total (210)	.. Per household Per hectare	66 231	59 268	47 243	153 203	325 ..	Yes-59 No-151	Yes-42 No-168

## CHAPTER-IV

### INTRODUCTION

#### 4.1 FORESTS

*The Forests*—The total area covered by the Micro-Project is reported to be 130, Sq. Kms. and it is mostly a forested area. There is no reserved or protected forest and the entire forest area is classed as URF (Un-reserved Forest). But as a result of repeated shifting cultivation, the forest have been ruined and steep hill slopes are exposed to severe erosion. As a result, most of the area is no longer fit for even the slash and burn cultivation. Therefore, the Bondo is forced to seek new areas, by cutting and burning down the forests still farther from his habitation and on steeper hill slopes, which poses a serious threat to the environment. The process goes on resulting in further damage to the forests and the environment.

*Extent of Podu*—No reliable estimate of the total forest area under Podu cultivation is available. According to the Forest Department nearly 70% of the forest area is damaged by Podu. According to the estimates of ORESAC. (Orissa Remote Sensing Application Centre) the total area under 'Podu' in the Bondo Hills has increased by at least 25 per cent between 1975 (last survey) and 1991 (present survey). Even if this increase is attributed to the corresponding increase in the total population of the Bondo hills, the fact remains that all the developmental activities undertaken in the area since 1977-78 have had no impact on the extent of 'Podu' which still constitutes the main-stay of the Bondo economy. In fact our recent study, reveals that even a well-to-do Bondo having irrigated land takes to 'Podu' in order to augment their income. This indicates that he has no access to any other means of supplementing his income from his cultivated land under (irrigation) other than 'Podu' which is not only a pernicious practice, but really brings him a "negative income", taking into account the labour, energy and resources invested. This is entirely because of his lack of education and access to the outside world.

*Economics of Podu*—Hardly 15 per cent of all crops raised by the tribal people yield any positive return to him and in most cases, the value of the crop yield is less than 25 per cent of the inputs of labour involved in raising the crop. The shifting cultivator would definitely earn much more, if he is provided daily labour or approved minimum wages, for any work in which he can be employed. In fact, the average Bondo has now become so conscious of the value of "money" that he tries to extract money from visitors on any pretext.

*Scope for reducing area under Podu*—Given proper assistance and encouragement the Bondo can be persuaded to give up shifting cultivation over a period of 5 to 10 years, provided he is assured of gainful employment in the mean while. Because of his intense attachment to land, any scheme to wean him away from 'Podu' has to be linked with the land which is very dear to the tribal people.

*Schemes under Implementation*—The B. D. A. has been functioning since 1976-77 and a number of schemes have been launched to ameliorate the conditions of the Bondos. No doubt, many of these have yielded positive results. But as stated earlier, the fact remains that the impact of such schemes on the damage to the ecology and the environment through 'Podu' has been at best marginal. Unless more effective steps are taken soon enough, all the progress made through development schemes and otherwise will come to naught, because of the damage to the soil and to the environment which have been going on through ages. The object of this report is therefore to suggest adoption of specific Agro-Forestry Schemes (SALT) for implementation in the area, on experimental basis to begin with, so as to supplement the efforts of other departments in ensuring speedy rehabilitation of the Bondo as well as of the environment.

It is perhaps needless to reiterate that the environment and the tribal people are closely interlinked and constitute the two sides of the same coin. In fact, the tribes and forests have a symbiotic relationship from time immemorial. It is therefore evident that no approach which caters to the development of one (environment) to the exclusion of the other (tribals) will even succeed. The Bondo Hills provide glaring evidence for this. Despite several development schemes launched since 1977-78, the area under "Podu" has been on the increase constantly. There can be no disputing the fact that "Podu" is synonymous with "miserable livelihood". The tribes take to it just for survival, in the absence of anything better. The problem, therefore, is primarily one of abject poverty and needs to be tackled as such. In a way, the continued seclusion of the tribal as "primitive" acts as a barrier to his economic upliftment

Anti-poverty programmes in operation elsewhere in the State should also be extended to this area. Likewise, a suitable scheme for "Podu prevention" as in the case of K. K. D. A. needs being launched immediately. The outlines of the Agro-Forestry Scheme proposed to be launched in the area are given hereunder.

**Introduction of Salt Technology**—Keeping in view the overall picture of shifting cultivation as depicted in this report, it is recommended that Agro-Forestry practices, commonly known as SALT (SLOPING AGRICULTURAL LAND TECHNOLOGY) which have been tested and developed under almost identical conditions in the Phillipines and approved and documented by the ICAR, New Delhi should be introduced in the Bondo Hills where large-scale podu cultivation is still in vogue, with a view to providing the tribal people with low-cost, simple technology which they can understand, accept and adopt with ease. This will act as an alternative to "podu" without weaning the Bondo away from the land, but from the pernicious slash and burn practice which ruins the land and perpetuates the misery of the tribal people. Thus it will be possible to restore the damage to the environment as quickly as possible. To begin with this technology should be introduced on selected areas as demonstration plots, on experimental basis without affecting any of the other ongoing schemes. In fact SALT may be treated as a supplement now, and extended further to cover the whole project area, only after the Bondo is convinced of its effectiveness and success, say after 3 years or so.

What is SALT? SALT is a simple, applicable, low-cost and timely method of farming uplands. This technology was developed for farmers with few tools, small capital and little learning in agriculture. A farmer 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 some tribal groups do in case of shifting cultivation, the nitrogen-fixing trees (NFT) 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 been already enriched by the large quantity of leaves from the nitrogen fixing trees (NFT) and there would be no erosion to contend with because of the contour bunding already done. In addition, the trees may be harvested for firewood or charcoal as additional source of income. In the Phillipines, it has been established that the crop yield in such land is at least 50 per cent higher than in traditional farming of the shifting cultivator.

**Different stages or categories of SALT**—SALT-1 or Sloping Agricultural Land Technology is an agroforestry technology with agricultural and forest crops at a percentage ratio of 75 : 25. The experience in the Phillipines shows that this technology can help reduce soil erosion by four times, increase crop yield by five times and income by six times. Obviously, this is applicable to land with gentle slopes, where agriculture can be practised with minimal anti-erosion methods in conjunction with nitrogen-fixing tree species. It is however doubtful, if such land will be available because most of the gentle slopes are already under cultivation by the Bondos and most of the available land is on steeper slopes. Still efforts should be made to select a few patches of this type of land with gentle slopes, to lay out demonstration plots under this scheme.

**SALT-2 Simple Agro-Live Stock Technology**—is goat-based agro-forestry with land use up to 40 per cent agriculture 20 per cent forestry and 40 per cent for livestock. This technology minimises erosion, improves soil fertility and provides a regular income to the family. This takes care of uplands and hill slopes. The uplander badly needs food, wood and animal products like meat and milk (not yet for Bondos) which can supplement family income.

**SALT-3 or Sustainable Agro-Forest Land Technology** is a small-scale reforestation programme integrated with food production. The farm is devoted to about 40 per cent agriculture and 60 per cent forestry. The food-wood intercropping as designed in the Phillipines shows that it can effectively conserve the soil, thereby providing abundant food, wood and income to the hilly land farmer. 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. SALT-3 is the answer to the problem in steep hill slopes where the tribals practise podu, in the absence of any other alternative. The Bondo hills have abundant scope for this technology as well as SALT-2.

*Scope and objectives of the scheme*—The important objectives of the scheme are :—

- (a) Implementation of suitable SALT Technology (SALT-1, 2 or 3) in the hilly land which has been depleted of the vegetation and is therefore susceptible to severe erosion in the process of shifting cultivation.
- (b) Demonstration of suitable SALT technique in different localities on farmers, land and also on Government land, where the former is not readily available.
- (c) Employment of the villager (and no outsider) on his own land or on neighbouring Government land in order to ensure that he gets a decent wage while learning the techniques and also gets the fruit of his labour after successful implementation. In no case, induction of outside labour is to be permitted.
- (d) Each Demonstration plot should be in charge of one person/family so that development is total, and assessment of manpower and costs can be made easily.
- (e) Demonstration plots shall be converted into production units of the village after two years, when each plot is expected to provide sufficient income to an average family. In rare cases, this process may take 3 years instead of two. In the Bondo hills, subject to extensive depletion and erosion at least 3 years will be necessary to rehabilitate the land.
- (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 induces them to adopt the technique.
- (g) Collaboration with the State Social Forestry Directorate and the O. U. A. T. for providing guidance including lending of extension staff (Forestry Extension Supervisors and Village Forest Workers), simple tools, seeds and other input required for the project.

*Plan of Selection of sites for demonstration plots implementation*—According to information furnished by the B. D. A., there are 32 villages in the project area with a total population of 4666. It is proposed to set up at least one demonstration plot in every village in course of the next five years, i. e. between 1992-93 and 1996-97 which is likely to coincide with the 8th Five-year Plan. In case of villages with population more than 100, two demonstration plots shall be established during this period. Thus, it is estimated that 45 demonstration plots in all will be established in the project area during the 8th Five-year Plan. This will mean roughly one demonstration plot for every 100 persons in the Project area, by the end of the 8th Five-year Plan.

*Preparatory work*—The current year (1991-92) should be utilised for undertaking requisite preliminaries, such as (a) scrutiny and approval of the scheme, (b) provision of funds, (c) selection and development of Extension staff, (d) identification of beneficiaries and specific plots for laying out demonstration plots during the ensuing year, (e) survey of sites and procurement of implements and tools etc. This will ensure that adequate number of demonstration plots are laid out in time, to take full advantage of the monsoons of 1992, as per this scheme. While the nature of site and the slope of the land will determine the SALT category applicable, efforts shall be made to lay out demonstration plots of all the three categories, as far as possible. Needless to say, this can be done only after the field staff are in position and take up survey of the specific areas.

*Funding and Control*—The funding of the scheme and control of staff should be vested directly on the Project Leader, B. D. A. under the overall supervision of the P. A., I. T. D. A., Malkangiri. This will ensure proper control and co-ordination of work in the field.

*Demonstration plots*—All demonstration plots should be of uniform size of 25 metres  $\times$  60 metres (1500 sq. metres or 0.15 hectare or 0.375 acre), each are considered to be adequate to be handled easily and effectively by a single farmer to provide enough resources when fully developed. As many as 45 such demonstration plots will be laid out in the project area during the 8th Five-year Plan as indicated earlier.

*Estimates of Expenditure*—As already stated, the work will be labour-intensive emphasis being laid on engagement of the Bondo villager on daily wage basis on his own land or on Government land for setting up the demonstration plot. One person will be required to set up one standard size demonstration plot (25 m  $\times$  60 m) which will sustain him round the year. The plot is expected to be self-sufficient in the 4th year, thereby eliminating payment of daily wages. In very exceptional cases, payment of wages (for much reduced number of days) may have to be made in the 4th and 5th years. This is, however, not being taken into consideration at this stage. Therefore wages payable to the Bondo villager for setting up a standard demonstration plot are calculated as under :—

1st year	..	300 mandays @	Rs. 25=Rs. 7,500
2nd year	..	250 mandays @	Rs. 25=Rs. 6,250
3rd year	..	150 mandays @	Rs. 25=Rs. 3,750
		---	---
Total	..	700 mandays	Rs. 17,500
		---	---

The cost of staff salary (one Forestry Extension Supervisor for the Project area and two Village Forestry Workers, one for each Gram Panchayat in the Project area), tools and implements, seeds and other inputs has been taken on lump-sum basis at Rs. 50,000 per annum.

The total number of SALT demonstration plots of different categories (SALT 1, 2 and 3) is 45. Thus the total outlay in laying out 45 such demonstration plots in course of ensuing 5 years comes to Rs. 17,500  $\times$  45 = Rs. 7,87,500. Overhead expenditure on staff salary, supervision, tools, implements and other inputs for 8 years (one year prior to launching of the scheme, and two years after the last batch of such demonstration plots is laid out) @ Rs. 50,000 per annum comes to Rs. 4 lakhs. Thus the total outlay on the scheme will be Rs. 7.875 lakhs + Rs. 4 lakhs = Rs. 11.875 lakhs or (say 12 lakhs) and this will be phased out as indicated in the following tabular statement. This outlay cannot at all be considered as heavy in view of the salutary impact it is likely to produce on the practice of shifting cultivation by the Bondos. It is expected that these demonstration plots, to be laid out, maintained and harvested by the Bondo farmer himself, will set a good example for others to follow and ultimately the Bondos may be weaned away from the pernicious practice of slash and burn agriculture that they have been following so far.

5-8 Yearwise phasing of work and outlay

Year	Number of demonstration plots to be laid out	Estimates of expenditure (Rs. in lakhs)					Total expenditure	Remarks
		Preliminary expenditure on staff, tools etc.	1st year expenditure	2nd year expenditure	3rd year expenditure	(7)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
1st year (1991-92)	..	Nil	0.50	..	..	0.500	For preliminary operation	
2nd year (1992-93)	..	9	0.675	..	..	1.175		
3rd year (1993-94)	..	9	0.675	0.563	..	1.738		
4th year (1994-95)	..	9	0.675	0.563	0.338	2.076		
5th year (1995-96)	..	9	0.675	0.563	0.337	2.075		
6th year (1996-97)	..	9	0.675	0.563	0.338	2.076		
7th year (1997-98)	..	..	0.50	0.563	0.337	1.400	Only maintenance work	
8th year (1998-99)	..	..	0.50	..	0.338	0.838	Ditto	
<b>Total</b>	..	45	4.00	2.815	1.688	11.878		

NOTE—1. The expenditure up to end of 8th plan will be 9.45 lakhs (including current year) Or say Rs. 12 lakhs

### Requirement of Staff

One Forestry Extension Supervisor for the Project and two V. F. W. (Village Forest Workers, one for each Panchayat) trained and experienced in SALT technology will be required to begin with, for launching the scheme. This staff may be brought on deputation from the State Directorate of Social Forestry on usual terms and conditions approved by the State Government. They should work under the direct control and supervision of the concerned Project Leader. The estimate of expenditure are inclusive of the salary component of the staff. All the field work shall be labour-intensive and executed exclusively by the Bondo beneficiary on his own land or on Government land, if the former is not available. Requirement of additional staff may be reassessed at the end of the 3rd year after reviewing the progress of the scheme and its impact on the tribal people. In any case more V. F. W. (Village Forestry Workers) may be required once the number of demonstration plots in the project area exceeds 25.

### Tools, equipment and other inputs

Simple tools and equipment required for field contouring (A frame) and survey etc. can be purchased out of the fund provided under the scheme. Inputs such as seeds of fast growing nitrogen fixing tree (N. F. T.) species, improved varieties of agricultural crops etc. can be purchased out of the funds provided in the scheme.

### Technical Collaboration and Supervision

Since this technology, though very simple and inexpensive by itself, is being introduced for the first time in the area, it is absolutely necessary that close collaboration and liaison is maintained with the concerned authorities of the Directorate of Social Forestry (Deputy Director, Social Forestry, Koraput in particular) and academic staff of the O. U. A. T. with their Phillipines experience.

### Literature on SALT Technology

The enclosed literature on SALT Technology as practised in the Phillipines (Annexure A gives more details on the subject).

## ANNEXURE A

### HOW TO TURN YOUR HILLY LAND WITHOUT LOSING YOUR SOIL

#### (1) INTRODUCTION

About 70 years ago the Philippines was almost totally covered with forest resources distributed throughout the archipelago. These resources provided income, employment food, medicine, building materials, and water as well as a healthy environment. Today, of the 30 million hectares constituting the Philippines, only 16.7 million hectares (or 56%) is classified as forest. This consists of about 5.6 million hectares of unclassified land and 11.1 million hectares of forest land.

#### (2) SOIL EROSION: GREAT PROBLEM

One of the great problems man will encounter when forest trees are cut extensively without replanting, is soil erosion. The erosion of the topsoil that thin upper crust on the earth's surface on which man plants his food crop is an extremely serious problem in the Philippines.

#### (3) IMPORTANCE OF TOPSOIL

Soil is the result of the gradual weathering of rocks and minerals. Soil formation is a very slow process that takes place at the rate of 2.5 centimeters per century. Topsoil is rich and fertile because of its organic matter content. Plants and animals die, decay disintegrate, and are incorporated in the soil, making the soil fertile and capable of supporting the growth of food crops.

#### (4) FUNCTION OF TOPSOIL IN AGRICULTURE

Topsoil stores plant nutrients, air and moisture. It is a virtual factory of intense biological activity; innumerable fungi and bacteria in topsoil break down organic matter and make the soil richer. Topsoil, therefore, is essential to productive agriculture.



The nutrients in topsoil are crucial to crop production. They are the food of plants. So if the topsoil is lost, you cannot get a good harvest from your land unless you use expensive commercial fertilizer. The best thing you can do, therefore, is to protect your hilly land from soil erosion. Bear in mind that poor soil makes a farmer poor.

#### (5) APPLY SALT IN YOUR HILLY LAND

There are several traditional ways of controlling soil erosion, such as reforestation, terracing, multiple cropping, contouring and cover cropping. The Mindanao Rural Life Centre in Kinuskusan, Bansalan, Davao del Sur, Philippines, has developed an erosion control technique that is both easier and low expensive to implement than the traditional methods. This technology is known as SALT or Slope Agricultural Land Technology.

#### (6) WHAT IS SALT

SALT is a package technology on soil conservation and food production, integrating different soil conservation measures in just one setting. Basically SALT is a method of growing field and permanent crops in 3 metre to 5 metre wide bands between contoured rows of nitrogen fixing trees. The nitrogen fixing trees are thickly planted in double rows to make hedgerows. When a hedge is 1.5 to 2 metres tall it is cut down to about 40 centimetres and the cuttings (tops) are placed in valley ways to serve as organic fertilizers.

#### (7) SALT : AN AGRO-FORESTRY SCHEME

SALT is a diversified farming system which can be considered agro-forestry since rows of permanent shrubs like coffee, cacao, citrus and other fruit trees are dispersed throughout the farm plot. The strips not occupied by permanent crops, however, are planted alternately to cereals (corn, upland rice, sorghum, etc.) or other crops (sweet potato, melon-pineapple, castor bean, etc.) and legumes (soybean, mung, bean, peanut, etc.). This cyclical cropping provides the farmer some harvest throughout the year. SALT also includes planting of trees for timber and firewood on surrounding boundaries. Examples of tree species for "boundary forestry" in SALT are mahoganies, casuarinas, sesbanias, cashew-nuts, pili nuts, etc.

#### (8) HISTORY OF SALT

SALT was developed on a marginal site in Kinuskusan, Bansalan, Davao del Sur. In 1971 the Mindanao Rural Life Center started to employ contour terraces in our sloping areas. Dialogues with local upland farmers acquainted the Center with farm problem and needs which gave us the impetus to work out a relevant and appropriate upland farming system. From testing different intercropping schemes and observing ipil-ipil based farming systems in Bawali and at the Centre, the SALT was finally verified and completed in 1978. While it was still in the developing stage, the following guidelines were considered essential. The system must: adequately control soil erosion, help restore soil structure and fertility, be efficient in food crop production, be applicable to at least 50 per cent of hillside, farms be easily duplicated by upland farmer with the use of local resources and preferably without making loans, be culturally acceptable, have the small farmer as the focus and food production as the top priority, be workable in a relatively short time, require minimal labour, and be economically feasible.

In 1978 a hectare of land was selected as a test site at the Mindanao Rural Life Centre. It was typical of the surrounding farms: slope steeper than 15 degrees, had been farmed for five years or more, and had soils similar to those of most farms in the area. Contour lines were established carefully with the aid of an A-frame and planting of hedgerows and permanent crops was begun.

#### (9) ADVANTAGES OF SALT

The advantages of SALT are that it is a simple, applicable, low-cost, and timely method of farming uplands. It is a technology developed for farmers with few tools, little capital, and little learning in agriculture. Contour lines are run by using an A-frame transit that any farmer can learn to make and use. A farmer can grow varieties of crops he is familiar with and old farming patterns can be utilized in the SALT system.

If farmers leave the SALT farm, like some tribal groups do, the nitrogen fixing trees will continue to grow and overshadow the crop area. By the time the land is reverted to cultivation, the soil has been enriched already by the large amount of nitrogen fixing leaves and there is no erosion to contend with. In addition, the trees may be harvested for fire-wood or charcoal.

#### (10) Various Forms of SALT

There are several forms of SALT, and a farmer may wish to use the SALT system in several variations. Small Agro-Live-stock Land Technology (SALT 2) and Sustainable Agro-forest Land Technology (SALT 3) are two variations of SALT that are being tested at the Mindanao Baptist Rural Life Centre. Other variations could be developed. SALT 2 (Small Agro-Live-stock Land Technology) is a system in which animal production is integrated into a conventional SALT type project. One example may be put-forth before producing forage and food for animals (such as dairy goats or meat goats) with the manure from the animals being used to grow corn in another one-fourth hectares that the farmer has contoured, the corn being grown in the valleyways between the hedgerows. In one tree here at the MBRLC the yield was four tons of shelled corn per hectare per crop using goat manure as the source of fertilizers. Other combinations of animal and crops could be used.

SALT 3 (Sustainable Agro-forest Land Technology) is a cropping system in which a farmer can incorporate food production, fruit production and forest trees that can be marketed. The farmer first develops a conventional SALT Project to produce food for his family and possibly food for live-stock. On another area of land he can plant forest fruits such as rambutan, durian and lanzonca between the contour lines. The plants in the hedgerows will be cut and piled around the fruit trees for fertilizer and soil conservation purposes. A small forest of about one hectare will be developed in which trees of different species may be grown for fire-wood and charcoal for short-range production. Other species that would produce wood and building materials may be grown for medium and long-range production.

In some areas where the soil is too steep for row crops, contour lines may be established two or three meters apart and planted with flomlagia or some other hedgerow species, and in between the hedgerows, coffee, cacao, calamansi or other permanent could be planted.

However, in 1990, the labor in SALT becomes higher than in the Farmer's treatment due to the high production permanent crops (Primarily Citrus). Thus labor in SALT tends to increase with time until the permanent crops incorporated into the system attain maturity and reach maximum production. It should be noted that this extra labor is "harvest" labor which is readily accepted by the farmer.

In both treatments, the largest portion of labor was used for weeding of annual crop. In all, mean annual labor input for SALT was slightly lower than that of the farm treatment over the six years.

#### Conclusion

The first definition of sustainability from "The American Heritage Dictionary" (Houghton Mifflin Company, 1978) is "to keep in existence, to maintain, or to prolong". In this respect, in regard to the above data and discussion, SALT can lay claim to being a "sustainable" upland farming system.

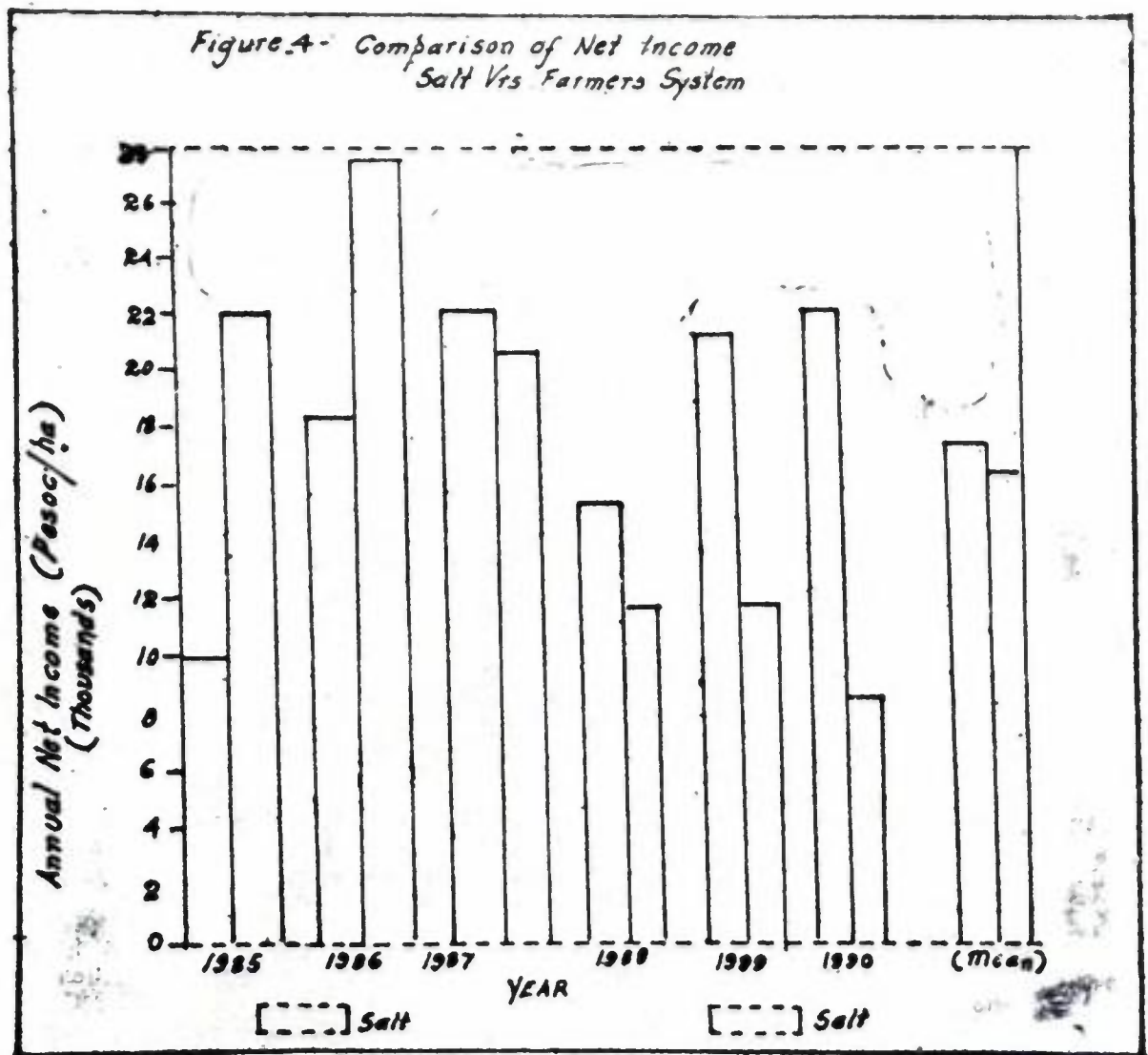
Anthony Young "10 Hypotheses for Soil-Agro-forestry Research" (7) defines sustainability as "Production + Conservation". In long form, he defines sustainable land use as "...that which maintains an acceptable level of production and at the same time conserves the basic resources on which production depends, so enabling production to be maintained".

SALT maintains production at an acceptable level to the upland farmer. It helps him to sustain his production of his basic staple, corn, at levels equal to or greater than national averages. It does this through protecting the soil against excessive erosion and ameliorating it at the same time by the additions of high amounts of leguminous biomass from the contour hedgerows.

Moreover, it conserves the basic resources on which his production depends, namely, the topsoil. This conservation of the topsoil enables production to be maintained over a long period of time. How long a period of time? That question cannot be answered at the present. However, it should be noted that the rebuilding of destroyed topsoils and ecosystems due to man's wasteful and/or uninformed usage takes much longer than it took to destroy it. No farming system can "meraculously" restore unproductive cells overnight.

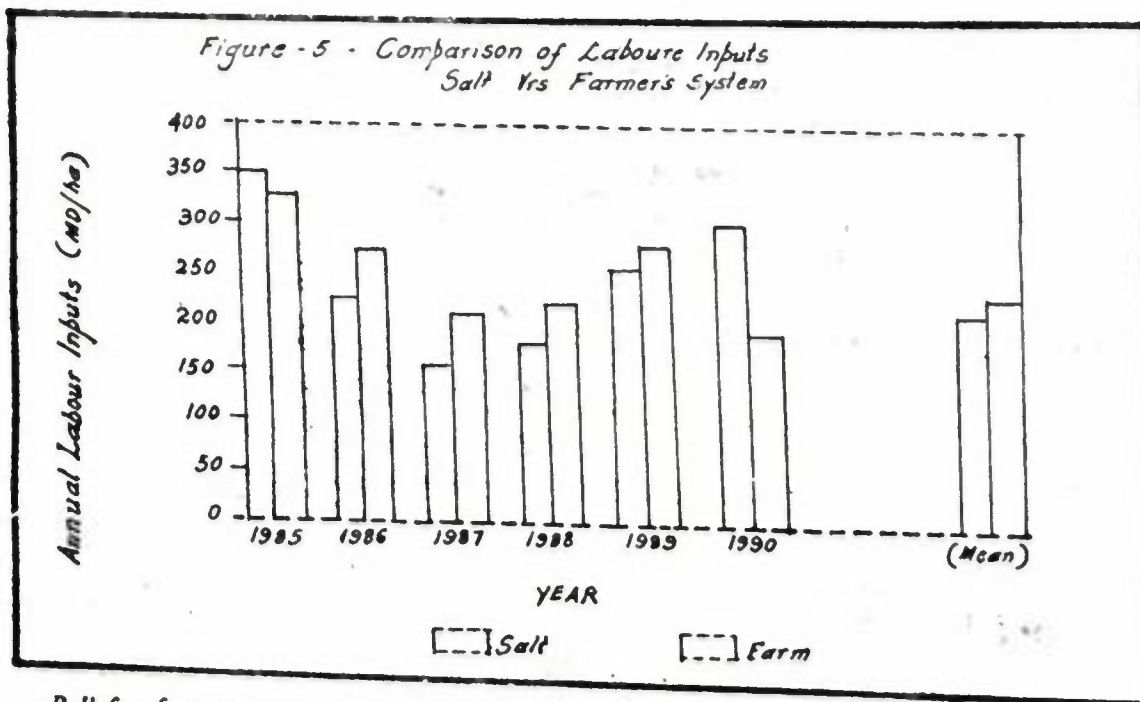
The topsoil has been described as the fine line which separates civilisations from extinction, when it is gone, so will be the people that depend upon it for survival. SALT is no "miracle", system but it is one sustainable farming system for the uplands that can help the upland farmer put back into production his unproductive farm and at the same time, maintain his topsoil resource base.

*Income*—Annual net income from the SALT treatment was less than net income from the farmer treatment for the first two years of the test (Figure 4). However, the overall trend (1985—1990) of the net income of the farmer treatment decreased while net income of SALT increased or remained relatively constant. As a result, the ratio of net income of the SALT treatment *versus* the farmer treatment increase each year so that in 1990, the net income from SALT was more than double that of the farmer treatment. The contribution from perennial crops to SALT income increased every year until, in 1989, perennial crops contributed the major portion of income to the SALT treatment.



**Soil Physical and Chemical Properties**—There is little to report in way of the changes in soil physical and chemical properties between the two systems. Data is still being gathered but it seems that it takes more than five to six years to change physical and chemical properties of the soil. However, there is evidence of a trend towards increased organic matter, infiltration rate and nutrient uptake efficiency in the SALT treatment. These conclusions are based on visual observation of surface organic residue build-up, increased earthworm activity and a more "crumb-like" structure of the soil in the SALT treatment as opposed to the Farmer's treatment. Also, the good corn production (2-3 m. t./ha./crop) even during dry season suggests more favorable soil properties in SALT.

**Labour**—One of the surprising results of the Test SALT study in the area of labour. It had previously been thought that SALT farming would be more labourious due to the establishing and maintenance of contour hedgerows. However, from figure 5, it can be seen that although there is more labour in the first year of the project due to hedgerow establishment and planting of permanent crops, there seems to be less labour involved in the succeeding four years. The relatively low labour requirements of SALT from 1986 to 1989 can be explained by the smaller area under annual crops and the low intensities of labour use in land under perennial crops/hedgerows relative to land under annual crops.



**Relief features**—The track of land which is inhabited by the Bondosware part of the Eastern Ghat mountain ranges. The entire hill of Bondo area is mountainous with mountains rising to more than 3000'. In between steep sided mountains, narrow vallies are found which are put under paddy. The hill slopes are put under shifting cultivation. The Bondo villages are located on hill tops and hill slopes with denuded forests and soil all around. Fruit trees like mango, jack-fruit, tamarind are planted around the village. As the villages are located on the top or side slopes of hills these are visible from a distance.

The upper Bondo region is a part of the Eastern Ghat range of mountains. The rocks are mainly Khondalite group of rocks. The entire region can be broadly divided into two parts. The western part comprises of basic rocks, mainly Charnokite which is marked by its dark tone, massive rounded to sub-rounded nature, which indicates the uniform weathering characteristics of the rock types. The other part comprises of Khondalite group of rocks consisting of Khondalites, quartzites and basement granites. The extensive weathering of rock units later formed the land forms such as buried pediplains, valley fill etc. Due to weathering and leaching in khondalite regions, laterite cappings are formed on the plateau regions with some traces of manganese ore. Structurally these Khondalite and Charnokite regions follow the general trends of the Eastern Ghats, i.e., NE-SW dipping south-easterly. Some weak zones such as joints, faults and fractures are shown as lineaments.

*Geomorphology*—The following geomorphic units can be delineated :—

- (1) Residual hills
- (2) Denudational hills
- (3) Plateaus
- (4) Buried pediplains
- (5) Valley fills

Residual hills are the residual product of denudation processes and are found as remnants of isolated hills surrounded by pediplain. Laterite plateaus are formed at the hill tops due to leaching of Khondalite rocks. Pediments occurred due to erosional process found at the foot-hill regions. Buried pediplains are found due to coalescence of two or more pediments covered with unconsolidated and weathered materials eroded from the surrounding hills. The low lying valleys filled with colluvial and alluvial materials due to stream action in this area are formed within the pediplains. These are sometimes structurally controlled which are called valley fills.

*Drainage*—The Upper Bando region forms a part of Sileru catchment. The Balimela Dam constructed over Sileru river is visible from the Upper Bando villages. The runoff from this area is directly contributed to the Balimela Dam. Due to high and steep hill ranges with extremely narrow valleys, runoff is concentrated in the narrow valleys. There is no flood hazard in the area as water is drained out easily and quickly due to undulation of the land surface.

*Climate*—The climate of the Bando area is characterised by pleasant summer, cold winter and heavy rains during monsoon.

(i) *Rainfall*—The average rainfall recorded at Khairput over a period of eleven years (from 1980 to 1990) is 1953 mm. The average rainy days over the same period is 93 mm (See rainfall chart).

(ii) *Temperature*—The temperature which has been recorded by the maximum—minimum thermometer is given elsewhere. It is revealed that the recorded temperature at Mudulipada (at Bandhaguda) for 32 days in the Bando hills that the average minimum and maximum temperature per day varies from 17°C. to 23°C., respectively.

*Soils*—The soils of the area have been formed largely under influence of relief and parent material. Climate has also played an important role as an active factor of soil formation. The soils are mostly sedentary in nature. The geology of the area is mainly of Khondalite and Charnokite rocks. The narrow valleys found between hill ranges are still in the process of rejuvenation and the drainage lines are still cutting deeper into the valleys. The drainage texture is coarse and the soils are permeable enough to allow a good infiltration as is evident from a number of spring seepages in the area. The colour of the soil is mostly red in colour due to enrichment of iron. Commonly ochric epipedon is found over argillic horizon. The denudational and residual hills are mostly skeletal in nature and devastated by shifting cultivation. The soils of the foot-hill regions are moderately deep to deep. These land on the foot hills are mostly unbunded or improperly banded. The soils of the valley fills are deep to very deep, poorly drained to ill drained. Valley bottom is waterlogged and is put under paddy.

The soils of the area foot-hills on lower slopes have soils of order Alfisol where as at the upper slopes soils of order Entisol is found. The soils are acidic in reaction except in the valleys. The texture varies from coarse loamy at the upper reaches to sandy clay loam at the foot-hills to fine sandy loams in the valleys. Appendix IV indicates physiography and soils indicating land capability classes.

#### Soil Series Description

*Tulagurum gravelly coarse loamy series*—The soils of this series are located on hill tops on denudational barren hill slopes. The slope is about 20 per cent. It is excessively drained. It is dry throughout, exceedingly stony and is subject to shifting

cultivation. Colour is dark greyish brown to dark reddish brown in the profile. Structure is weak. Entire profile consists of 80-90 per cent coarse fragments. Root distribution is confined to 100 cm. depth. Natural vegetation is salap, jackfruit, mango etc.

2. *Andrahal gravelly sandy loam series*—The soils of the series are located on the plateau of hills (on the summit). It has deep, well drained soils. Colour is reddish brown to dark red, structure is weak, poorly formed peds are observed. Whole profile is friable, permeable and porous. Texture is sandy loam. Root distribution is confined to 90 cm. depth. Natural vegetation is sal, mango etc.

3. *Bandiguda silty loam series*—The soils of this series are located on sloping uplands. The slope varies from 1-3 per cent. It is well drained and very deep. Soil colour is dark reddish brown, structure is moderate with well developed 'B' horizon. Root distribution is limited to 1.5 m. Natural vegetations are tamarind, jack-fruit etc.

4. *Barapara silty loam series*—The soils of this series are located on sloping uplands which are unbunded. It is deep to very deep, well drained dark reddish brown to yellowish red profile. Structure is moderately strong. 'B' horizon is fairly well developed. Root distribution is normal. Reaction is acidic (PH 4.5). Natural vegetation is jack-friut, tamarind etc.

5. *Tulagurum silty loam series*—Low land valley soils. The Soils of these series include deep to very deep poorly drained, dark yellowish brown to very dark brown soils occuring on reclaimed guillid lands and levelled low lying terraced paddy fields. These are hydromorphic soils characterised with shallow water table and impeded drainage. The land are subject to slight erosion. The PH is acidic.

6. *Land capability Classification*—The capability classification is a grouping that shows in a general way, how suitable the soils are for most kind of farming. Classification soil into capability grouping enables one to know (1) the hazards of soils to various factors which cause soil damages and lowering in fertility and (2) its potentiality for crop production. Altogether there are four capability classes of land in the upper Bondo regions i.e. classes IIw, IIIc, and IIIs, IVe and VI. Classes II, III and IV land are suitable for Agricultural purpose with various limitations. Class VI land is not suitable for agriculture and may be put under plantation, pasture or wildlife purposes.

*Class IIIw*—Gently sloping land with marked drainage impedence and is subjected, to frequent flooding or wetness. These lands are located at the valley bottom.

*Class IIIe*—It is strongly sloping with satisfactory texture and is susceptible to erosion found in pediments.

*Class IIIs*—Gently to moderately sloping, moderately affecting crop growth due to root zone, limitations found in hill tops.

*Class IVe*—Strongly sloping to steep land, affected by severe erosion, very low moisture holding capacity, found in upper pediments.

*Class VI*s—Land with increasing severity of hazards. Very steep land with shallow soils. Found on denuded residual hills. This land need be restricted to pasture or range or wood land or wildlife.

#### 4.4 Water Resources

4.4.1 The average annual rainfall of the Upper Bondo hill region is 1953 mm. (Appendix II). No definite date is available for the project area to find out how much of this seeps into the soil, how much is lost as evapotranspiration and how much is available as surface runoff. The Ministry of Agriculture has indicated the amount of runoff that is available for 22 stations in India. It has been indicated that for Cuttack the average rainfall is 1529 mm. and average runoff is 648 mm. i.e. 42.3 per cent of precipitation. But considering the difference in magnitude of average annual rainfall at Cuttack (1529 mm.) and Bondo hills (1953 mm.) and difference in terrain, it may not be desirable

to take values for Cuttack for Bondo hills. However, the values given for Dehra-Dun or Shillong (having similar terrain and rainfall) may be considered. However, we are conscious of the distance of Dehra-Dun or Shillong from Bondo hills which may not be identical as far as rainfall or terrain conditions are considered. Still then Dehra-Dun or Shillong data and terrain will be more close than from data or terrain of Cuttack. For convenience we have considered Dehra-Dun data for preparing water budget for the Bondo hills.

(1)	Rainfall (2)	Terrain (3)	Runoff (4)
Dehra-Dun ..	2222 mm. ..	Hilly and undulating	1422 or 64 per cent
Bondo hills ..	1953 mm. ..	Hilly and undulating	1250 or 64 per cent

To summarise, the distribution of precipitation is shown below :—

(a) Average annual rainfall	=	1953 mm.
(b) Area of upper Bondo hills 20150 hectare	=	or 1.95 m. (Approx.)
1. Total volume of precipitation 1.95 m. × 20150 hectares	=	39290 hectares m.
2. Surface runoff 64 per cent of 3929 hectares m.	=	25150 hectares m.
3. Balance available for evapotranspiration loss & seepage	=	14.40 hectares m.
4. 50 per cent (approx) is lost on evapotranspiration	=	70.70 hectares m.
5. 50 per cent is available for infiltration	=	70.70 hectares m.
6. 50 per cent (approx) of 7070 hectares ground water	=	3535 hectares m.
7. Quantity available in top soil	=	3535 hectares m.

Since there is very little scope for construction of minor or medium irrigation projects (due to submergence of valley land which produces paddy and hostile terrain for any canal system to be developed), we are left with only choice of lifting water adjacent to the valley land by use of low cost pumps. However, to allow greater infiltration contour trenches may have been provided in the pediments. Only one water harvesting structure is existing in village Datipada. There is scope to construct good number of water harvesting structures to divert water to the small ayacuts that are available. Due to hilly terrain the per acre of ayacut cost will be higher.

4.4.2 *Prediction of design runoff rate (for water harvesting structures)*: It is suggested that while designing small water harvesting structures Rational Formula is adopted. The method of calculating maximum runoff by use of this formula is the oldest, simplest and possibly the most constant one. The rational method of predicting design rate of run off is expressed by the equation.

$$Q = CIA$$

Where Q = design rate of runoff in cum/sec.

C = Runoff Coefficient.

I = Intensity of rainfall in mm./hr. for the design recurrence interval and for a duration equal to the time of concentration of the mini/micro watershed.

An estimation of peak rate of runoff by rational formula is considered sufficiently accurate for design of relatively inexpensive structures where consequences of failure is limited. Application of Rational Method is normally limited to watershed up to 12.13 sq. kms. or 1200-1300 ha.

To facilitate design of structures, the value of C (runoff coefficient) in rational Formula is given below:

Value of C (Runoff Coefficient) in Rational Formula

Vegetative cover and slop ( Topography )	Soil texture		
	Sandy loam	Clay & silty loam	Stiff clay
(1)	(2)	(3)	(4)
<b>Cultivated land</b>			
Flat 0-5 % ..	0.30	0.50	0.60
Rolling 5-10% ..	0.40	0.66	0.70
Hilly 10-30% ..	0.52	0.72	0.82
<b>Pasture land</b>			
Flat 0-5 % ..	0.10	0.30	0.40
Rolling 5-10% ..	0.16	0.36	0.55
Hilly 10-30% ..	0.22	0.42	0.60
<b>Forest land</b>			
Flat 0-5 % ..	0.10	0.30	0.40
Rolling 5-10% ..	0.25	0.35	0.50
Hilly 10-30% ..	0.30	0.50	0.60

Runoff coefficient is defined as the ratio of maximum rate of runoff to the uniform rate of rainfall with duration equally or exceeding time of concentration which produced this rate of runoff.

Requirement of foodgrains, pulses, oilseeds, fuel wood per year in the hill Bonda area is indicated below (by 2001 A. D.)

(a) **Foodgrains**—Requirement of cereals per adult/year is 198.7 Kgs.  $\times 7000 = 13909$  or 1390 tonnes or say 1400 tonnes. Add 25% for seed, wastage and for emergency requirement. Thus it is  $1400 + 350 = 1750$  tonnes.

(b) **Pulses**—Requirement of pulses per adult/year is 31 Kgs. Annual requirement is 31 Kgs.  $\times 7000 = 217$  tonnes. Add 25% or 55 tonnes for seed, feed, wastage and emergency. Thus total pulses required by 2001 A. D. will be 272 tonnes.

(c) **Oilseeds**—Requirement of oilseed 42 Kgs. (14 Kgs. oil) per adult per year. Annual requirement is 42 Kgs.  $\times 7000 = 294$  tonnes. Add 25% for wastage, seed and emergency it comes to  $294 + 74 = 368$  tonnes.



(d) *Fuel*—Requirement of fuel is 4.5 cum per adult/year. Annual requirement is  $4.5 \text{ cum} \times 7000 = 31500 \text{ cum}$ . (1 cum of wood is 725 Kgs. general). Therefore requirement of fuel wood would be  $31500 \text{ cum} \times 725 \text{ Kg} = 22837500 \text{ Kgs}$ . or 22837 tonnes.

In addition fodder and feed are necessary for the cattle and other live stock of the area. Efforts may have to be made to grow crops to meet the local requirement to make the project area self sufficient. But due to paucity of suitable area for growing of food grains more area may be put under pulses and oilseed, horticultural crops, so that excess oilseed, pulses, etc. can be exchanged for food grain and other requirements.

*The problem encountered in the area*—As far as land and water management is concerned the following problems are encountered.

(a) *Shifting cultivation*—Every hill slope in this upper Bondo region is seriously affected by shifting cultivation. This has seriously degraded the land and water resource base of the area. Due to hilly and undulating terrain, every inch of land is naturally prone to severe soil erosion. When shifting cultivation is practised as such erosion prone hill slopes, the problem is compounded manytimes. Not only productive soil is lost, it also depletes the water resource of the area along with its vegetative cover. The exact extent of area affected by shifting cultivation is not available. However, barring the valley land all other land are subjected to shifting cultivation.

(b) *Waste land*—There are about 141.707 ha. of podar land which is treated as waste land. These are unbounded. As per classification these land are not capable of producing any material or service of value. But these land need to be protected as it has the capacity to produce material if properly treated. All the 141 ha. is proposed to be treated.

(c) *Gullied land*—Due to steep slope and undulation of land gullies have appeared frequently. These gullies need to be arrested in both downward and headward development. The best method is to control the gullies through a combination of land survey and vegetative methods. It is proposed to treat 120 gullies in the 32 villages.

(d) *Streambank erosion*—The area being hilly and slopy the slope directions are also complex. There are a large number of valley bottom land which are the drainage line of the area. The valley bottom have steep sided walls. During rains, runoff from higher reaches are discharged to the valley bottom land. The fall of water is almost vertical and the sides slump enmass. This need to be protected by providing safe discharge outlet of runoff and by easing the side slopes. At some points spurs need be provided to divert water from an eroding bank towards the middle of the flow line.

(e) *Soil acidity*—Due to heavy rainfall, the bases have been leached out. This is more so in case of calcium and magnesium. As per alternate land use modules for rehabilitation of shifting cultivators in-situ suggested by Baba Krishna Choudhury Centre for Development studies, Bhubaneswar the soil P.H. is above 4.5 which is highly acidic. This acidity of soil need to be neutralised by application of lime. This will be no doubt a costly affair. However, it is suggested that a limited area of about 100 ha. may be treated with lime sludge from paper mill of Rayagada.

(f) *Lack of irrigation facilities*—For any meaningful agricultural development irrigation is a pre-requisite. Though the area has several perennial streams not a drop of water is utilised for cropping. Due to the hostile terrain conditions no minor/medium irrigation project is feasible. Therefore lift irrigation/water harvesting is the only answer. In case of lift irrigation maintaining pumping equipments will also be a problem.

(g) *Land settlement*—Though it is claimed that land settlement has been done in the area. We could not get any village maps prepared after settlement. As such, land for cultivation are mostly based on village committee and Mukhia allotment. Therefore, land settlement work may be done correctly. The difficulty is that the Bondo people as a group are not habituated to such processes.

(h) *Destruction of Vegetative Cover*—As per land capability classification the Bondo area has class I, II, IV and VI classes of land. Class III and class IV are capable of producing crops where as class VI and can be put under pasture, forests and wild life management. These class III, IV VI land have no vegetation and the entire area is subjected to serious sheet and gully erosion. These land are in need of conservation measures including plantations. It is proposed to develop these land by bundling and plantations. It is proposed to plant 100 ha. under miscellaneous tree plantation and also develop 500 ha. for agricultural purposes.

(i) *Human Resource Development*—During our visit of the area we could see the hill Bondos, their habitat and agricultural practices. Any of the measures suggested in this report will only be successful if it is accepted and maintained by the beneficiaries. But we are afraid that the level of development of Bondo people is at the lowest and any measures executed to improve the land and water base of the area will go waste unless the human resource base is also simultaneously developed.

It will not be out of place to mention that one Bondo namely, Shri Sadhu Sisa of Andrahal is the only person who has tried to utilise the land and water resources by taking up cashew plantation, oranges, bananas, rice etc. But it is learnt that banana, black pepper, cardamom, all are utilised for distilling liquor. Fortunately we were told Shri Sisa never drinks. whatever efforts have been made by Shri Sisa need to be supplemented/subsidised by Government agencies so that atleast his practices can be replicated elsewhere in the Bondo hills.

Last year Shri Sisa got 10 bags of Cashewnut and sold it for Rs. 10,000/- He has taken up cultivation by putting a series of small retention dam along the valley and diverting water along the contour to the fields nearby.

#### Soil and water conservation measures suggested

(1) *Resource Inventory*—Before any material development based on land and water is taken up it is essential that an inventory of land and water resources available in the area, problem of land and water management potentialities of land water resources are ascertained. For this purpose the land capability classification of the area need be taken up. The Directorate of Soil Conservation have survey parties positioned in the district. The survey parties stationed at Malkangiri may be engaged for the purpose. To cover about 20,000 ha. at the present approved rate a sum of Rs. 1.5 lakh is needed by the Directorate of Soil Conservation. With this amount they will prepare village wise land capability map and furnish a development plan. In addition land capability map may show the sites where water can be utilised by lifting of flow irrigation with approximate ayacuts.

(2) *Land Development*—Approximately an area of 142 ha. of podar land need to be developed. Further another 2,000 ha. need to be developed by way of terracing with safe disposal of excess runoff. For this purpose a sum of Rs. 53.5 lakh is required @ Rs. 2,500 per ha over an area of 2,142 ha.

(3) *Gully Control*—The area is infested with gullies particularly near high banks just above the valley bottom land. It is proposed to treat 120 gullies at a cost of 30 lakhs. In addition provision of Rs. 180 lakhs is made for its maintenance.

(4) *Water harvesting structure*—It is proposed to construct 30 Nos. of water harvesting structure at a cost of Rs. 60.00 lakhs. The one existing in village Datipara along with new one will also be maintained during this plan period which spreads over four years.

(5) *Lift Irrigation Points*—Above the valley bottom land can be irrigated by lifting water from these land. For this purpose small diesel pumps need to be provided with suitable training for its operation by the Bondos. For this purpose a token amount of Rs. 2.0 lakhs is proposed to be provided for installing 40 diesel pumps.

(6) *Stream Bank Erosion Control*—20 Kms. of vulnerable stream banks will be provided with diversion bund for safe discharge of runoff which cuts the sides of the streams. The original cost for treating 20 Kms. distance will be Rs. 4.0 lakhs and for its maintenance Rs. 0.30 lakhs is provided.

(7) *Diversion bunds*—Vulnerable spots below the foot hills will be provided with diversion bunds for safe discharge of runoff from the hills. It is proposed to give diversion bunds over 20 Kms. The original cost is Rs. 4.0 lakhs and maintenance cost is Rs. 0.30 lakh. These bunds will protect the agricultural land situated below the foot hills.

(8) *Sisal Plantation*—The Bondo Development Agency have started extracting fibre from the local (*Agave americana*) species of sisal through the Bondo ladies. The Agency should send some people to go to Sisal estate Nildangri in Sambalpur district where improved variety of sisal (*Agave sisilara*) is being cultivated and fibre is extracted by both power driven and hand driven decorticator. Sisal will come up well in the hill slopes. It is proposed to cover 160 ha. under sisal at a cost of 15.36 lakhs including cost of maintenance. At the end of the 4th year the plantations may be transferred to the desiring Bondos.

(9) *Jhola land protection*—It is proposed to execute 10 projects to protect jhola lands at a cost of Rs. 4.4 lakhs inclusive of maintenance.

(10) *Miscellaneous Plantation*—It is proposed to cover 400 ha. under this item of work. The cost in original and maintenance work over a period of 4 years comes to Rs. 25.3 lakhs as per norms indicated below.

1. Original plantation	..	@ Rs. 5,000 per ha.
2. Maintenance	..	@ Rs. 500 per ha. in 2nd year
3. Maintenance	..	@ Rs. 500 per ha. in 3rd year
4. Maintenance	..	@ Rs. 500 per ha. in 4th year
5. Maintenance	..	@ Rs. 500 per ha. in 5th year

(11) *Conservation farming*—As already mentioned only one Bondo namely Sadhu Sisa of Andrahal has tried to take up farming on conservation principle. But his efforts need to be supplemented in Andrahal. In addition Bondos who are cultivating some land need to be encouraged by demonstrating conservation techniques in their own fields. It is proposed to demonstrate conservation farming technology to the farmers on their land. These will act as demonstration plots. It is proposed to layout these demonstration over 200 ha. @ Rs. 2,500 per ha. The total cost will be Rs. 5.0 lakhs spread over four years.

(12) *Liming of Acid Soil*—The soils of the Bondo hills are acidic. The PH of the soils (except the valley bottom land) is in urgent need of raising it to about 6 from 4.5 or so. For this purpose lime sludge which is freely available from paper mill located in Rayagada (in the same district of Koraput) is to be transported to Bondo hills. It is proposed to apply lime sludge @ 2.5 tonnes per ha. The total area to be covered is 400 ha. The total lime sludge to be transported and applied will be 1000 tonnes. The transport cost on this account will come to Rs. 4.0 lakhs including cost of application. All the measures suggested are based on the need of the land and the area. But there is a word of caution. The Bondo hill population as such have not yet accepted any development work appreciably. This can be seen from the negligible impact of efforts of Bondo Development Agency spread over more than one decade. The road that is under construction from Khairput to Mudulipara largely being executed by imported labourers. Therefore successful implementation of any measures and their maintenance largely depend on human resource development.

The cost on the above items from 1 to 12 is as follows—

(1) Resource inventory ..	Rs. 1.50 lakh
(2) Land development over 2142 ha. @ Rs. 2,500 per ha. ..	Rs. 53.55 lakh
(3) Gully control 120 nos. @ Rs. 25,000-each and maintenance ..	Rs. 31.80 lakh
(4) Water harvesting structure 60 nos. @ Rs. 2.0 lakh each & maintenance.	Rs. 61.76 lakh
(5) Lift irrigation points 40 diesel pumps/electric pumps ..	Rs. 2.00 lakh
(6) Stream Bank erosion control over 20 Kms. @ 20,000 Km. & maintenance.	Rs. 4.30 lakh
(7) Diversion bund 20 Kms. @ 20,000 Km. & maintenance.,	Rs. 4.30 lakh
(8) Sisal plantation over 160 ha. @ Rs. 10,000-per ha. & maintenance	Rs. 23.92 lakh
(9) Jhola land protection 8 nos. @ Rs. 40,000-each & maintenance.	Rs. 3.44 lakh
(10) Miscellaneous plantation 400 ha. @ Rs. 5,000 ha. & maintenance.	Rs. 23.00 lakh
(11) Conservation farming demonstration 200 ha. @ Rs. 2,500-ha.	Rs. 5.00 lakh
(12) Liming of acid soils 400 ha. @ Rs. 1,000-ha. ..	Rs. 4.00 lakh
	Total Rs. 218.57 lakhs

*Generation of Employment*—One of the objectives of the scheme is to generate employment for the local people simultaneously increasing production from land. Generation of gainful employment to a great extent will wean away people from shifting cultivation. However it is observed that for any development work, the authorities depend on imported labour. The hill Bonda people may have to be motivated to come forward to take up development work in their own land, otherwise the very purpose of creating employment will be lost for the local Bonda population.

Out of Rs. 218.57 lakh, in an average the labour component will be atleast 50% or Rs. 110 lakh approximately. Taking wage rate @ Rs. 25 per day per person 4,40,000 (four lakhs forty thousand) mandays of labour will be generated in a period of 4 years. Thus annually 1,10,000 mandays of labour will be generated. If we take 300 as working days in a year, 366 mandays of labour will be generated per day.

*Staff and Infrastructure*—At present there are no staff available with line department like Soil Conservation in the Bonda hills to execute any work. But considering the infrastructure available in the Karapat district, particularly in Malkangiri subdivision, the additional work load can be taken up by the existing staff of Malkangiri or Chitradwanda Soil Conservation Subdivisions. The Soil Survey subdivision of Soil Conservation Directorate in a similar manner can take up routine intensive work. However, some contingencies and incentives have to be provided to the staff working in this area for which Rs. 4 lakh has been provided. In addition, one soil conservation range office with supporting staff will have to be posted. The staff will be borne in the normal Soil Conservation Department Scheme. However, some infrastructure like range office building and staff quarters are necessary.

**Statement showing cost on different Conservation measures**  
( Rs. in lakh )

Sl. No.	Item of works	1st year	2nd year	3rd year	4th year	Total	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Resource inventory	1.5	..	..	..	1.5	
2	Land Development 2142 ha.	12.5 (500 ha.)	12.5 (500 ha.)	12.5 (500 ha.)	16.05 (642 ha.)	53.55	
3	Gully control 120 Nos. and maintenance. Original cost Rs. 25,000 each maintenance Rs. 1,000 each.	7.5 (m-)	7.5	7.5	7.5	31.80	
4	Water harvesting structure 30 Nos. original @ Rs 2.0 lakh each. Maintenance @ Rs. 4,000 each/year.	14 (7 Nos.) 0.02	14 (7 Nos.) 0.30	14 (7 Nos.) 0.58	18 (9 Nos.) 0.86	61.76	
5	Lift Irrigation points	0.5	0.5	0.5	0.5	2.00	
6	Stream Bank erosion control original @ Rs. 20,000/pcr 20 Km. Maintenance @ Rs. 1,000 each/year.	1.0 (5 Kms.)	1.0 (5 Kms.)	1.0 (5 Kms.)	1.0 (5 Kms.)	4.30	
			0.05 (5 Nos.)	0.10 (10 Nos.)	0.15 (15 Nos.)		

7	Diversion bund 20 Kms. Original cost @ Rs. 20,000 per Km. Maintenance @ Rs. 1,000/Km.	1.0 (5 Kms.)	1.0 (5 Kms.)	1.0 (5 Kms.)	1.0 (5 Kms.)	1.5 (5 Kms.)	4.30
8	Sisal plantation 160 ha. @ Rs. 10,000 per ha. Maintenance @ Rs. 3,300 ha. year.	4.0 (40 ha.)	4.0 (40 ha.)	4.0 (40 ha.)	4.0 (40 ha.)	4.0 (40 ha.)	23.92
9	Jhola land protection 8 Nos. @ Rs. 4,000 each unit. Maintenance @ Rs. 2,000 each/year.	0.80 (2 Nos.)	0.80 (2 Nos.)	0.80 (2 Nos.)	0.80 (2 Nos.)	0.80 (2 Nos.)	3.44
10	Miscellaneous Plantations 400 ha. Maintenance @ Rs. 500 each/ year.	5.0 (100 ha.)	5.0 (100 ha.)	5.0 (100 ha.)	5.0 (100 ha.)	5.0 (100 ha.)	23.00
11	Conservation farming develop- ment @ 2,500 ha. over 200 ha.	1.25 (50 ha.)	1.25 (50 ha.)	1.25 (50 ha.)	1.25 (50 ha.)	1.25 (50 ha.)	5.90
12	Liming of acid soils	1.0 (100 ha.)	1.0 (100 ha.)	1.0 (100 ha.)	1.0 (100 ha.)	1.0 (100 ha.)	4.00
Total		50.07	51.11	53.65	63.74	218.5	

The following statement indicates requirement of funds for incentives, building, contingencies, etc :—

1. Office building including store for the range office at Mudulipara.	Rs. 2.00 lakh
2. Range Officer quarters one Number	.. Rs. 1.00 lakh
3. Five Surveyor's quarters	.. Rs. 3.00 lakh
4. Incentive to staff for 4 years	.. Rs. 1.00 lakh
5. Contingencies for 4 years	.. Rs. 3.00 lakh
	-----
Total	.. Rs. 10.00 lakh
	-----

**Phasing of the programme and total cost of the project—**

The preplanning period will cover one year. During this year (first year) resource inventory, working site selection for building, construction of building will be taken up. In the year from second to fifth year, the work will be executed. This is indicated in the following table :—

**TABLE SHOWING PHASING OF PROGRAMMES & TOTAL COST**

(Rs. in lakh)

Item of work	1st year	2nd year	3rd year	4th year	Total
(1)	(2)	(3)	(4)	(5)	(6)
Soil conservation measures	50.07	51.11	53.65	63.74	218.57
Works ..	11.00	..	..	..	11.00
Incentive to staff ..	0.25	0.25	0.25	0.25	1.00
Contingencies ..	0.75	0.75	0.75	0.75	3.00
<b>Total ..</b>	<b>62.07</b>	<b>52.11</b>	<b>54.65</b>	<b>64.74</b>	<b>233.57</b>

( Rupees two hundred thirty-three lakh and fifty-seven thousand only )

## People's Participation

In any developmental work, the main drive force are the human resources. Therefore for any successful work we are to go to the people and work with them. From the past experience it is seen that all efforts made so far has not been able to bring any material change in the situation that is acceptability of sponsored programmes that a break through has been made by the Bondo Development Agency. At present even labourers are to be imported for any major work, though the Bondos are only onlookers of the work. A concerted effort by all agencies need to be marshalled under a single authority that is Bondo Development Agency to execute the work. For this purpose, this agency may have to be taken out of ITDA control and put it under THRTI. Continuation of BDA under ITDA, Malkangiri will only continue the same lethargy of Government works. To give phillip to the works and considering the nature of the Bondo area and people the THRTI is the only organisation whose dedication to tribal upliftment can be capitalised for development work in Bondo hills.

### 4.8. Development & Environment

Before any activities are initiated, one must consider the chain reaction it will let loose and its effect on the nature and society at large. For example, slash and burn practices for shifting cultivation not only destroy the surface cover of the land, but also destroy the soil structure degrading the land resources. The biomass burnt, releases energy which is lost forever for human use producing large amount of carbon dioxide and carbon monoxide. Atleast if the cut slash is sold to public for use as fuel in homes the energy can be partly utilised. Therefore any activity, particularly developmental works to use natural resources like land, water, air and human resources should be tailored to improve the existing environment and maintain a healthy ecological balance so that optimum utilisation of these resources is made and production is sustained. While preparing this land and water management project for Bondo hill area of Koraput this point has been taken into consideration. It is hoped, when this project is executed it will bring an allround development and improve the environment and ecosystem.

For example, we have suggested land development works, construction of water harvesting structures, gully control measures, plantations, etc., which will conserve water, reduce flood in the downstream areas, reduce intensity of drought by improving moisture regime of soil profile, prevent soil erosion and reduce sediment production and transport, retain and improve soil fertility, produce biomass by utilisation of solar energy, utilise atmospheric carbon dioxide and above all increase production from land. Liming of acid soils have been suggested to upgrade the quality of soil preventing further land degradation. The local farmer community will be trained in better land husbandry. This will ensure better utilisation of human resources. By providing biomass as fodder for animal and fuel for households, cowdung will be available as organic manure for cultivated land (which otherwise is being burnt). This will help in proper recycling of waste material.

When all the measures are executed as suggested in this report, it will be found that each of the activities compliment all other activities for a better, healthier and more desirable balance among the natural resources, human resources and increasing production base for welfare of one and all.



## APPENDIX II

## RAINFALL

Latitude—18° 24' 45"

Height—900' ft.

Longitude—82° 14' 0"

Total rain in mm.

No. of rainy days in No.

Serial No.	Month		1980	1981	1982	1983	1984
(1)	(2)		(3)	(4)	(5)	(6)	(7)
1	January	..	Nil	20	17	Nil	Nil
2	February	..	Nil	Nil	9	Nil	Nil
3	March	..	8	43	9	Nil	Nil
4	April	..	54	27	54	16.0	81.9
5	May	..	83	50	45	85	48.7
6	June	..	497	205	195	323	327.7
7	July	..	697	48	701	401.2	517.7
8	August	..	473	582	928	438	621.3
9	September	..	471	488	57	289	206.9
10	October	..	30	85	58.0	283	148.0
11	November	..	Nil	Nil	3	10	Nil
12	December	..	Nil	5	Nil	8	Nil
Total			2313	1553	2076	1853.2	1952.2
No. of rainy days ..			98	91	91	97	79

Rainy day—A period of 24 hours from 8 A. M. in which there was rain 92.5 mm. or more.

## Meteorological Station—Khairput

Total rain in mm.

No. of rainy days in No.

1985	1986	1987	1988	1989	1990	Average
(8)	(9)	(10)	(11)	(12)	(13)	(14)
27	43.0	Nil	Nil	Nil	Nil	
Nil	29.0	Nil	Nil	Nil	3.0	
24.0	Nil	Nil	Nil	32.0	185.0	
Nil	95	Nil	8.4	Nil	18.0	
43.1	107.8	26.7	18.5	12.0	316.0	
237.5	240.2	165.0	78.5	390	304.5	
385.2	445.2	456	783.4	481	647.0	
486.4	717.2	305	467.5	570	768.0	
396.9	151.0	174	290	374	312.0	
115.4	293.8	83.4	110	54	506.2	
9.8	12.8	98.8	Nil	Nil	68.8	Average annual rainfall 1953mm.
Nil	Nil	Nil	Nil	Nil	6.2	
1725.3	2135	1308.9	1756.3	1913.0	3134.7	
N. A.	N. A.	81	75	78 days	145	

Rainy day—A period of 24hrs. from 8 A. M. in which there was rain 92.5mm. or more.

## APPENDIX III

Date	Minimum Temp. in °C.	Maximum Temp. in °C.
(1)	(2)	(3)
28-5-1991	19	23
29-5-1991	22	25
30-5-1991	18	22
31-5-1991	17	22
1-6-1991	19	26
2-6-1991	21	27
3-6-1991	19	26
4-6-1991	18	25
5-6-1991	17	22
6-6-1991	18	24
7-6-1991	17	24
8-6-1991	17	23
9-6-1991	14	22
10-6-1991	15	21
11-6-1991	14	22
12-6-1991	13	20
13-6-1991	13	20
14-6-1991	19	23
15-6-1991	17	23
16-6-1991	15	21
17-6-1991	17	24
18-6-1991	16	24
19-6-1991	16	22
20-6-1991	15	21
21-6-1991	17	25
22-6-1991	16	22
23-6-1991	17	21
24-6-1991	17	22
25-6-1991	18	25
26-6-1991	16	24
27-6-1991	18	23
28-6-1991	19	22

## APPENDIX IV

## PHYSIOGRAPHY AND SOILS INDICATING LAND CAPABILITY

Physiographic unit	Land type	Soils	Mapping unit	Capability class	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
1. Hills	(a) Denudational hills.	Gravelly coarse loamy soils.	gsl-d5-D5 G. c <sub>4</sub>	VIS	
	(b) Residual hills	Gravelly coarse loamy soils.	Ditto	VIS	
	(c) Mesatopo	Gravelly sandy loam soils.	gsl-d5-D4 c-c <sub>2</sub>	IIIS	
2. Pediment..	(a) Pediment under cultivation.	Red fine loamy soil	1-d-5 D5 B-e <sub>3</sub>	IIIe	
	(b) Pediments barren.	Red coarse loamy soil.	1-d-5 D5 c-c <sub>3</sub>	IVe	
3. Valley	Valley bottom	Hydromorphic soil	S1-d-5 D <sub>2</sub> B-c <sub>2</sub>	IIIW	

## 4.3 Agriculture

With the efforts of the Micro-Project the Bondos had shown some change in their attitude and taken up some agricultural development Programmes in different ways. They could be able to know many new crops, like high yielding paddy, wheat, potato, pulses and oil-seeds. They came to know the method of growing the above crops and use of fertilizers. They could be able to know mixed cropping, double cropping, crop rotation etc. By following the above practices, the yield of crops were increased and thereby the economic growth of the area was enhanced.

*Initiation of the scheme and amount spent in implementation*—The Bondo Development Agency was formed as back as the year 1976-77. No expenditure was made for agricultural development scheme during 1976-77. No separate expenditure on agricultural development has been maintained by the Agency since the inception of the project. However, information on the expenditure made for agriculture and horticulture sectors combined is enclosed. The combined yearwise expenditure alongwith the work done has also been indicated. Input assistance both in Kharif and Rabi seasons has been given in acre. Crop demonstration has been done in area of 7.20 acres. Compost pits were dug in the fields of the farmers to the tune of 400 numbers.

TABLE No. IV. 3.1  
Physical and Financial Achievements of Agriculture and Horticultural Schemes in the Bondo Development Agency from the inception of the Project.

Year (1)	Name of the sector (2)	Name of the scheme (3)	Target		Achievement	
			Financial (4)	Physical (5)	Financial (6)	Physical (7)
1977-78	Agriculture/ Horticulture.	Input assistance-distribution of agrl. imp.	1,47,000	..	38,519.15	200 farmers benefited.
1978-79	Ditto	Input assistance-supply of agrl. imp. for hort. plantation.	2,42,128	..	67,555.96	518 farmers benefited.
1979-80	Ditto	Input assistance-spices/vegetable and hort. plantation.	..	..	84,002.30	314.8(with 2nd & 3rd dose)
1980-81	Ditto	Input assistance-hort./vegetable/green-fencing compost pits.	1,36,359	553 Ac. 150 Nos.	36,628.32	428 Ac. 150 Nos.
1981-82	Ditto	Input assistance-crop demonstration, supply of implements, hort. plantation etc.	2,35,100	286 Ac.	39,277.26	177.4 Ac.
1982-83	Ditto	Compost pit Input assistance-hort. programme-supply of implements, compost pits.	2,39,250	250 Nos. 369.50 Ac.	1,84,667.33	250 Nos. 149.90 Ac.
1983-84	Ditto	Input assistance-hort. plantations/supply of implement.	2,62,600	377.50 Ac.	1,33,272.63	422.50 Ac.
1984-85	Ditto	Ditto	..	..	2,20,563.94	600 Ac. 2294 farmers
1985-86	Ditto	Input assistance-hort. plantation.	1,53,000	..	1,29,812.14	102 Ac. 448 farmers
1986-87	Agri./ Hort.	Input assistance-hort. plantation.	5,28,250	..	29,64,193.37	166 Ac. 1900 farmers
1987-88	Ditto	Input assistance-Agriculture implements.	1,15,000	..	1,33,647.00	..
1988-89	Ditto	Input Assistance-horticulture plantation.	7,30,000	..	1,12,097.24	867 Farmers 28992 plants
1989-90	Ditto	Input assistance	7,30,000	681 Ac.	1,43,445.00	1122 Farmers
1990-91	Ditto	Input assistance-pineapple plants.	4,00,000	25 Ac. 600 P	1,91,351.49	27 Acres 1183 farmers

TABLE No. IV. 3:1

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*Action Plan for 1991-92—(a) Inpat Assistance to Individual Beneficiaries—*

1. Cereals—H. Y. V. Paddy, Maize, Wazai, Ragi, Minor Millets— 40 hectares.	Rs.	65,000-00
2. Pulses—Arhar, Black-gram, Green-gram, Field-pas—10 hectares	Rs.	10,000-00
3. Oil-seeds—Groundnut, Til, Mustard, Niger—4 hectares ..	Rs.	10,000-00
4. Tuber crops—Potato, Sweet Potato—12 hectares ..	Rs.	1,00,000-00
(b) Farm yard manure production—100 farmers ..	Rs.	10,000-00
(c) Free supply of agricultural implements—100 farmers ..	Rs.	50,000-00
(d) Maintenance of farm, community bases pesticide appli- cation, fertilizer for native crops, maintenance of plough, bullocks, pump sets and remuneration of field attendants @ Rs. 650 p. m.	Rs.	60,000-00
(e) Agricultural training and agricultural fair ..	Rs.	10,000-00
Total ..		Rs. 3,15,000-00

*Provisions of IAS—713* Bondas are found to settle in 32 villages of three Gram Panchayats. These are Mudulipada, Andrahal and Gumma having 1813 and one village, respectively. The Bondo Development Agency consists of 32 villages of the above Gram Panchayats. The elevation is 2,000—4,500 ft. The area of the Agency is 130 Sq. Kms.

## Basic data (As per Agency Report and Records)

Total cultivated area ..	2200 hectares
Total area under paddy ..	227883 hectares
Total uplands ..	154616 hectares

*Data as per report of the J. A. O., Khairpur Block—*Total area under cultivation of Mudulipada Gram Panchayat is 805 hectares. These area as follows:—

High land—706 hectares
Medium land—30 hectares
Low land—70 hectares

Total area of Andrahal Gram Panchayat is 602 hectares out of which the type o lands as follows:—

High land—537 hectares	} Total area under cultivation 602 hectares
Medium land—35 hectares	
Low land—30 hectares	

In Mudulipada Gram Panchayat paddy area is 207 hectares while in Andrahal the area is 100 hectares.

Soil—The soil type is of red laterite nature

Crops and cropping—There are two main seasons, Kharif and Rabi. The crops grown in these seasons are as follows:—

#### Kharif

Cereals—Paddy, High Yielding paddy

Millets—Maize, jowar, ragi, suan

Pulses—Arhar, green-gram, black-gram

Oil-seeds—Niger, castor, til

#### Rabi

Cereals—Dalua paddy, wheat

Millets—Ragi, maize

Pulses—Green-gram, black-gram, horse-gram (Kulthy), field pea

Oil-seeds—Til, mustard, groundnut

*Intensity of Cropping*—Mostly one crop of either paddy, maize, ragi or suan is taken in their field during the year. The cultivators of the area are motivated to take up at least two crops in a year, i. e., one in Kharif and the other in Rabi season. Wherever water facilities exist, three crops also can be taken.

*Irrigation*—Irrigation potential as indicated by the Bardo Development Agency is 600 hectares. The details of irrigation is not available for Rabi planning for better crop combination and production. However, hill streams are available for use in some cases.

*Shifting cultivation*—The total area under shifting cultivation is 1500 hectares in upland and danger lands. By taking up this type of cultivation the lands are becoming barren and infertile by unscrupulous use of lands. The production they get is very low. So it is necessary that the farmers should be motivated to leave shifting cultivation and take up regular cultivation as per the capability of their lands.

*Population for the year 2001 and food needs*—The Population as per 1981 Census is 4751. The percentage increase is 14.3. So the population for the year 2001 will be 6110. The adult equivalent is 5377. The requirement of cereal is 1382.61 or 1383 M. T., pulses is 210.47 M. T. and oil-seeds is 327 M. T. as per calculation.



*Action Plan for Agricultural Development from 1992 to 1996*—The Bondo Development Agency has taken up different developmental work in different sectors. But no definite Planning has been done for developing Agriculture in Bondo region. So a long range Planning is necessary for agriculture so that the economy of the people may be enhanced. The detailed data for 32 villages are not available as far as agricultural Planning is concerned. However, the data available from Bondo Development Agency and Agriculture Department are utilized for the purpose of Action Plan formulation. The proposed action Plan for the coming 4 years is given below:—

1. Prevention of shifting cultivation by providing input assistance to individual beneficiary.
2. Agricultural training and conducting agricultural fair.
3. Free supply of improved agricultural implements.
4. Production of organic manures.
5. Community based fertilizer and pesticide applications.
6. Infrastructural Development:—
  - (a) Maintenance of plough bullocks and pump set
  - (b) Posting of village motivators/contact boy
7. Planning for self-sufficiency in food. The detailed programme for these action plans are enumerated below:—

*Prevention of Shifting Cultivation*:—The Bondos are now in primitive agriculture. They adopt shifting cultivation which is supposed to be one of the primitive methods of cultivation with less production, low income and making land infertile year after year. So this type of cultivation should be checked slowly and encouragement may be given for regular cultivation by providing input assistance to individual beneficiaries. The individual beneficiaries taking up this type of cultivation may be motivated for growing different crops in the field for which those are best suited. It is estimated that 1500 hectares are under this type of cultivation. It is planned to cultivate 375 hectares of land with different types of crops in Kharif and Rabi seasons by providing inputs for the crops to be taken up and leaving the above area from the clutches of shifting cultivation. The farmers leaving shifting cultivation and taking up improved cultivation should be supported in all respects by providing not only input assistance but also technical guidance by the Project Administrator/D.A.O. for smooth management of the cropping programme. By four year period the entire area of 1500 hectares should be abandoned and improved cultivation wherever possible, should be taken up. Villagewise and cropwise programme has been drawn up. Only the beneficiaries are to be selected by the Project Administrator by his agricultural staff.

TABLE No. IV,—3-2

Villagewise cropping plan for Kharif and Rabi seasons 1992—96

Serial No.	Name of the village:	Kharif cropping							
		Paddy	Maize	Rabi	Arhar	Green-gram	Black-gram	Niger	Til
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Mudulipada ..	..	1	1	..	..	1	..	1
2	Bandhaguda ..	2	1	1	..	..	..	1	1
3	Padeiguda ..	1	1	1	..	..	1	..	1
4	Silaiguda ..	1	1	2	..	..	..	1	1
5	Baunsapada ..	1	..	..	..	..	1	..	1
6	Baudigada ..	1	1	2	..	..	..	..	1
7	Chalampada ..	1	2	2	..	..	..	1	1
8	Gopurpada ..	1	1	2	..	..	..	1	1
9	Kiranipada ..	6	1	..	..	..	..	..	1
10	Tamalpada ..	1	4	9	1	1	1	..	1
11	Kichapada ..	4	1	1	..	..	..	..	1
12	Suraguda ..	1	3	3	..	..	..	1	1
13	Pundagumgara ..	1	3	2	1	1	..	1	1
14	Bandepada ..	1	2	3	..	1	..	1	1
15	Tuseipada ..	4	1	1	..	..	1	..	1
16	Tantipada ..	1	2	3	1	..	..	1	1
17	Badapada ..	2	3	5	1	1	..	1	1
18	Tuliguram ..	2	1	..	..	..	..	1	..
<b>Total</b>		<b>13</b>	<b>32</b>	<b>36</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>10</b>	<b>17</b>

TABLE No. IV 3-2

Villagewise cropping plan for Kharif and Rabi Seasons for 1992-96

Serial No.	Name of the village	Rabi cropping							
		Minor millet	Dal-a paddy	Wheat	Field pea	Green gram	Black gram	Mustard	Ground-nut
(1)	(2)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	Mudulpada	—	1	..	..	..	..	..	..
2	Bandhaguda	..	..	..	..	1	..	..	..
3	Podeiguda	..	..	..	..	..	1	..	..
4	Silaiguda	..	..	..	..	1	1	..	..
5	Baunspada	..	1	..	..	1	..	..	..
6	Baudiguda	..	..	..	..	..	1	..	..
7	Chalanpada	..	..	..	1	1	..	..	..
8	Gopupada	..	..	..	..	1	..	..	..
9	Kirsanipada	..	..	2	..	1	1	1	1
10	Tamaguda	..	1	..	..	1	..	..	..
11	Kichapada	..	..	..	..	1	..	..	..
12	Baraguda	..	..	..	..	1	1	..	..
13	Pundagumgara	..	1	1	1	..	1	1	..
14	Bandipada	..	..	..	..	1	1	..	1
15	Tusoipada	..	..	..	..	..	1	1	..
16	Tantipada	..	..	..	..	..	1	1	..
17	Badapada	..	1	1	..	..	1	..	1
18	Tuligaram	..	..	1	..	..	1	1	..
Total		..	5	5	2	3	13	5	4

TABLE No. IV. 3-3

Villagewise cropping plan for Kharif and Rabi Seasons for 1992-93

Serial No.	Name of the village	Kharif cropping								
		Paddy	Maize	Ragi	Arhar	Green gram	Black gram	Niger	Til	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
1	Andrahal	..	3	1	..	..	1	..	1	..
2	Kudamguda	..	3	2	4	..	..	..	1	1
3	Tilkada	..	1	1	2	..	..	1	..	1
4	Surendrapur	..	1	1	2	..	..	..	..	1
5	Disarathpur	..	2	1	2	1	..	..	1	1
6	Siapur	..	1	1	2	..	..	..	..	..
7	Petrapur	..	1	4	25	1	1	..	1	1
8	Kalguda	..	4	3	7	1	..	1	1	1
9	Sidhiguda	..	6	2	6	1	1	..	1	1
10	Vatenguda	..	2	1	2	..	..	1	1	..
11	Tiguda	..	2	1	2	1	..	..	1	1
12	Timurpada	..	5	1	4	..	1	..	1	1
13	Bidobel	..	3	2	2	1	..	1	1	1
	<b>Total</b>	..	<b>34</b>	<b>21</b>	<b>60</b>	<b>6</b>	<b>4</b>	<b>4</b>	<b>10</b>	<b>10</b>
14	Tigabeda	..	1	..	1	..	..	1	..	1
	<b>Grand Total</b>	..	<b>60</b>	<b>50</b>	<b>100</b>	<b>10</b>	<b>8</b>	<b>10</b>	<b>20</b>	<b>30</b>

TABLE No. IV. 3-3

Villagewise cropping plan for Kharif and Rabi season, for 1992-93

Serial No.	Name of the village	Rabi cropping								
		Minor millet	Ealua paddy	Wheat	Field pea	Green gram	Black gram	Mustard	Ground nut	
(1)	(2)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
1	Andrahal	..	1	..	1	1	1	1	..	
2	Katanguda	..	1	..	..	..	..	..	..	
3	Taalkada	..	..	..	..	1	1	..	..	
4	Surendrapur	..	..	..	..	1	..	..	..	
5	Dasarathpur	..	..	1	..	1	1	1	..	
6	Titapur	..	..	..	..	..	..	..	1	
7	Patraput	..	1	1	..	1	1	1	1	
8	Khalguda	..	1	..	..	..	..	..	1	
9	Sindhiguda	..	1	1	1	1	1	1	..	
10	Vitenguda	..	..	..	..	1	1	..	..	
11	Taiguda	..	..	..	..	1	1	..	..	
12	Tumarpada	..	1	1	..	1	1	1	..	
13	Badobel	..	1	..	..	1	1	1	..	
Total		..	5	5	3	2	10	9	6	3
Grand Total			10	10	5	5	21	18	10	6

TABLE No. IV-34

Kharif Cropping Programme for 1992-1996

Serial No.	Name of the crop	Area in Hect.	Quantity of seed in Qtl.	Cost of seed in Rs.	Quantity of fertilizer in Qtl.
(1)	(2)	(3)	(4)	(5)	(6)
1	Paddy	60	37.50	21,187.50	Urea — 78.24 Super — 12.50 MCP — 30.00
2	Maize	50	7.30	6,000.00	Urea — 87.00 Super — 125.00 MCP — 34.00
3	Ragi	100	10.00	4,400.00	Urea — 54.00 Super — 78.00 MCP — 28.83
4	Arhar	0	2.00	2,450.00	Urea — 6.31 Super — 37.60 MCP — ..
5	Green gram	8	2.00	2,450.00	Urea — 3.48 Super — 20.00
6	Black gram	10	2.50	3,475.00	Urea — 4.35 Single Super — 25.00
7	Niger	20	2.00	2,260.00	Urea — 5.44 Super — 31.20
8	Til	30	3.00	3,300.00	Urea — 19.50 Super — 28.11 MCP — 7.50
9	Minor Millet	10	1.00	440.00	Urea — 5.40 Super — 7.80 MCP — 3.40
<b>Total</b>		<b>298</b>	<b>67.50</b>	<b>45,962.50</b>	Urea — 263.92 Super — 365.21 MCP — 103.73

IV 3·4

for 1992—1996

Cost of fertilizer in Rs. (7)	Cost of P. P. chemicals in Rs. (8)	Total cost (9)	Miscellaneous cost in Rs. (10)	Grand total (11)
49,527·50	33,900·00	1,04,615·00	6,000·00	1,10,615·00
55,176·50	10,000·00	75,176·50	5,000·00	80,176·00
34,261·70	17,900·00	56,561·70	6,000·00	62,561·00
8,072·50	1,830·00	12,352·60	700·00	13,052·00
4,308·10	1,552·00	8,310·10	480·00	8,790·10
5,385·10	1,940·00	10,800·10	600·00	11,400·10
8,724·30	5,080·00	16,064·40	1,200·00	17,264·40
12,379·50	5,370·00	21,049·50	1,800·00	22,849·50
3,426·20	1,790·00	5,656·20	600·00	6,256·20
1,81,261·40	79,362·00	23,10,586·10	22,380·00	3,32,964·30

## Rabi Cropping Programme for 1992—1996

Sl. No.	Name of the crop	Area in Hect.	Quantity of seeds in Qtl.	Cost of Seeds in Rs.	Fertilizers quantity in Qtl.
(1)	(2)	(3)	(4)	(5)	(6)
1	Groundnut ..	6	7.50	7,875.00	Urea— 2.61 Single Super— 15.00 MOP— 4.08
2	Mustard ..	10	1.00	1,050.00	Urea— 6.53 Single Super— 9.37 MOP— 2.50
3	Green gram ..	23	5.75	7,043.75	Urea— 100.00 Single Super— 57.50
4	Black gram ..	18	4.50	6,255.00	Urea— 7.83 Single Super— 45.00
5	Field pea ..	5	5.63	9,008.00	
6	Wheat ..	5	6.00	3,600.00	Urea— 8.70 Single Super— 15.60 MOP— 3.40
7	Dalua paddy ..	10	6.25	3,531.25	Urea— 17.40 Single Super— 25.00 MOP— 6.80
Rabi—Total ..		77	36.63	38,363.00	Urea— 143.07 Single Super— 167.47 MOP— 16.78
Kharif—Total ..		298	67.50	45,962.50	Urea— 263.72 Single Super— 465.11 MOP— 85.73
Total of the season		375	104.13	84,325.50	Urea— 406.79 Single Super— 632.58 MOP— 112.51



Cost of fertilizer in Rs.	Cost of plant protection chemicals in Rs.	Total cost in Rs.	Miscellaneous cost	Grand total
(7)	(8)	(9)	(10)	(11)
3,990.00	2,670.00	14,535.00	900.00	14,435.00
4,129.80	1,650.00	6,829.00	600.00	7,429.80
12,385.70	4,255.00	23,684.45	1,380.00	25,064.45
8,684.10	3,330.00	18,269.10	1,080.00	19,349.10
..	1,090.00	10,098.00	300.00	10,398.00
6,683.98	3,850.00	14,133.98	400.00	15,533.98
12,395.90	5,250.00	21,177.15	1,000.00	22,177.15
48,269.48	22,095.00	1,08,726.68	5,660.00	1,14,387.48
1,85,261.50	79,362.00	3,10,586.00	22,380.00	3,32,966.00
1,33,530.98	1,01,457.00	4,19,312.68	23,040.00	4,17,353.48 or 4,47,354.00

*Agricultural Training and Agricultural Fair*—For any new work to be undertaken among the Bondos, it is necessary to educate and motivate the farmers who should be properly trained for undertaking new method of growing field crops. Training is essential where they can learn both theoretically and practically every aspect of agriculture. So in order to take up different crops in their field the Bondos are to be trained. It is planned to take up 2 training camps at least one in Kharif and one in Rabi season.

*Training Schedule :*

Name of the season	No. of the training	Time period	Number of farmers to be trained	Amount required per season
(1)	(2)	(3)	(4)	(5)
				Rs.
1 Kharif ..	One	June-July 3 days duration	32	4,320-00
2 Rabi ..	One	October- November 3 days duration	32	4,320-00
			Total ..	8,640-00

A sum of Rs. 1,440-00 may be allotted to 32 trainees participating in the training per day. This amount includes their daily wages, foods for the day and contingencies for purchase of books in Oriya in agricultural subjects and minimum writing materials.

Further in each training there may be a fair where different exhibits on agriculture and other allied disciplines are exhibited to the general public who can visualise the crops grown, chart or model for different activities of Bondos in respect of the above. An amount of Rs. 1,000 is allotted per fair where prizes will be awarded to the cultivators for growing and showing best exhibits. The prizes may be given not in cash but in kind, such implements, fertilizers and pesticides.

*Free supply of improved agricultural implements*—The Bondos like other primitive tribes are not aware of the utility of improved mould board plough which is very much necessary for cultivation. It is planned to provide one mould board plough to each family of small and big farmers having land for cultivation work. The families having no land should not be provided with mould board ploughs. There are 415 families and taking 400, as the target the amount required for these families for mould board plough will be  $400 \times 200$  Rs. = 80,000. Every year 100 families will be given such facilities.

Further, there are 697 marginal farmers having land up to one hectare. In each case a set of improved agricultural implements, consisting of one French hoe, one garden rake and one rake weeder amounting to Rs. 150 are to be given free for doing agricultural work in small pieces of land or in homestead land. The total amount for this purpose will be  $697 \times 150$  = Rs. 1,04,550 which will be given during the four years period.

*Production of Organic Manures*—Organic manures and chemical fertilizer both are necessary for crop production. Organic manures increase the water holding capacity of the soil and make it porous. Fertilizers can act better and efficient if organic manure are applied. The Bondos do not know the preparation of F. Y. M. and compost which

are the best organic manures. It is proposed that the small and marginal farmers consisting of 928 families may be allotted one compost pit of 10' x 5' x 3' size each amounting to Rs. 100/- per compost pit so that they will produce organic manure of 2 tonnes per pit. By taking up this project they will not only know the techniques of compost production but also they will be self-sufficient in organic manure as per their requirement. The method of preparation will be demonstrated during the period of training. For this a sum of  $928 \times 100 = \text{Rs. } 92,800/-$  will be needed. For the year 1992-93, 232 families are to be given such facilities.

*Community based Fertilizer and Pesticide Applications*—When a community as a whole or a village as a whole has taken up cropping in a massive scale, then the fertilizer and pesticide requirements for their cropping will be given partly free of cost by fertilizing and spraying in the presence of agricultural staff looking after the cropping. For this project the limit for paddy is 300 hectares and the financial limit per hectare is Rs. 500/-. The area limitation for non-paddy is 440 hectares. The financial limit for non-paddy crop is Rs. 300/- broadly. But it will vary from crop to crop. The amount required will be  $300 \times 50 = \text{Rs. } 1,50,000/-$  and  $440 \times 300 = \text{Rs. } 1,32,000/-$ , totalling to Rs. 2,82,000/- per year.

*Infrastructural Development :*

	Rs.
(a) Maintenance of plough bullock and pumpsets ..	10,000-00
(b) Posting of village motivators or contact man @ Rs. 650 per month per person for supervision.	31,200-00
	-----
Total ..	41,200-00
	-----

The amount of Rs. 41,200 will be required for one year.

Planning for self-sufficiency in food and oil crops and pulses.

The requirement for food and oilseeds is given in page No. 166 in meeting need of 6,110 persons in the year 2001. By following different action plans as enumerated above the production of cereals from rice, maize, ragi can be stepped up to 260 metric tonnes which is more than the requirements.

In pulses, the production of Arhar, green gram, black-gram and kulthi and other pulses will be 410 M. T. against the requirement of 210-47 M. T.

In oilseeds, the requirement will be 327 M. T. This requirement can be met by growing til, niger, groundnut and mustard.

Self-sufficiency can be attained if the proper planning is followed as suggested :

*Requirement of funds from 1992-96*—The requirement of funds for the 8th plan period are as follows :

## Requirement of funds from 1992-96

Serial No.	Name of the programme	1992-93	1993-94	1994-95	1995-96	Total amount required
(1)	(2)	(3)	(4)	(5)	(6)	(7)
		Rs.	Rs.	Rs.	Rs.	Rs.
1	Prevention of shifting cultivation.	4,47,354	4,47,354	4,47,354	4,47,354	17,89,416
2	Agricultural Training & fair.	8,640	8,640	8,640	8,640	34,560
3	Free supply of agricultural implements.	46,250	46,100	46,100	46,100	1,84,550
4	Production of organic manures.	23,200	23,200	23,200	23,200	92,800
5	Community based fertilizer and pesticides application.	2,82,000	2,82,000	2,82,000	2,82,000	11,28,000
6	Maintenance of plough bullock and pump-sets.	41,200	41,200	41,200	41,200	1,64,800
(b) Posting of V. M.						
Total		8,48,644	8,48,494	8,48,494	8,48,494	33,94,126

**Personnel Management**—The Mal development of Bondos lies in Agricultural development of the region. The agricultural development depends on the prevention and overall stoppage of shifting cultivation on the Bondo hills and adjoining areas. The project administrator/officials of Agriculture and Forest departments should look this aspect very seriously. The overall management of personnel of the B. D. A. lies on the project administrator. He may exercise his direct supervision on all matters especially agriculture so that the agricultural development should be in upward trend.

**Conclusion:**—The action programme formulated in this report if taken seriously, there shall be tremendous increase in the agricultural development of Bondo tribe.

### Horticulture

Bondos, who were primarily food gatherers and shifting cultivators are now becoming agriculturists. Their primary source of livelihood is shifting cultivation combined with paddy cultivation in the valleys, food gathering and hunting to the extent possible. As many as 99.12% of the total workers are engaged as cultivators and agricultural labourers. The economic life of the Bondos revolves round agriculture. The Bondos are confined to the Bondo Hills, which lies to the east of Malkangiri plains and South east of Machkund river valley.

The soil is black cotton type in the valley and brown on the hills. The average annual rainfall is 1682 mm. spread over 86 Rainy days.

The land suitable for cultivation in the Bondo hills is very much limited and so is the food production. The existing agricultural practices followed in the area are not capable of producing enough food material which has directly influenced the food habit of the people.

There were 1,370 households in the Project Area, a few years back, of which 1,166 depended on traditional farming of shifting cultivation including a limited scale of settled cultivation. Out of them 271 households depended on it fully as their main stay of living since the scope for settled cultivation has been very much limited. The number of households depending on agriculture is now estimated at about 1,200 taking into consideration the new households being created every year as a result of marriage and consequential separation of the adult sons from their parents.

The exact area under cultivation is not available since survey and settlement have not been completed in all the villages. On the basis of land records of the villages where survey and settlement operation have been completed the available area is as follows:

- (a) Wet land = 136 Hectares
- (b) Up land = 246 Hectares
- (c) Homestead land = 32 Hectares

This works out to 0.12 hectares of wet land, 0.20 hectares of up land and 0.03 hectares of homestead land per family. This land is owned individually. Besides, about 2 hectares of land per family is used for shifting cultivation on the hill slope which is jointly held by the community.

The wet land at present remains wet for most part of the year and is put under a single crop of paddy.

The up lands which are situated at the base of the hills are brought under cultivation for 3 to 4 years after which these are allowed to remain fallow for 2 to 3 years. In the first and second years, they grow millets and blackgram and in the third and fourth year they grow niger. If any of the plots can be manured and irrigated, cultivation can be undertaken continuously.

In the homestead lands which are not uniformly distributed in all villages kitchen garden forms a major part which being located in close proximity to the villages are cultivated annually as fertility is maintained therein by applying cowdung and compost. In this type of land they normally grow maize, tobacco, vegetables and chilly during the rainy season.

The shifting cultivation area is cultivated for 3 consecutive years by rotation of crops and is left fallow till it recoups for use again by the same farmers. On such lands the fruit trees which are left uncut are allowed to grow and come to fruiting in usual manner. In the first year different types of millets like ragi, suan, and kangu are mixed and sown broadcast. Some vegetable seeds are also sown in selected parts. In the second and third years, they generally grow pulses (Blackgram) and oil seeds (niger). The average yield of the millets, pulses and oil seeds which cover the major area is about 2½ quintals per hectare. The yield of paddy is also low being about 7 quintals per hectare.

Thus the total production is not sufficient to meet the total food requirement of the population. The production is mostly cereal. Niger produced is used as a cash crop and no oil is consumed by the population. Similarly the little quantity of pulses produced in the area do not find a place in the food of the people. The produce of the area affects the food habit of the people.

The staple food of the Bondos is gruel prepared from ragi and other minor millets. It is generally taken along with boiled green leaves, boiled vegetables or roasted dry fish. When they have to work in the field or to go out on such occasions chilly or onions with a little salt or tamarind is taken along with gruel. The well-to-do families who can afford, eat rice in the evening along with vegetable curry. Bondos generally depend on vegetables grown in their homestead land (kitchen garden) and in the fields or on the green leaves collected from the forest. Different types of Vegetables such as brinjal, pumpkin, bitter-gourd or runner bean, chilly, papaya, sweet potato, etc. are grown by the Bondos in their kitchen garden and fields. Besides, these different types of green leaves, flowers and mushrooms are

collected from the forest and are also eaten. The vegetables are mostly boiled and eaten as the Bondos do not know how to prepare curry out of vegetables. This has to be taught to them preferably through some social organisations while trying to increase the production of vegetables and to include vegetables as a necessary part of their daily diet. The Bondos eat various types of fruits, the most common being jackfruit, guava, banana, blackberry, papaya and mango, etc.

Inadequate food stuff produced by the Bondos and non-availability of sufficient edibles from the forest, do not give them scope to discriminate between preferred and non-preferred food items. They receive very inadequate food, qualitatively and quantitatively. Even the basic calory requirements are hardly met by the food intake. It is, therefore, necessary to immediately adopt measures for increasing the food production in the area so as to make the Bondos self-sufficient in respect of food. Various agricultural crop will contribute largely to the food sufficiency in the area, whereas the horticultural crops like fruits, vegetables, spices, etc. will supplement the food supply of the area and after meeting the requirement of the population will also serve as a cash crop to bring some money to the Bondo farmers to meet their other day-to-day requirements.

*Vegetable cultivation*—Assuming the adult equivalent of the Bondo population by the year 2001, as 5,300, the annual requirement of vegetables at the rate of 288 grams per head per day is 550 M. Tonnes. Therefore, to meet the vegetable requirement of the population with average production, it will be necessary to put about 70 hectares under vegetable cultivation. As against this requirement, the area put under vegetable and spices cultivation in both Mudulipada and Andrahal Grama Panchayat of the Bondo Development Agency in 1990-91 is as follows as per information furnished by Khairiput Block :

Name of the crop (1)	Area in hectares (2)
1. Sweet Potato	23.6
2. Potato	1.2
3. Other vegetables	114.0
<b>Total vegetables</b>	<b>138.8</b>

Name of the crop (1)	Area in hectares (2)
1. Chilly	31.6
2. Onion	7.2
3. Ginger	8.8
4. Coriander	3.2
<b>Total spices</b>	<b>50.8</b>

It would thus appear that almost double the area required, is now being put under vegetable cultivation. But because of the very low yield per hectare, sufficient vegetables are not available in the area. It is, therefore, necessary to attempt for increasing the yield per hectare by adoption of improved cultural practices by the Bondo farmers for which successful demonstration (not free distribution) is the first step. Till the yield increase catches up, it will be necessary to put about 50 per cent of the required area of say 35 hectares of new land under vegetable cultivation.

At present the homestead land plays an important part in vegetable cultivation. In their kitchen gardens located in the homestead land the Bondos normally grow vegetables like pumpkins, bottle gourds, cucumbers, runner beans, chilly, etc. during the rainy season. Some of them are now growing ginger and brinjal in such lands. Other vegetables like ladies finger, cowpea and cluster bean can be added during the kharif season. If sufficient water is made available to the kitchen gardens, various Rabi vegetables like tomato, cabbage, cauliflower, french bean, peas and radish, etc. can be grown.

The uplands are at present suffering from want of irrigation water where as the low lying paddy lands are suffering from excess water. A systematic planning for use of available water is necessary to improve the cropping capability of both types of land. Pooca drains can be constructed on the upper side of the valleys to allow free flow of water throughout the year. Inlets can be provided for allowing flow of water into various fields according to requirement. All along the drains, intake wells can be dug at suitable intervals with provision for pumping water to nearby uplands. Regulated flow of water to the low land will allow the fields to be dried according to requirement. This will have the advantage of replacing the long duration paddy now grown by short duration high yielding paddy. The gap left after the harvest of the paddy crop can be conveniently utilised for taking a second crop like wheat and vegetable during the winter and late summer season. The Bondo Development Agency has already demonstrated the possibility of taking a second crop of wheat in such land. The scope, therefore, needs to be exploited for better use of land and water for raising a second crop. The total area of wet land (paddy land) is estimated at 136 hectares which when made ready for a second crop can easily accommodate about 10 hectares under vegetables, like arum and summer pumpkin which will not only give a fairly higher yield per hectare but also can be utilised as a food supplement by coming within the food range of local tribe.

Intensive use of the uplands, the total area of which is estimated at 146 hectares will depend on the availability of irrigation water. The Bondo Development Agency after initial survey has estimated the irrigation potential at about 400 hectares including 60 to 100 hectares under the ayacut of dugwells, 140 hectares under proposed Patrapat and Nuagoda River lift project and about 180 to 200 hectares through diversion weirs, cross bunds over various seasonal perennial streams and water courses. The ayacut of earlier discussed intake wells along the drainage channels in the wet lands can be included in the estimated area thereby enlarging the possibility of providing irrigation water to the entire uplands enabling it for double crop. About 25 hectares of the uplands located near the villages can be conveniently put under vegetable cultivation throughout the year. The Bondo Development Agency has already demonstrated the possibility of successfully growing vegetables like potato, cabbage, tomato, radish, etc. in winter. Vegetables like sweet potato, yam, cucumber, pumpkin, brinjal, ladies finger, etc. can be grown in the same land with protective irrigation in kharif season. Thus the total produce from 35 hectares of additional land to be taken up in Rabi summer season (25 hectares of double cropped upland and 10 hectares of double cropped wet land) estimated at about 300 MT. of vegetables will be sufficient to supplement the existing production to meet the requirement of the local population. In due course, the additional yield can be sold for cash to meet the farmer's other requirements.

The difficulty likely to be encountered in growing vegetable in the Rabi season is the damage by cattle. The common practice among the Bondos is that the cattle are let loose for grazing in the Rabi season and the people do not have the habit of watching vegetable plots. It will, therefore, require a lot of motivation and education to take proper care of the crops which will include various practices like manuring, inter-culture, plant protection, protection against stray cattle and marketing, etc.

The horticulture activity of the Bondo Development Agency has so far been confined to demonstrations which indirectly means free supply of inputs. The peculiarity of the Bondo farmers is that if anything is to be supplied in the village it has to be given to all farmers irrespective of the fact whether anybody possesses suitable land for the purpose or not. This has resulted in the conversion of demonstration to distribution. This has been disastrous in case of fruit trees (grafts) where the mortality has been very high. A sample survey conducted in 3 villages consisting of 210 households indicated that the farmers are aware of the use of improved planting materials (seed, seedling grafts) but the source of their receipt so far is the Bondo Development Agency. This again confirms the system of distribution (not demonstration) to the extent that all the 210 farmers in the 3 villages say the same thing. The agency has similarly distributed inputs including fertilizer and pesticides for 1150 hectares of vegetable

cultivation and 27-40 hectares of spices cultivation during the period of 1977-78 and 1990-91. But because of the nature of distribution people have not even understood the utility of such inputs which is reflected by the negative response of all the farmers in the 3 sample villages. This type of free distribution has developed a tendency among the farmers to expect everything free. As a matter of fact during the discussions with some farmers about planting mango and jackfruit seeds on the swiddens, the immediate question was if seeds will be supplied by the Government free. This shows the extent people can go without proper understanding. Of course, it was explained to the farmers concerned that mango stones and jackfruit seeds of their own can be planted without waiting for Government supply. Now that larger area is proposed to be brought under vegetable cultivation, it is necessary to provide economic motivation to the farmers so as to make them self dependant for the required inputs. The traditional panchayats in the village levels are still powerful in the Bondo Hills and people abide by the decision taken in the village Assembly. This can be taken advantage of for developing co-operative spirit among the Bondos. Co-operative societies can be set up at the village level by involving all the farmers for producing and marketing various food, fruit and vegetable crops. Such societies when properly organised can look after the supply of inputs (seeds, fertilizer and pesticides) for production of various crops, marketing of the extra produce and requirement of credit. In the initial stage, however, for raising Rabi crops including vegetables both in uplands and wet lands, protection can be provided through the co-operatives in the form of temporary fences for a year or two, side by side developing among the farmers awareness for watching their own vegetable fields as they watch the crops in swiddens. Fencing of vegetable crops had been provided by the Bondo Development Agency for 16 hectares in 1980-81 and about 6 hectares in 1984-85 directly through the farmers concerned. A new approach can now be made by involving the village Panchayat or Co-operative which would ultimately control the cattle grazing in the village.

Demonstrations (not distribution) in the fields of selected enthusiastic farmers may be continued for 2 to 3 years till the general cultivation catches up. These demonstrations may be scattered all over the vegetable growing area in all villages. Side by side with the demonstration for which the cost of inputs has to be subsidised on a reducing scale, availability of all inputs (seed fertilizer, pesticides) has to be ensured preferably through the Co-operatives for purchase by farmers. The Agriculture-cum-Horticulture nursery set up by B. D. A. at Datipada will be helpful in raising vegetable seedlings for supply to needy farmers.

*Fruit Cultivation*—Fruit trees, which are commonly found in the area are mango and jackfruit. Most of these trees were grown by their fore-fathers in the homestead land and have become very old with consequential reduction in yield. When a tree dies, it is not replaced by any new plantation. Then only addition to these fruit trees in the villages are the fruit trees left uncut in the hill slopes while converting it to lands fit for shifting cultivation. The fruits produced in these plants are gathered by the villagers concerned. The overall production of fruits in this area is thus negligible. At the rate of 85 grams per head per day 162 M. T. of fruits will be required annually to meet the requirement of the local people. About 40 hectares of land have to be brought under fruit cultivation for this purpose. The scope of extending area of fruit plants in the existing village sites is limited. After allowing the area for vegetable cultivation hardly 4 hectares of land may be available mostly being confined to the border area of vegetable plots. The Bondo Development Agency has already introduced plantation of grafted mango, lomon, oranges, lichi, sopeta and guava in the backyards. Since the year 1980-81, 1,683 families have been supplied fruit trees for backyard plantation. This shows that some of the families have been covered more than once evidently to gap-fill the dyeing plants. The present survival position is not known. Systematically three short term fruit plants papaya, plantain and pine-apple may now be supplied to selected households having suitable land for backyard plantation. In the first year the basal dose of fertilizer may also be supplied free. Digging of pits, planting the trees, irrigation and protection will be done by the farmer concerned. In subsequent year or two, plants for gap filling may also be supplied on similar terms where necessary.

The major focus of extension of area under fruit cultivation will be the swiddens or hill slopes used for shifting cultivation. While drawing out any programme for extending fruit cultivation in Bondo hills, the following facts are to be kept in view:—

1. The Bondo farmers have a special liking for fruit trees which they never cut while cutting all other trees from lands to be used for shifting cultivation.



2. The swiddens are held jointly by clan groups in the villages. The village panchayat in the Bondo area is still powerful and the people abide by the decisions taken at the village Assembly.
3. A Bondo as an individual takes utmost care of the fruit trees planted by him. In contrast, he does not take any care of the plants which are grown by the project for him.

The Bondo farmer, on the average, uses about 2 hectares of land for shifting cultivation according to his capacity, out of the patch of land jointly held by the villager community. Though the Bondo farmer individually operates his area, the village community can certainly take a policy decision regarding cropping the swidden by all the farmers of the village specifically for introduction of fruit crops in the swidden. In the sample survey conducted in 3 villages recently 58 per cent of the farmers favoured such decision while 7 per cent were opposed and 35 per cent were undecided. At the same time out of the same population 93 per cent favoured introduction of fruit trees along with other crops in the swiddens while only 7 per cent were opposed to the idea. Once such a decision is taken by the village assembly, it will help the undecided farmers also to take up the plantation and watching the plantation against cattle damage when shifting cultivation is stopped from the area till the fruit trees grow high enough to protect itself. Realising the importance of horticulture for the development of the Bondos, the Bondo Development Agency since its inception has attempted various measures including plantation of fruit trees. Till the year 1990-91 it has distributed planting materials for 147 hectares and also to 1232 families for whom no details are available. This is in addition to 1683 families to whom planting materials have been supplied for backyard plantation. The survival position is not known and may be presumed to be very low. The exact amount spent for the purpose is not known though it forms a part of Rs. 16.96 lakhs spent for agriculture and horticulture. Three main reasons can be attributed to the poor success of the programme.

1. Indiscriminate distribution of planting materials to the Bondos without ascertaining their capability to establish and maintain the plantation.
2. Distribution of grafts requiring more care in establishment and maintenance evidently for plantation in the donger lands.
3. Inadequate follow-up action by the limited staff of the agency for plantation, establishment and maintenance of the orchards.

It is, therefore, necessary that we learn from our past mistakes and frame our future plans accordingly. To start with, every farmers can grow in his entire area of swidden, normal crops of ragi, sunn, kingu, pulses or oil-seeds while only in half the area seeds or seedlings of fruit trees of their choice like mango, jackfruit, tamarind, guava and cashew may be planted across the slope in rows 30 feet apart. The distance from plant to plant remaining the same except guava where it can be reduced to 20 feet. Plantation of seeds or seedling is specifically stressed because the Bondos are accustomed to such planting. Seeds will be locally available and such seedling *in situ* have a better chance of survival. Where the desired types of seeds are not available, arrangements have to be made for supplying the same from outside preferably in form of seedlings. As usual, 2 to 3 seeds or seedlings may be planted per pit during the beginning of rains i. e. June, July. Digging of pits and plantation of seeds or seedlings will be done by the farmers concerned for which they may be paid their wages. Rs. 5 per pit will cover the cost of seed or seedling cost of digging pit and cost of planting, Rs. 4 out of Rs. 5 may be paid after planting and the balance Re. 1 per pit may be paid next year on the basis of survival. Surplus amount may be used for gap filling according to necessity. While preparing the land for sowing the other crops (cereals, etc.), the pebbles and small stones found in the field may be collected and put in the rows of the fruit trees across the slope which will ultimately form the rudimentary bunds and will prevent free flow of water and consequently erodid to some extent. Sisal bulbils may be planted on these bunds to strengthen. The other half of the field growing crops alone will serve as a demonstration. This simple practice may increase the period of cultivation in the banded area by a year or two depending on the efficacy of the bunds. As an encouragement for this bunding, the farmers concerned may be given the wages of 8 to 10 labours i. e. about Rs. 250 per hectare in the first year. The plants will grow up to good size during a period of 3 to 4 years when the swidden is in operation by the farmers. Consequently

there will not be any problem for watching. However, when the swidden is left for recouperment, it is necessary to protect the growing fruit trees against stray cattle. The need for watching the plantation and protection against stray cattle is felt by 91 per cent of the Bondos in the sample villages while only 9 per cent did not feel the necessity though there is larger difference of opinion regarding the mode of watching. 53 per cent of the Bondos in the sample villages feel that the watching should be provided by Government while 38 per cent feel that they can watch their plantation themselves. As is the common practice with the Bondos, cattle are let loose after the kharif harvest. It is, therefore, necessary to take decision at the village Panchayat level to confine the grazing of cattle to Gochar and other areas not under crop. The fruit plants can be treated as a crop just like any other crop and may be provided protection at the village Panchayat level. If this practice is successful the Bondo Hills may have fruit orchards over 1200 hectares of land with established fruit trees by the sixth or seventh year, when the swidden is fit for operation again. The remaining half of land of every farmer can then be put under fruit cultivation in a similar manner at his own cost. From 10th year onwards the earlier planted orchards will come to fruiting which at the minimum rate of yield is expected to produce about 6000 M. T. of various fruits. This will mean about 5 tonnes of fruit per family and may bring, by sale, an annual income of Rs. 10,000 at the minimum.

Marketing of the fruits will be a problem and has to be solved in advance. Bondo economy is still essentially a barter economy. The important markets are Muniguda, Govindpalli, Mathili and Onakadally where mostly mango, jackfruits, date palm, berries, banana, tobacco, chilly, brinjal and other vegetable, ragi and niger, etc. are exchanged for salt, kerosene, dry fish, ornaments and cloths. This barter economy is slowly changing to cash economy and the process has to be expedited. The farmers now carry their loads to the weekly market over a long distance on the market days thereby losing wages for a day. This is not realised now as the salable quantity is small but with a bigger programme of marketing over 6000 M. T. of fruits and a few hundred tonnes of vegetable annually. A systematic marketing channel has to be developed to prevent the exploitation of the Bondo farmers. In a sample survey conducted in three Bondo villages recently, 49 per cent of the farmers were in favour of sale of their produce through co-operatives while 15% were opposed to the idea and 35% were undecided. With a little education and awareness, it will be possible to evolve co-operative spirit among the Bondos. The village co-operatives as suggested earlier, have to be organised quickly and entrusted with the responsibility of marketing fruits and vegetables produced in the area along with their other functions of input supply, credit supply, etc. The produce from the near farmers can be purchased by the co-operatives concerned, relieving the farmers of their burden at that level. Subsequent transport and marketing will be the responsibility of the co-operative society. One L. A. M. P. S. is now operating at Mudulipada with two retail sale-cum-procurement sub-centres at Andrahal and Patraput with similar objectives. These Institutions may be strengthened and more branches opened (at least one in each cluster of villages now suggested for intensive operation), in the interior, to meet the growing need.

The process of planting of fruit trees will have to be necessarily coincide with the first year of shifting cultivation in the selected swidden. As cultivation in a swidden continues for 3 years it is expected that 1/3rd of the villages will be having new swiddens every year. Thus planting of fruit trees in the entire area of 1200 hectares will be completed in 3 years. In the subsequent years gap filling and protection of the trees will continue. The impact will be actually felt from the 10th year when fruiting will start with income to the family. Thus during a course of 10 years the Bondos are expected to be settled in farming. The increased yield obtained from the existing wet land and upland supplemented by vegetables and fruits obtained from the high land, will be quite sufficient for their food requirement. Besides, the extra quantity of fruits and vegetables produced for the market, will bring them adequate money to meet their other requirements for a reasonable living.

The proposed fruit orchards (hill slopes, at present) will continue, for the time being, as Government land with grant of usufructuary right to the farmers concerned. But this is not a full proof system. Unless the farmer has full rights over the land, he cannot be expected to take proper care of the plants. The sample survey conducted in the Bondo area recently indicated that 67% of the sample farmers want full rights over the land on which the orchards will be established while 18% will be satisfied with usufructuary right. The remaining 15% is not specific. Therefore after the orchards are fully established, the lands are to be finally allotted to the farmers concerned for whom this will be an added attraction. This may be made clear to the Bondos from the beginning to ensure their complete involvement in the orchard establishment.

Till the orchards start yielding income alternate engagements have to be found for the Bondos to bring in some income for their maintenance as at present, the Bondos are unemployed for a major part of the year in spite of their podu cultivation. A recent survey indicated that none of the 210 sample families with 496 working members had full-time work in agriculture. As they grow only one crop during the rainy season, they remain unemployed for the remaining part of the year. This leads to drinking, quarreling etc.. The surplus Bondo labour may be fully utilised in unskilled earth-work like field bunding, water harvesting structure making, road making, tree plantation etc. executed locally. As a matter of fact, outside labour for such work may be banned to encourage participation and involvement of Bondos in their own programme. This will not only help the execution of the programme locally but also will be of great help, by providing daily income to the Bondos during the idle period to wean them away from podu cultivation.

Administration vegetable cultivation has to be organised in an area of 170 hectares and fruit cultivation in an area of 1200 hectares during a period of 5 years. The area of operation will be 32 villages of the Bondo Development Agency. The villages being scattered over hilly terrain and unconnected by road, it will be necessary to have a contact man for every cluster of 5 to 6 villages with his headquarters in one of the village/from where he has to contact and advise all the farmers in these villages. A trained grafter with some experience in village work and prepared to work in difficult terrain will be suitable for the post. He will guide villagers of the 5 to 6 villages in respect of fruit and vegetable cultivation. For supervising the work of the Grafters, it is necessary to have a trained Horticulturist and a Grafter in the headquarters of Bondo Development Agency located at Mudulipada. The services all of these horticultural staff may be requisitioned from the Horticulture Department on deputation. The headquarter staff will provide constant guidance to the yield grafter and help them in execution of the programme. They will have field supervision as frequently as possible. Besides, they will look after the Agricultural-Horticultural Demonstration farm at Dantipada where they will organise a short-term training programme (for about a week) for the Bondo farmers in batches and acquaint them with various aspects of fruit and vegetable cultivation. From the 3rd year onwards, they, with the help of field grafters, will take up grafting on the seedling mango stocks with quality mango scions so that ultimately the entire mango area will be converted to orchards of quality fruits only.

Physical Target	1st year	2nd year	3rd year	4th year	5th year
1. Vegetable demonstration					
(a) Input supply ..	20 H	20 H	20 H	..	..
(b) Fencing ..	20 H	20 H	20 H	..	..
2. Fruit orchards ( mixed )					
(a) Planting ..	400 H	400 H	400 H	..	..
(b) Bunding ..	400 H	400 H	400 H	..	..
(c) Watching ..	..	..	..	1200 H	1200 H
(d) Grafting (Mango) ..	..	..	80 H	80 H	80 H
(e) Training of the Bondos and maintenance of the demonstration farm.	300	300	300	300	..

Skilled masons and carpenters may be brought from other places and local Bondo youths may be properly trained to construct buildings by utilising local material, such as stone. Local tiles can be manufactured and be used in roof of the buildings. As there is no quarters available for staff posted by different departments to the Agency area the work hampers since the staff remain outside the agency area. Hence, it is most important to take up construction of staff quarters at different Panchayat headquarters for the staff sanctioned for the area so that the programme of work can be implemented properly. Since Bondo community as a whole is very furious a number of clusters in the agency area has to be evolved where the staff of various department can stay in a colony.

As inspected at site, almost all Bondo have low economic status and as there is very little cultivable land in their villages, they depend mostly on forest produce. They also distribute among themselves the forest lands adjoining to their village and take up podu cultivation after cleaning and burning valuable trees. In order to stop podu cultivation in the area, it is most important to select suitable forest lands having gentle slope and land suitable for agriculture purposes and allot the same to Bondo families. Out of about 5,000 Bondo families, approximately 1,000 families are landless and in order to provide cultivable land @ 2 acres to each family 2,000 acres of land are required. Since water source is abundantly available in the area it can be lifted by providing L. I. points to small holdings by drawing electric line and other device i. e. solar energy in order to provide irrigation facilities to these lands after its reclamation. To provide irrigation either flow or lift to 2,000 acres or 800 hectares, Rs. 9,60,000 will be required. This may be included in Action Plan which should be taken up by respective departmental agency who will be responsible for construction and maintenance of the scheme.

The said amount may be utilised by taking up works on proper inspection by L. I. or Irrigation Department. On verification of Masterplan of M. I. P. for Orissa it is seen that no M. I. P. has found place in this agency area. The C. E., M. I. had been requested by the Commissioner-cum-Secretary, H. & T. W. Department to send a list of feasible M. I. Ps. for inclusion in the Action Plan. No such list has so far been received. This may be pursued and after receipt of the list of M. I. P. with cost, it may be taken up through their agency who will be responsible for construction and maintenance of the Project.

#### 4.6. Animal Husbandry

In a non-mechanised rural agricultural economy livestock is the chief source of farming power. The bullocks and the buffaloes cultivate the land, pull the carts used for transportation of agricultural produce and help in harvesting paddy and cereals. Cows supply milk which is a wholesome animal protein diet. The goats, pigs and poultry supply nutritive animal food for the tribals. The animals supply fertilisers for development of fertility of land. An agricultural economy is dependant on the livestock in many ways.

Traditionally man is dependant on animals right from the beginning of the civilisation. Animals, like horses and elephants provided good transportation and were useful in battles. The legacy is still maintained when a large variety of mechanised modes of transportation and warfare have been harnessed. As we advance in civilisation along with progress of technology and science our dependance on animals is gradually reduced. The reverse is also at times true. As we go back against the current of time, our dependence on animals is gradually increased. A more advanced society is less dependant on animals and a less advanced society is supposed to be more dependant on various type of animals.

The Bondos are a primitive tribe. They are completely segregated from the civilized world. They have not come in contact with the civilized people mainly for the following reasons:

1. There was no road communication to the Bondo habitations until recently. No person from outside could go to the Bondo hills.
2. Bondos are lovers of independence. They were not mentally prepared to tolerate their subordination to others. Therefore, they resisted other persons encroachment into their abode.
3. Bondos believe that they are the sole dwellers of the Bondo hills which they call 'Bondo Kingdom'. Hence any other persons' entrance into the Bondo hills is considered as encroachment on their rights. Verrier Elwin describes how he and his party were shot arrows by the Bondos when they entered into the Bondo hills in 1950.
4. The Bondos are aggressive, ill-mannered people having homicidal tendency. That is why outsiders are afraid of coming in contact with them. Acculturation was faster and easier in respect of other tribals whereas it was extremely difficult with the Bondos.

5. The Bondos tried to do self-sufficient in their economy. They tried to avoid contact with outsiders for any necessity whatsoever.

The Bondos are still in the barter system of economy. They are gradually developing habits of using money. All their habits and temperaments have kept them at the base level of the civilisation.

The Bondos were used to the shifting cultivation (Podu) which is based on an unproductive technology. The produce is too meagre compared to the labour put in by them. But now-a-days they are gradually taking to settled agriculture and cultivating their land with plough drawn by bullocks, cows and uncastrated bulls.

*Bondo settlement pattern*—Bondo villages are situated on the hill-slopes nearest the foot of the hill where usually hilly streames flow to provide drinking water. The houses are irregularly constructed without following a pattern. Each family has ordinarily an one-room house subdivided into apartment with short wall for storage of food grains, keeping hens and sometimes goats and pigs. No space is left around the house for construction of sheds of animals.

Before considering the status of animal husbandry it is necessary to discuss the socio-cultural-religious background of the Bondos *vis-a-vis* the animals reared by them.

- (1) A cow or a buffalo is given by the bride groom as bride-price to the father of the bride.
- (2) They always try to propitiate deities by giving cow or buffalo sacrifices. Every year one has to give one or two such sacrifices for propitiation of the deities.
- (3) Whenever the bridegroom visits his father-in-laws' house with his wife, at least a goat to be killed-better if a cow or a buffalo is killed for the feasting.
- (4) The Bondos procure fishing nets from the Didayis in exchange of goats or cows.
- (5) The Bondos are ordinarily fond of beef, pork and meat. Wherever they donot find food and are hungry which they very often are, they kill an animal and eat it.

6. The Bondos are very cruel by nature. They do not even hesitate to kill a man when overpowered by anger. They do not have any sympathy for the animals they rear. This is a positive disqualification for animal husbandry.

With this background we may make an analysis of the status of animal husbandry and try to suggest development measures in that direction.

The picture of land holdings of the Bondo families reveal that nearly 30 per cent of the families are landless, 60 per cent possess land up to 2 acres in addition to his share of 'Podu' cultivation. The remaining 10 per cent have land more than four acres per family. This structure of land holdings signifies that agriculture can never be primary sector economy of the Bondos. The operational guidelines of I.R.D. Block Plan published by Government of India (1982) mentions that when "the bulk of the rural poor are landless a significant part of the activities for their benefit would have to be in the secondary and tertiary sector". Ultimately there fore, animal husbandry is the only alternative that can be thought of as secondary sector economy for the people of the Bondo hills in general.

*Livestock population*—Livestock population has been collected from 28 villages from the secondary source. The Veterinary Assistant Surgeon, Kheirput Block maintains this statistics as a part of his duties for the livestock of Bondo hills. Copies of distribution chart are attached for analysis.

It may be seen that the distribution of the livestock is uneven. For example village Mudulipada having 541 human population has cattle population of 97 only which indicate that the agro-drop farming practised by the villagers of Mudulipada is much less than expectancy level. Another case of Andrahal may be taken. There is a human population of 617 against a cattle population of 445. Incidentally both these villages are Panchayat Headquarters each having one Livestock aid centre with livestock Inspector and menial staff. There are provisions for treatment both curative and preventive in these two Panchayat Headquarters. But the livestock population both quantitatively and qualitatively is far less than expectation. This also indicates that people of the two villages are engaged more in other income generating work than in agriculture.

Two other examples of Kichapada and Kirsanipada may be taken as contrast. In Kichapada and Kirsanipada the human population are 235 and 195 as against cattle population of 236 and 182, respectively. This will indicate that the people of these two villages are engaged in agro-drop farming more than their counter parts in Mudulipada and Andrahal.

**TABLE No. IV. 6-1**  
**Statistics of Livestock of L. D. C., Mudulipada**  
**According to the cattle census 1990**

Serial No.	Name of the village	Cattle			Buffalo			Sheep			
		Male	Female	Total	Male	Female	Total	Male	Female	Total	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
1	Mudulipada	..	81	16	97	3	2	5	..	..	..
2	Bandhaguda	..	124	35	159	7	2	9	7	13	20
3	Dantipada	..	66	20	86	2	..	2	..	..	..
4	Seleiguda	..	40	11	57	..	..	..	..	..	..
5	Padeiguda	..	120	29	149	..	..	..	4	5	9
6	Badapada	..	114	23	137	..	..	..	..	..	..
7	Kirsanipada	..	149	33	182	..	..	..	..	..	..
8	Baunsapada	..	46	11	57	..	..	..	..	..	..
9	Gokharpada	..	49	9	58	..	..	..	..	..	..
10	Chalanpada	..	24	4	28	..	..	..	..	..	..
11	Bandaguda	..	58	11	69	..	..	..	..	..	..
12	Bondapada	..	113	26	139	..	..	..	..	..	..
13	Rameliguda	..	60	18	78	..	..	..	..	..	..
14	Pindajangar	..	90	32	122	15	13	28	..	..	..
15	Baraguda	..	46	13	59	..	..	..	..	..	..
16	Tuscipada	..	56	14	70	..	..	..	..	..	..
17	Kichapada	..	158	48	206	13	1	14	..	..	..
18	Tadaguram	..	59	17	76	4	..	4	..	..	..
Total		..	1,453	370	1,829	44	18	62	11	18	29

Goat			Pig			Poultry				Dog			Grand total.
Male	Female	Total	Male	Female	Total	Male	Female	Others	Total	Male	Female	Total	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
13	28	41	34	48	82	38	54	61	153	14	5	19	541
15	29	44	34	87	121	29	52	50	131	19	14	33	173
12	34	46	21	40	61	40	53	59	132	6	5	11	182
5	11	16	6	11	17	18	18	22	58	6	1	7	70
24	33	57	31	43	74	45	56	58	159	12	5	17	108
52	54	106	89	132	221	70	98	151	319	15	14	29	284
13	23	36	33	49	82	39	61	68	168	9	3	12	195
5	6	11	7	15	22	16	25	35	76	4	1	5	56
8	9	17	17	32	49	16	28	24	68	4	1	5	79
3	7	10	11	16	27	13	22	30	65	5	2	7	83
9	12	21	11	26	37	58	35	47	105	7	3	10	173
24	38	62	30	43	73	31	49	53	133	8	4	12	180
17	26	43	19	48	67	26	32	34	92	6	5	11	242
12	29	41	26	46	72	22	41	42	105	9	5	14	138
12	17	29	12	22	34	15	25	31	71	6	1	7	74
10	21	31	16	31	47	21	23	33	77	6	5	11	69
23	37	60	71	101	172	47	82	59	188	12	9	21	235
10	20	30	29	41	70	24	34	52	110	7	4	11	126
267	434	701	497	831	1,328	568	788	909	2,210	155	87	242	3,008

TABLE No. IV 6-2

Livestock Statistics of Andrahal Grama Panchayat  
According to the cattle census, 1990-91

Sl. No.	Name of the village	Cattle			Buffalo			Sheep		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	Dumuripada ..	241	143	384	..	..	..	1	7	8
2	Patraput ..	61	31	92	9	6	15	1	2	3
3	Khalaguda ..	78	39	117	..	..	..	2	8	10
4	Sendhaguda ..	73	52	125	4	3	7	6	34	40
5	Katamguda ..	50	36	86	..	..	..	1	6	7
6	Utanguda ..	46	26	72	..	..	..	..	..	..
7	Badaboli ..	144	96	240	..	..	..	11	21	32
8	Andrahal ..	291	154	445	..	..	..	13	26	39
9	Golkanda ..	26	22	48	..	..	..	..	..	..
10	Golguda ..	66	71	137	..	..	..	..	..	..
Total ..		1,076	670	1,746	13	9	22	35	104	139



Goat			Pig			Poultry				Dog			Grand Total
Male	Female	Total	Male	Female	Total	Male	Female	Others	Total	Male	Female	Total	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	
23	111	134	46	164	210	60	182	45	387	17	8	25	407
1	10	11	..	..	..	33	55	34	122	6	2	8	143
4	26	30	23	47	70	27	44	68	141	13	6	19	131
2	36	38	34	59	93	34	54	37	125	12	12	24	23
8	32	40	9	37	46	32	43	60	135	12	8	20	124
2	11	13	..	..	..	17	34	16	67	2	3	5	47
10	64	74	13	90	103	71	94	124	289	21	16	37	374
32	136	168	63	110	173	107	131	456	694	37	15	52	617
..	..	..	10	15	25	9	14	6	29	3	2	5	58
..	..	..	17	58	75	27	55	63	145	8	2	10	154
82	426	508	215	580	795	417	706	909	2,134	131	74	205	2,078

The chart would reveal that the goat, pig and poultry population are found in varying quantities in every village by almost all households. In spite of the fact that there is hardly an space in the Bondo houses for keeping domestic animals these stock is accommodated in their living room; and making the whole house unhealthy with air pollution.

It may further be observed that buffalo population is limited to only 8 villages. The sheep are reared in nine villages only. The dog population is found in all villages and almost in all households. The dogs are kept inside their single roomed houses alongwith other domestic animals except cattle and buffalo. The cattle and the buffaloes are kept in open air enclosures adjoining or nearest place available. The cattle and buffaloes are almost left to vagaries of nature, particularly to the ravages of bad weather and always exposed to the attacks of the wild animals.

*Quality of the livestock*—The quality of the livestock population may be said in short to be low. The cattle have almost a stunted growth due to low quality genetic inheritance. Balanced feed and fodder are not available to them. They are left to natural conditions in respect of feeding, water and housing. They are exposed to ravages of nature under the open sky. Managerial practices are completely lacking. The cattle are searched only when there is a need for ploughing. No care is ever taken of the cattle or any other animal owned by the households. Their propagation is not made under regulated breeding programme.

The neglect of the livestock is mainly due to the fact that the female member of the households who are active are mostly engaged outdoors and the male members are too much lethargic to take care of livestock. They are mostly addicted to drink salap juice and liquor prepared out of mohua flower, rice gruel and cashew nuts and remain intoxicated throughout the day.

The entire livestock population belong to the *Desi* (indigenous) variety. Hence the quality is likely to be poor.

The she-buffaloes and the cows are never milched as the Bondo population customarily do not consume milk. The variety of cattle and buffalo being indigenous with poor managerial practice do not have potentiality to yield milk even to meet the feeding requirements of the calf. It is worth while to mention that milk is not given even to the babies and infants which is a wholesome food for them. Lack of nutrition is common in case of the infants of the Bondo hills resulting in various deficiency symptoms.

Similarly, the goats, pigs and the poultry are not supposed to breed quality products. It appears that no efforts has been made to introduce cross-breeding programme in livestock. Information collected from the office of the Bondo Development Agency shows that the following livestock assets were supplied to the beneficiaries in the years mentioned against each. But no improvement has been noticed in the progenies and quality of the original livestock.

TABLE No. IV.6. 3

Livestock supply position during 1977-84

Year	Bullock	Buffalo/Cow	Sheep & Goats	Cockrels	Poultry	Graded Buck	Duck
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1977-78	51	..	81	14	..	4	..
	Families		Families	Families		Families	
1978-79	..	..	110	..	..		..
			Families				

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1979-80	8	103	..	..	.	..	..
	Families	Families	..	..	..	..	..
1980-81	51	1	53	..	1	5	..
	Families	Family	Families	..	Family	Families	..
1981-82	85	..	39	..	16		6
	Families	..	Families	..	Families		Families
1982-83	61	..	33	..		7	..
	Families		Families			Families	
1983-84	58	67	15	..	..	4	..
	Families	Families	Families	..	..	Families	..
		+					
		22					
		Families					
		(Hybrid					
		Heifer)					
1984-85							
to	..	..	..	..	..	..	..
1990-91							

All the information available in respect of supply of livestock for economic rehabilitation of the Bondo tribe obtained from the Bondo Development Agency office have been reflected in the above Table. The table does not indicate any further details of the beneficiaries and the size of the units supplied and quality of the assets. On the otherhand non-specific information like supply of graded bucks to 16 villages (without mentioning the breed and the number supplied is available from which nothing specific can be construed. Similarly, in case of supply of sheep and goat it is not mentioned how many sheep and goats were supplied to each family and of what breed. Cockrels were supplied only once to 14 families in the year 1977-78 and thereafter discontinued. The villagers supplied with these assets were not mentioned. The result was that the team of Project Consultants could not proceed to those villages to verify what has been the fate of the assets supplied and what were the impact on animal rearing practices. No where could any information be collected by spot visit by the team of Consultants due to indefiniteness of the information by personal interaction, the members tried to ascertain whether actually any such supply was made and what was the impact. But since the supply has been discontinued since 1984-85 and as per record the matter is of distant past, no definite information could be obtained. The quality of the existing livestock did not exhibit on spot visit any evidence in favour of any improved quality to have been inculcated through supply of better breeds. The entire stock is of *Desi* origin without any indication of admixture in respect of all species in the table.

The data collected during June, 1991 from the records of the Bondo Development Agency showed that the following expenditures were incurred in connection with supply of livestock assets to the Bondo beneficiaries in the years mentioned against each—

## Financial inputs

Year	..	Financial inputs
1977-78	..	Not available
1978-79	..	Rs. 52,024.50
1979-80	..	Rs. 16,149.13
1980-81	..	Rs. 75,576.04
1981-82	—	Rs. 1,23,624.28
1982-83	..	Rs. 2,46,641.44
1983-84	..	Rs. 1,61,064.25
1984-85	..	Rs. 2,397.60
1985-86	..	Rs. 1,006.96
1986-87	..	Rs. 4,000.00
1987-88		
to		
1990-91		Nil
		<hr/>
Total	..	Rs. 6,82,484.20

As described earlier the impact of such a huge financial input was not felt during the spot visit. There are reasons to believe that the scheme was discontinued from 1984-85 because of its failure. Possibly good impact was not generated.

The data supplied through the P. A., ITDA, Malkangiri do not seem to be consistent with the records collected from the office of the B. D. A. particularly for the years, 1977-78 and 1984-85 to 1990-91. For example, it is shown in physical supply of livestock that bullocks were supplied to 51 families, sheep and goat to 81 families, Cockrels to 14 families and graded bucks to four families in the year 1977-78, but an expenditure of Rs. 84.44 has been booked in the statement supplied by P. A., ITDA, Malkangiri which is an impossible proposition. Similarly no expenditure has been shown against the years 1984-85 to 1986-87, whereas an expenditure of Rs. 7404.56 has been booked in the records of B. D. A..

*Common diseases and treatment*—The records of the livestock Inspector, Mudulipada, Andrahal and Veterinary Assistant Surgeon, Khairiput revealed that the cattle and buffaloes treatment had never been undertaken by them properly. The records showed that the cattle and buffalo population have been mainly treated for general debility, anoerxia sprain, injuries and entoritis. Although no prophylactic vaccination against haemorrhagic septicoemia, black-quarter, rinderpest, foot and mouth disease have been found on record showing that there is no evidence of occurrence of the diseases, spot visit revealed that the said diseases are prevalent in the area among the cattle and buffalo population though sporadically. The villages are so wide apart with hill barriers that the infectious diseases when occur do not spread in epidemic form to the livestock of other villages so as to catch the attention of the people outside. No evidence was seen on record on occurrence of ranikhet disease among poultry yet discourses with the people indicated about the prevalence of ranikhet disease in poultry population.

The treatment records of the L. A. C. (Livestock Aid Centre), Mudulipada shows that 435 cases were treated at Headquarters and 373 cases in the villages while on tour. No report from the L. A. C., Andrahal could be made available. 152 male calves are reported to have been castrated at Headquarters and Mofusils by the Livestock Inspector, Mudulipada. During spot visit of the Consultants to some thickly populated villages no evidence could be collected about such visits of the Livestock Inspector to look after the

livestock health. It was learnt that the previous Livestock Inspector, Mudulipada was at least staying at the headquarter and was available for treatment of the livestock but the present Livestock Inspector is not staying there, for which treatment of the animals has been neglected. He was not available for a discussion during the 41 days visit of the Consultants from dated the 26th March 1991 to the 29th March 1991 and on the 7th June 1991. Local information confirmed that no L. I. is at site for over one year.

*Infrastructure input*—The Veterinary Assistant Surgeon, Khairput is in charge of the livestock health and production of the Bondo Agency area supported by two Livestock Aid Centres. The V. A. S. is supposed to make extensive visits to the Bondo villages both for supervision of the work of the L. I. and also to motivate the Bondo population to take to animal husbandry practices so as to give them handles for generation of income to make a living. It is the responsibility of the V. A. S. to organise prospective, high yielding, income generating animal husbandry practices, among the Bondo population, so that they could make a subsistence out of the livestock assets given to them by Government as aid and to improve their indigenous stock through ideal feeding, breeding and management practices. Nothing could be peruse during visit of the team about the organisation or contribution of the V. A. S. in this regard. No report could be found anywhere reflecting the constraint of animal husbandry practices,

In respect of the breeding facilities, there appears to be no arrangement anywhere in project area, either artificial or natural. No effort has been made to improve the indigenous the breed of livestock.

*Overview*—An overview of the total situation in respect of the livestock quantity and quality would indicate that the entire area has been neglected. Preliminary arrangements to motivate the people have not been made to develop improved animal rearing practice as an economic means to provide subsistence for living. A number of Bondo families could derive benefit out of poverty amelioration programme. Absence of the functionaries and their continuous neglect of the schemes have resulted in heightening the poverty of the primitive tribe. A lot could be achieved if sincere efforts were made right from the beginning of the Micro Project. Improvement of the livestock quality and quantity could be achieved with little efforts. Perhaps poverty amelioration can be done within a short span of time and in an easy and comfortable way through improved animal husbandry practices if the programme could properly be planned, implemented, monitored and evaluated from time to time.

*Observation on the Annual Plan 1991-92*—The Annual Plan, 1991-92 of the B. D. A. provides for (1) implementation of broiler rabbit rearing scheme at a cost of Rs. 25,000 by 14 families and (2) implementation of piggery scheme at a cost of Rs. 1,00,000 by 20 families.

Past experiences go to prove that animals were given under beneficiary-oriented schemes continuously for seven years from 1977-78. No residue is seen either by way of improvement of the species or improving the economic conditions of the beneficiaries through these assets. The reasons attributed in the report of the B. D. A. submitted through the P. A., I. T. D. A. are lack of motivation and awareness for failure of the scheme. There are evidences that the livestock assets given to the Bondos were consumed by the concerned beneficiaries. Against this background introduction of broiler rabbit rearing and piggery are not recommended so soon. It has to be ascertained first that the Bondo people are favourably motivated and receptive to the programme in order to make it an economically viable unit for ensuring subsistence and further development.

It has been proved on many occasions that any scheme thrust from outside has not generated good impact among the people. It is only when there a motivation followed by a desire to implement a scheme and to earn the economic benefit, there is livelihood of success. When this is true with the general population, one should be very meticulous before introducing any scheme in the primitive tribal area. Distribution of broiler rabbits and pigs against the bitter experiences of the past due to want of backward and forward linkages, is not considered a wise step to be taken at present. On the other hand efforts should now be made to introduce intensive motivating technique to achieve an attitudinal transformation at the mental level of the Bondo.

*Action Plan*—In the context of the social background and economic system of the Bondo hills it is seen agriculture is the only sector which can provide subsistence to the people. Primitiveness of the tribe pre-supposes a pre-agricultural technology adopted by the Bondos in their 'Podu' cultivation. The livestock power was never utilised for agricultural purposes.

Utilisation of the cattle force in agriculture is of recent practice for them. The Bondos were not accustomed to agro-livestock practices as in case of other tribes who have already taken to be settle agriculture as a means for their living.

As has been pointed out earlier, the Bondos keep livestock assets with them for either barter for other necessities of life or for their own consumption. The livestock maintained by them are left to the vagaries of nature. They do not have any idea or practice of maintaining livestock under ideal condition as per the prescribed norms. It is, therefore, necessary to give them ideas of ideal animal husbandry practices through audio-visual propagation. A mobile audio-visual unit proposed under the 'Action Plan' of Education may have cassettes on animal husbandry to be screened both for inducting animal husbandry practices for motivation and to make them receptive to the programme. It is only when a substantial progress in propagation is made and ground is prepared at least with 25 per cent of the people production-based beneficiary oriented programmes should be introduced. The distribution previously made was premature and therefore, it failed. Now it is proposed to start after careful study of situations and substantial progress is made in motivation of the Bondos for the schemes.

Before suggesting action for improvement of animal husbandry practices it is worthwhile to consider the views of Shri C. H. Hanumantha Rao (published in Main Stream, Vol. 24, Issue-19 on the 11th January 1986) in connection with poverty amelioration programme through agriculture. After a thorough analysis he has given his clear opinion that affluent benefited relatively more than the poor States in respect of reduction of poverty through adoption of the new technology in agriculture. This has a reference to the poor economic conditions of the poor States. Therefore, while recommending for the new technology adequate care should be taken to ascertain the receptivity and capacity of the tribal farmers.

Another view of Shri Hanumantha Rao is relevant which casts light on development of tribal communities through new agricultural technology. He writes, "The Scheduled Tribe population is not characterised by landlessness but their agricultural practices are traditional and their access to inputs and technology is weak. The fact that Scheduled Tribe population is relatively high in the district showing negative or slow growth, suggests the need for special efforts in these districts, particularly in tribal areas, for making an effective impact on the poverty problems.

It is therefore, necessary that a favourable condition for introducing new practices in agriculture and animal husbandry which is closely related to agriculture, should be ensured. Shri Hanumantha Rao also denounces the direct attack on poverty through the beneficiary oriented programme, when the beneficiaries do not have capacity to utilise the new situation.

Considered in the light of the opinion of Shri Hanumantha Rao, in the above paragraphs failure of livestock distribution to the Bondo people in the past from 1977-78 to 1984-85 can be well accounted for. Discontinuance of the beneficiary oriented schemes through distribution of livestock assets has been a wise step. We are not inclined to recommend to resume the defective practices of the past in the immediate failure without adequate preparation and motivation.

A dangerous tendency was marked among the Bondos during our field visit. Whenever any commodity or any other financial benefit is distributed to the needy and deserving persons there is a tendency for everybody to demand similar benefits. In case their demands are not complied with they become aggressive and non-receptive to development programmes. The Project Leader confirmed this practice of the Bondos. Against this background if under the beneficiary oriented programme, distribution of animals is taken up, it will create more social and administrative indiscipline than any improvement. Hence distribution of livestock assets should not be resumed so soon. However, in the interest of the people in general an improvement of the breed through natural process may be achieved through a Government Controlled Organisation manned by V. A. S. and Livestock Inspectors to start with the development programmes.

In order to have effective administration in the Bondo hills it was necessary to evolve some approach for reducing the administrative jurisdiction of the functionaries and to provide residential accommodation for them. A consensus was developed among the Project Consultants to have a cluster approach which is given as follows.

The Bondo project area has been divided into five clusters taking into consideration the location of villages, convenient road communication and easy approach to the cluster headquarters.

The villages of the Bondo Project area have been included in the clusters as mentioned hereunder:—

**I. Headquarters—Mudulipada**

1. Mudulipada
2. Podoiguda
3. Bandhaguda
4. Sileiguda
5. Dumuripada
6. Badapada
7. Dantipada

**II. Headquarters—Andrahal**

1. Andrahal
2. Kalanguda
3. Badabel

**III. Headquarters—Bondapada**

1. Bondapada
2. Patraput
3. Tuseipada
4. Bajaguda
5. Khalaguda
6. Sindheguda
7. Bhaliapadar
8. Gulangpadar

**IV. Headquarters—Kirsanipada**

1. Kirsanipada
2. Pindajangar
3. Similiguda
4. Kichapada
5. Tagabeda
6. Gophurpada
7. Bandiguda

8. Baunapada

9. Chalanpada

10. Badaguda

V. Headquarters—Tulagurum

1. Tulagurum

2. Goiguda

3. Uttemguda

4. Sonuguda

For the time being Tulagurum cluster may be merged with Mudulipada cluster and function with Mudulipada headquarters. In future when road communications to Tulagurum and other villages develop Tulagurum may be made a separate cluster and Kirsanipada cluster may be split into two clusters in order to have a more effective administration and supervision by reducing the distance of the villages from cluster headquarters. Another cluster with Kichapada as headquarters may be made to work.

A barrack consisting of 8 to 10 spacious rooms (as per need) may be constructed to accommodate the functionaries of the Departments of Education, Agriculture, Community Development, Animal Husbandry, Health and others, if any. Each room shall be an independent unit with a kitchen space on the rear verandah and a latrine with a squatting place so that a person may live with family if desired. Provision of a barrack is more economic than constructing family quarters for all the functionaries of different Departments. The barrack will provide minimum facilities of living, social security, mutual help at times of need and facility of administration.

Construction of barracks at the cluster headquarters and constitution of the clusters is the first step for introducing an effective administration in the Bondo project area. The Livestock Inspectors may be accommodated in the barracks and sheds for the bulls may be constructed near the barracks so that the Livestock Inspector and the attendants can take care of the bulls kept in the shed. Livestock Inspector can go round each village once or twice in a week as the village would lie within 4-5 Kms. from his headquarters. He will have to render door-step service as initially one cannot expect the Bondos to come with their sick animal to the centre.

*Composite Scheme of Jersey Bull & Buffalo Bull*—Improvement of the quality of the livestock of the Bondo villages may be taken up on a priority basis through an improved natural breeding system. The present scheme aim at upliftment of the economic condition of the Bondo families through introduction of good species of cattle and buffaloes by natural cross-breeds. Buffalo bulls of Murrah species and cow bulls of pure Jersey species are to be supplied at two cluster headquarters namely Mudulipada and Andrabal and maintained by Government Agency at Government cost. The first generation cattle progeny will have 50 per cent Jersey element. The female calves of the cross breed are to be maintained under C. R. P. Scheme (Calf Rearing Project) with 100 per cent assistance from Central Government from the second month to the 38th month. Female calf born in the first generation will be crossed with cross-breed Jersey either artificially or naturally for which steps have to be taken for further breeding facilities.

Each bull is estimated to render 120 services in a year and thereby producing 60 female and 60 male calves. The health coverage is to be looked after by the area Veterinary staff. One contingent attendant may be appointed to look after both the bulls kept in a composite shed. The forage requirement is to be met by grazing for which there is enough fodder and grass in the forests. The disadvantage experienced in the plains in respect of male exotic crossbred calves will not be felt in Bondo hills as the Bondos are in practice of ploughing with cows, bullocks bulls both cattle and buffaloes.



## Financial estimate for composite scheme for Jersey bull and buffalo bull.

## Non-recurring expenditure—

		Rs.
1. Cost of construction of composite shed for 2 bulls at the rate of 60 Sq. ft. $60 \times 2 = 120$ Sq. ft. Roof at the top 15 ft. height and side height 8 ft. side wall $4\frac{1}{2}$ ' high and rest open door-size $7' \times 5'$ floor gradient 1:60inch concrete, feeding through angleless 2 sheds $2 \times$ Rs. 16,000.		32,000
	Rs.	
2. Cost of two bulls	Pure Jersey bull ..	8,000
	Murrah buffalo bull ..	5,000
		13,000
For two centres	.. $2 \times 13,000$	26,000
3. Cost of equipments—Chair, bucket, mug, sickle	.. $2 \times 500$	1,000
	Total ..	59,000

## Recurring expenditure—

1. Feeds at the rate of 3 Kgs. per bull per day at the rate of Rs. 3 per Kg. $2 \times 3 \times 365 \times$ Rs. 3 = Rs. 6,570		
For two centres	Rs. 6,570.00 $\times 2$	13,140
2. One contingent labour for both the bulls for each centre $750 \times 12 =$ Rs. 9,000.		
For two centres	Rs. 9,000 $\times 2$	18,000
3. Veterinary aid (Medicine) Cost for 2 Centres at the rate of	Rs. 500 $\times 2$	1,000
4. Contingency at the rate of Rs. 300 per centre for two Centres		600
	Total ..	32,740

*Composite Buck and Boar scheme*—This unit consists 2 Black Bengal Bucks and 2 middle white Yorkshire boars for higher economic return to the Bondos. The Bucks will go in village herd and will be maintained under browsing and grazing management system. However, grains are provided for flushing up. Boars will be maintained with full concentrate feeds and with available forage in the herd. Boars will not be allowed more than 20 services a month, i. e., 2 services in 3 days. One attendant will look after the 2 bucks and 2 Boars. The area veterinary staff will look to the health coverage of the animals. A composite shed will be constructed to minimise the non-recurring expenditure.

Initially 2 units will be set up one at Kirsanipada cluster headquarters and the other at Bondapada cluster headquarters on experimental basis. The facility will be extended after assessing the response of the people and actual gains accrued to them. In the other composite scheme for bulls and buffalo bulls, the first generation cattle progeny will have 50 per cent elements of the improved species. The attendant will have to assert more with the buck/boar to render herd service till the people get used to the system to begin to come to the centre for service.

*Financial estimates of the composite scheme for Buck and Boar*

## Non-recurring expenditure—

## 1. Cost of construction of composite shed with partition wall—

(a) Bucks  $2 \times 15$  Sq. ft. = 30 Sq. ft.(b) Boars  $2 \times 35$  Sq. ft. = 70 Sq. ft.

For two sheds 100 Sq. ft.

Rs.

28,000

## 2. Cost of boars,

Rs.  $4 \times 1,500$  Rs. 6,000

@ 2 boars per centre.

Bucks,

 $4 \times$  Rs. 500 = Rs. 2,000

@ 2 bucks per centre.

8,000

## 3. Cost of equipments

1,000

Total .. 37,000

## Recurring expenditure—

## 1. Feeds

Boars— $2 \times 2$  Kgs.  $\times 365$  days = 1,460 Kgs.Bucks— $2 \times 0.25$  Kg.  $\times 365$  days = 182.5 Kgs.

1,642.5 Kgs.

Rs.

Cost of 1,642.5 Kgs. feed—Rs.  $5,000 \times 2$ , for 2 centres

10,000

2. One labour for bucks and boars at the rate of Rs. 25 per day  $\times 365$ , for two centres

18,250

3. Veterinary aids (Medicine) at the rate Rs. 300 per centre, for two centres.

600

4. Contingency at the rate of Rs. 200 per centre for two centres

400

Total .. 29,250

*Scheme for upgradation of the Livestock Aid centres, Mudulpada to Veterinary Dispensary*—The present livestock aid centre does not have a building either for its office or for residence of the Livestock Inspector. Hence all the assets are to be created for the dispensary although it goes by the name of upgradation.

## Non-recurring expenditure—

Rs.

1. Building as per type plan for Veterinary Dispensary

1,50,000

2. Construction of 2 quarters for V. A. S. and L. I.

2,00,000

3. Equipments and instruments including microscope and field laboratory materials.

20,000

	Rs.
3. Furniture and fixtures including outdoor treatment cabinet, Travis, etc.	15,000
4. Refrigerator	8,000
Total ..	3,93,000

Recurring expenditure—		Rs.
1. Salary of V. A. S. per annum in the scale of pay Rs. 2,000—3,700		45,000
2. Salary of Livestock Inspector	..	Continuing
3. Salary of one Peon and one Chaukidar (contingent menial)	..	18,000
4. Salary of one bull-attendant	..	9,000
5. Medicine per annum	..	3,000
6. Contingency	..	500
Total ..		75,500

*Scheme for setting up 2 Livestock Aid Centres at Kirsanipada and Bondapada—One Livestock Aid Centre at Kirsanipada cluster headquarters and another at Bondapada cluster headquarters are to be set up. The Livestock Inspector is to be accommodated in the barrack to be constructed at cluster headquarters.*

One treatment-cum-centre room measuring 12'×10' with verandah 5' wide may be constructed in the vicinity of the animal shed. A travis may be provided for treatment of the animals.

Non-recurring expenditure—		Rs.
1. Construction of one room 12'×10' with verandah 5' wide with G. C. I. sheet roof at the rate of Rs. 15,000 each 2×15,000.		30,000
2. Travis at the rate of Rs. 1,500×2		3,000
3. Instruments at the rate of 2,500×2		5,000
Total ..		38,000

Recurring expenditure—		
1. Salary of 2 L. I. at the rate of Rs. 1,600 in the scale of pay Rs. 975—1,660, Rs. 1,600×12×2.		38,400
2. Salary of bull-attendant to be locally recruited Rs. 750×12×2		18,000
3. Medicine per annum Rs. 800×2	..	1,600
Total ..		58,000

## Phasing of Physical and Financial targets during the 8th Plan

1991-92

During the year 1991-92 only construction work should be undertaken as a preparatory measure for operation of the schemes as suggested in this report.

1. Construction of bull sheds at Mudulipada and Andrahal ..	Rs. 32,000.00
2. Construction of Buck & Boar sheds at Kirsanipada and Bondapada.	Rs. 28,000.00
3. Construction of Veterinary Dispensary at Mudulipada and quarters for V. A. S. and L. I.	Rs. 3,50,000.00
4. Construction of treatment-cum-centre office ..	Rs. 30,000.00
Total ..	<u>Rs. 4,40,000.00</u>

1992-93

1. Introduction of composite scheme for bulls at Mudulipada and Andrahal.	Rs. 59,740.00
2. Introduction of Buck and Boar scheme ..	Rs. 38,250.00
3. Upgradation of L. A. C. at Mudulipada to Veterinary Dispensary.	Rs. 1,18,500.00
4. Setting up two L. A. Cs. at Kirsanipada and Bondapada ..	Rs. 66,000.00
Total ..	<u>Rs. 2,82,490.00</u>

1993-94

1. Continuance of the composite scheme for bulls at Mudulipada and Andrahal.	Rs. 32,740.00
2. Continuance of the Buck and Boar scheme at Kirsanipada and Bondapada.	Rs. 20,250.00
3. Continuance of the Veterinary Dispensary at Mudulipada ..	Rs. 75,500.00
4. Continuance of 2 L. A. Cs. at Kirsanipada and Bondapada ..	Rs. 58,000.00
Total ..	<u>Rs. 1,95,490.00</u>

1994-95 Same as in 1993-94

## ABSTRACT

1991-92	Rs. 4,40,000.00
1992-93	Rs. 2,82,490.00
1993-94	Rs. 1,95,490.00
1994-95	Rs. 1,95,490.00
Total ..	<u>Rs. 11,13,470.00</u>

*Constraints*—Norms for opening of L. A. Cs. and Veterinary Dispensary on the basis of live-stock population or Grama Panchayat head quarters or Block headquarters, etc. should not be made applicable to the Bondo hills in view of the backwardness and primitiveness of the tribe. Constraints of intercommunication and lack of facilities in transportation in the hilly and terrain area with location of villages on the hill slopes pose insurmountable problems which must be kept in view.

The second great constraint in operating animal husbandry schemes is the animal eating habits of the Bondos. They eat the flesh of the animals indiscriminately. The beneficiary oriented schemes had to be abandoned for the unfavourable living conditions of the animals and the socio-religious habits of sacrificing buffaloes and cows of the Bondos.

Active technical personnel having zeal should be selected and posted who have commitment to their jobs. They should make it a motto to render door-step services during the initial stage to popularise the schemes. Indifferent persons should be avoided as far as possible. The persons posted in the Bondo hills should be suitably compensated financially in form of incentive to the extent of 25% of their basic pay.

#### 4.7. Health—

We had the opportunity of visiting the project area twice to get first hand information as Project Consultant on Health with the aim to have a techno-economic survey for action plan formulation. During the 1st visit I alongwith other members of the team visited the villages Mudulipada, Podeiguda, Dumuripada, Badapoda and Andrahal. After returning a family schedule was prepared in consultation with officers of T. H. R. T. I., Bhubaneswar to collect data. I again visited the area while the investigators were collecting the information from the families, villages and from secondary sources.

*Methodology*—Stratified random sampling method was followed. 3 villages were selected namely, Podeiguda, Bondapada and Dumuripada and all the families of these 3 villages were interviewed by the Investigators alongwith an officer of T. H. R. T. I., Bhubaneswar. In all 210 families were interviewed and the family schedule filled up with necessary information.

*Infrastructure*—The hill Bondo area is situated at an altitude of 3,000 ft. above the sea level with mountainous tract. The communication facilities are poor. Because of their rude and ruthless manner of expression, spirit of independence and sense of freedom, excessive drinking habit, criminal propensity, unhealthy climate with poor communication facilities, the Bondo area remains untouched during the time of British India. No civilian officer or person used to go there except on occasion of reported murder cases when the police staff used to visit. They were left to nature. A child from birth to death was fighting with the nature for its survival. It is no wonder that the tribe remained isolated and far from modern civilisation. As regards health, if some one was needing medical help, he or she has to be taken to Mathili Dispensary at a distance of about 25 Kms. or to Malkangiri at a distance of 70 Kms. Hospital service was available at Jyopore at a distance of about 100 Kms. or 3 days journey as was narrated to me by an old man of Dantipada. As such, there was no medical facilities existing in the Mudulipada or Upper Bondo area during the Britishraj.

After independence the necessity of providing medical facilities were felt and an Ayurvedic dispensary started functioning in the year 1963 with the belief that as Bondos are being treated locally by different forest herbs and roots, the Ayurvedic system of medicine will be acceptable to them. A house was constructed for the purpose alongwith quarters for the staff. The quarters is now being used by the Project leader as his residence and the Ayurvedic dispensary is functioning in a portion of the O. P. D. complex. The Bondos have little faith in the Ayurvedic system as evident from the outdoor attendance, a daily average of 6.

TABLE No. IV-7-1

Monthwise O. P. D. Attendance at Mudulipada Ayurvedic Dispensary in 1990

		Male		Female		Child		Total New+Old			Total	Fever cases
		New	Old	New	Old	New	Old	M	F	C		
January	..	81	6	32	5	22	3	87	37	25	1,215	35
February	..	72	5	15	3	12	2	77	18	14	109	38
March	..	175	17	79	11	44	3	192	90	47	329	98
April	..	150	4	44	6	9	6	54	50	15	219	74
May	..	96	26	25	8	13	2	122	33	15	170	46
June	..	126	9	34	3	17	4	135	37	21	193	55
July	..	116	18	26	4	21	6	134	30	27	191	48
August	..	177	19	38	7	9	5	196	45	14	255	64
September	..	93	12	32	8	20	3	105	40	23	168	28
October	..	84	21	35	11	33	6	105	46	39	190	32
November	..	70	15	19	1	18	2	85	20	20	125	18
December	..	68	16	27	7	13	5	84	34	18	136	23

		Male New cases	Female New cases	Child New cases	Total New cases	Fever cases
Total	..	1,308	406	231	1,945	559

One year's outdoor attendance is adequate enough to come to certain conclusions as follow :

- (1) Lack of health consciousness of Bondo population
- (2) Bondos have no faith in Ayurvedic system
- (3) Service provided is unsatisfactory

It is universally accepted that at a particular point of time 10% of the population are suffering from either minor or major ailments requiring the attention of medical personnel. On that basis B. D. A. area having a population of about 5,800 at least 580 are suffering, against which only 6 attend the dispensary.

## Expenditure by Health Department on Ayurvedic Dispensary

## Establishment :

One M. O.	..	Rs. 2,500 × 12 = Rs. 30,000-00
One Distributor	..	Rs. 1,500 × 12 = Rs. 18,000-00
One Class IV	..	Rs. 1,250 × 12 = Rs. 15,000-00
		Rs. 63,000-00
Recurring charges for medicine		Rs. 3,000-00
		Rs. 66,000-00

Hence when we consider the expenditure involved, the benefit derived is limited. As the Ayurvedic system is not acceptable to people either a 6-bedded Hospital or additional P. H. C. may be opened. I am told by the C. D. M. O., Koraput that one additional P. H. C. has been sanctioned at Mudulipada. If it is true, it will go a long way to meet the need of the people. But there is no provision for diet in the additional P. H. C. having 4 beds. From the beginning it will have an adverse effect, if diet is not provided. This matter needs consideration as a special case.

Primary Health Centre, Khairput started functioning from 1963 in the Block building, after which it was shifted to P. H. C. building in 1965. Since then it is functioning with 6 beds as per the norm with provision of diet. It has 11 Sub-Centres including one main centre at Khairput as shown below:

Name of Sub-Centre	Year of starting
1 Kumarput	1989-90
2 Mudulipada	1987-88
3 Andrahal	1989-90
4 Rasabeda	1979-80
5 Podaghata	1984-85
6 Pushally	1988-89
7 Muduliguda	1991-92
8 Madakapadar	Not available
9 Govindapalli	1977-78
10 Kadamguda	1989-90

SOURCE : P. H. C., Khairput

In this context it may be mentioned here that one Sub-Centre at Mudulipada and one Sub-Centre at Andrahal have been sanctioned in 1987-88 and 1989-90 respectively. There is no Sub-Centre building at Mudulipada or at Andrahal. There is one male health worker post sanctioned for each Sub-Centre. The Female Health Workers though posted to the Sub-Centres are physically staying at Khairput. The post of Male Health Workers are lying vacant.

## Financial involvement in B. D. A. area by Health Department.

<b>1 Mudulipada</b>			
Average Pay of F. H. W.	..	1,500×12	Rs. 18,000·00
Average Pay of M. H. W.	..	1,500×12	Rs. 18,000·00
<b>2 Andrahal</b>			
Average Pay of F. H. W.	..	1,500×12	Rs. 18,000·00
Average Pay of M. H. W.	..	1,500×12	Rs. 18,000·00
3 Medicine to 2 Sub-Centres per centre.	@	Rs. 3,000	Rs. 6,000·00
		<b>Total</b>	<b>Rs. 78,000·00</b>

The allotted amount is not fully utilised as the post are lying vacant frequently and the benefit to the people are denied. Bondos being declared as primitive tribe, work of the male and female multipurpose worker is confined to active surveillance against malaria, maternal and child health including immunisation. In other parts of the State, major function of the multipurpose health worker is to motivate the couple for accepting the family planning measures. Here as no family planning measures are undertaken the performance of this category of staff is not adequate.

On the whole in the project area the Health Department is spending about 1,44,000/ (Rupees one lakh forty-four thousand) and the result is very poor performance.

TABLE No. IV. 7. 2

## Malaria activity at Bondo Development Agency area

<i>Mudulipada</i>					
Year	Total blood slide examined			Total found positive	
1988-89	185			18	
1989-90	271			25	
1990-91	98			11	
<i>Andrahal</i>					
1988-89	211			8	
1989-90	162			14	
1990-91	72			8	
<i>Immunisation in Bondo villages</i>					
	D. P. T.	Polio	D. T.	Measles	B. C. G.
1987-88	30	30	30	Nil	Nil
1988-89	44	44	120	20	20
1989-90	111	111	119	29	99
1990-91	110	110	131	103	93



*No. of pregnant mothers immunised—*

	T. T.	Large tolifer
1987-88	10	30
1988-89	30	95
1989-90	45	82
1990-91	96	89

*No. of children received nutritional prophylaxis and T. T. for school-going children—*

Year	Small tolifer	Vit.-A solution	T. T. 10 years	T. T. 16 years
1987-88	20	75	Nil	Nil
1988-89	100	167	25	30
1989-90	137	191	82	35
1990-91	233	239	101	41

(SOURCE—P. H. C., Khairput)

*General health practice*—As referred to previously, the Investigators of T. H. R. T. I., Bhubaneswar interviewed 211 families, but one family of village Bondopada in serial number 90 is a Scheduled Caste family. This number is excluded from the list, making the effective number as 210. In these 210 families, total number of persons interviewed comes to 690. Thus calculated the family size of the Bondos comes to 3.3. Of the total 690 people investigated, there are 9 males and 14 females of 60 or more years of age. It indicates that females live more than the males. In the total families investigated there were 424 live births and 29 still-birth, hence average number of birth per family comes to 2.15. The number of miscarriage or abortion account is not available. In the total population of 690 there are 26 widows and 16 widowers. In all there are 424 live births, 75 of them died and could not reach adulthood. This figure seems low to be acceptable.

## Cause of death as reported.

Fever	..	64
Diarrhoea	..	6
Wild animals	..	2
Not able to tell	..	3
Total	..	<u>75</u>

Hence fever either due to malaria or infection of the upper respiratory tract is the major cause of death in the area. All the deliveries numbering 453 have taken place in the home with help of local ladies. There is not a single institutional delivery. Posts of Female Health Workers have been sanctioned very recently about 4 years back. There are no trained indigenous Dais in the Bondo area. It is not known what would have been the fate of the women in obstructed labour cases. I have tried to ascertain about it, one M. Mandra of village Dantipada about 10 years back took his daughter-in-law to the P. H. C., Khairput for obstructed labour for the first time. Since then in the area several pregnant women with obstructed labour from this village and Mudulipada have been referred to the P. H. C., Khairput for safe delivery, but mostly in inaccessible areas the women are left to fate except consulting the medicineman, "Deshari" and applying herbal

medicine and performing necessary rituals. The area and the people require special consideration for providing efficient services in maternal and child health. It is imperative therefore, the post of a Specialist in O. & G. be posted to the Additional P. H. C. when starts functioning.

*Personal and environmental sanitation*—The Bondo villages are situated on top of a hill or on the slope of hill. In some places a levelled and plain land surrounding by hills is selected for the settlement. The most immediate requirement for the settlement is the availability of water nearby and sufficient hillslope suitable for shifting cultivation. The houses of the Bondos in the village do not conform to any pattern. It can face north, south, east or west depending on the convenience of the house owner. The village looks like a shapeless but massive cluster of houses with a circuitous or irregular foot tracts. The houses consist of two rooms, one for living or sleeping, the other small one for kitchen and store. The houses are thatched, split bamboo plastered with mud as wall. The houses are not provided with windows, hence the interior of the house is dark even during day time. The houses are plastered with cowdung occasionally, hence the houses are not clean. The cowdung, garbage, pigs dropping, etc. are thrown here and there giving a dirty look. The houses and the nearby areas are unclean and very unhealthy.

*Personal hygiene*—The Bondos do not take bath regularly. When asked by the Investigators, all the 210 families replied that they do not take bath daily. Only 15 out of 210 use soap. The customary clothes are not generally cleaned or changed till it is torn. However, those youngmen/women who have changed their customary dress to pant and shirt, lungi or sari do change them and clean them occasionally as ascertained at Mudulipada, Dumuripada and Podeiguda villages.

A part of the front verandah is used for keeping goats or fowls. In some households as seen by me at Dumuripada, the fowls during night time stay in the living room of the household.

All the households, 210 told that they do not know windows are necessary in the house for cross ventilation, good light and all of them said that there is no separate shed for cows and other domestic animals.

Ablution after defecation is generally not done. If water is available nearby then they, wash, otherwise not. This being a very delicate question, was purposefully omitted from the family schedule. However, during my personal visit to these area, through an interpreter I got the answer referred to in this Para. As the interview was limited to 5 to 6 people, it is not possible to quote the percentage in this regard.

*Drinking water*—For the area there are 3 sources for drinking water—

- (1) Hill stream
- (2) Sanitary well
- (3) Tube-well

The Bondos generally depend on the hill stream for their drinking water. The villages are situated on the top of hill or slope of the hill. In this locality digging of wells is a difficult proposition. In the table land or near the foot hill wells have been dug, but, the Bondos do not use them, for want of bucket or rope. Hence, all the sanitary wells provided do not serve any purpose, benefit accruing is nil. Henceforth all the wells dug or already in existence be made real sanitary type with a handpump fixed. Digging of tube-wells are undertaken through several agencies. It has become popular in the area and acceptable to the Bondos. But the difficulty is that the rig cannot reach the proper site. If the tube-well is dug somewhere else, the Bondo women may not use them. All the tube-wells be dug in the village in consultation with the villagers. Till then hill stream is the only source of water-supply. From the survey it is clear that 206 families depend on hill stream. A well is provided at Dumuripada. Only 29 families draw water out of 111 families in the village, that too not regularly. Tube-wells are available in the villages of Podeiguda and Bondapada sample villages. The villagers of these two villages use tube-well if it is functioning failing which hill stream is the source. Tube-wells frequently get out of order. It is suggested that when tube-wells are installed one person from the village be trained for repair of minor defects and some spares be available with him. This can be done in consultation with the P. H. D. officials.

**General Health Profile**—General health of the Bondos, in their physical development or physique is on lesser side than their counterparts, like Oriyas and Harijan living in Khairput Block.

The ferocity attributed to them by various authors on "Bondo" is not due to their general physique but to their being armed with bow and arrow always and shoot at anybody without thinking of the consequences and also to their criminal propensity. During the interview by the staff of the THRTI, a specific question was asked why they move with bows and arrows always?

Fear of wild animal	..	34
To defend himself from enemies	..	108
As per the customs	..	57
It provides courage and strength	..	12

50 % of the people interviewed stated to defend themselves from enemies. Any one can become an enemy at any moment with slightest provocation or when his feelings are wounded which in other people can pass off unnoticed.

In general the calorie intake is adequate but lacks quality. The women and children generally suffer from protein-calorie deficiency. The observation is given below :—

Sl. No.	Name of the village	No. of children examined	No. suffering from protein-calorie deficiency-moderate to severe	No. of children with enlarged spleen
(1)	(2)	(3)	(4)	(5)
1	Dumuripada	.. 30	6	10
2	Andrahal	.. 35	9	15

From the above it is clear that 20 to 25 % of the children are suffering from moderate to severe malnutrition. I also saw 5 nursing mothers at Dumuripada and 4 nursing mothers at Andrahal, all of them have infants on their neck on the cloth bag generally used by the working tribal women. All these women show protein-calorie deficiency and their babies. It is suggested here that all infants be provided with a tinned milk powder for a period of 1 year from birth. There are 5,800 persons in the B. D. A. area: Average birth rate being 30 in Orissa, about 150 to 170 babies will be born in the area requiring milk powder as a supplementary food. We can provide 4 tins per baby per year. Each tin of 1 Kg. costs about Rs. 75.00.

Total amount required—

$$\text{Rs. } 75 \times 4 \times 170 = \text{Rs. } 51,000$$

The amount spent is not a waste but gain for the nation, as the babies are the future of our nation.

**Health Problems**—1. Malaria : This area is hyper endemic for malaria. Data available from the P. H. C., Khairput do not give any indication about the incidence of malaria

and also not from the data of the Ayurvedic dispensary of Mudulipada. Data on malaria from P. H. C., Khairput is given below:

Mudulipada Sector

Year	Blood slide examined	Found positive
(1)	(2)	(3)
1988-89	185	18
1989-90	271	25
1990-91	98	11
Andrahal Sector		
1988-89	211	8
1989-90	162	14
1990-91	72	8

I saw personally about 33 to 43% of children have enlarged spleen (table-IV). This is possible due to malaria or sickle cell anaemia to which the tribal people are prone. From my personal experience as former C. D. M. O., Koraput, I can say that sickle cell anaemia is not so common as found in the district of Phulbani. However, cases of sickle cell anaemia are found in the district. The magnitude of the problem has not been studied. The study undertaken by the Vector Control Research Centre at Jeypore, run by ICMR in its annual report (1987-88) indicated that malaria is a major health problem among the Bondos. The major breeding habitats of the vectors are streams, rivulets and paddy growing areas by terracing technique. The study undertaken by random survey indicated that 56.86 male's and 53.08 female's blood slides are positive against malarial parasite. In other words roughly 50% of the people do suffer from malaria either clinical or sub-clinical (afebrile) control measure adopted are (1) Surveillance and chemotherapy, (2) Vector Control by residual insecticidal spray.

The spray of D. D. T. or B. H. C. is not effective in tribal region due to various reasons. The only way to control malaria nuisance is to intensify surveillance, both active and passive and presumptive treatment of all fever cases. As the staff posted at sub-centre at Mudulipada and Andrahal are inadequate, additional 3 sectors or sub-centres to be run by a male and female health workers are necessary or suggested at (1) Bandiguda, (2) Rameliguda, (3) Tulagurum as cluster units to look after the surrounding villages.

Financial requirements :

(1) Establishment of 3 sub-centres @ Rs. 36,000 per each	..	Rs. 1,08,000
(2) Supply of medicine @ Rs. 3,000 per centre	..	Rs. 9,000
		-----
Total	..	Rs. 1,17,000
		-----

(3) (a) Other problems like upper respiratory tract infection, skin diseases, leprosy and T. B. can be looked after by the lying in department.

(b) Diarrhoeal disorders—the action to be taken in same line as reported under Kondhs.

*Nutrition*—The staple food for the Bondo is gruel prepared from ragi, occasionally rice. Along with it, they use boiled green leaves collected from the forest or vegetables grown in their kitchen garden. In this context, the data available during the interview by the Investigators are—

- (1) all the 210 families stated that they use meat, fish, dried fish occasionally,
- (2) on the day of visit—
  - (a) 21 families had vegetable curry,
  - (b) 44 families had curry during the last one week once,
  - (c) 146 families had curry once during the last one month.

The authenticity of the statement being doubtful, it can be summarised that 10 to 12 per cent of the families use vegetable daily either grown or purchased. The inadequate food stuff produced, non-availability of sufficient edibles from the forest lead to Bondos except few well-to-do Bondos to receive inadequate food, qualitatively and quantitatively and the basic calorie requirement is hardly met.

The Agriculture Department can persuade the tribes to produce pulses and vegetable in their kitchen garden and padar land to meet their daily requirement.

*Maternal, child health and Immunisation*—424 live births and 29 still births are reported from the 210 families interviewed. All the deliveries are conducted at home with help of local experienced ladies or mother-in-laws. There are 2 sub-centres existing in the area. The female health worker posts are lying vacant or if posted the female workers stay at Khairput. It can be presumed that ante-natal, intra-natal or post-natal care in the area by qualified persons are nil. However, while I was at Andrahal, Shrimati Bibhasini Sing, Anganwadi worker informed me 12 pregnant ladies have been given 1st dose of T. T. We have therefore, achieved a satisfactory progress in breaking the existing taboos and customary habits among the Bondo women. Efforts be made to cover up all pregnant cases in the area with frequent and regular ante-natal and post-natal visit. The female health workers must stay in their respective sub-centres. As there are no Sub-Centre buildings either at Mudulipada or Andrahal, the Project Leader may take the initiative of providing Sub-Centre buildings from the project fund.

Financial requirement for the construction of 2 Sub-Centre buildings.

Rs. 2,00,000

Many of the children to the tune of 25 per cent are suffering from malnutrition. The I. C. D. S. Programme is going on. The Project Officer, I. C. D. S. and the Project Leader, B. D. A. should monitor and evaluate the feeding programme. The Medical Officer, Khairput be asked for medical cover of the beneficiaries in the programme. Immunisation programme is not satisfactory. However, the health staff have been able to make a break through in the customs of tribal. It can be geared up if the male and female staff stay at their place of posting and immunisation camps are done in villages with the help of Anganwadi workers, informal teachers, community leaders and village elders. It mostly depend on the managerial skill and leadership of the P. H. C., Medical Officer.

*Health Education*—In India, there are three distinct levels of life, (1) life of our agricultural workers and those of tribal areas which make up the bulk of our population, (2) the urban and peri-urban poor and middle class, (3) the urban elite.

Making of plans and policies without due consideration to the typical social structure would lead to unsuccessful implementation. The crux of the problem is how to reach the people to effect a wide spread social change? Social justice demands rational response from the receivers. In a religion saturated community, it is the pattern set by ancestors and it dominate the daily life and thought. There is little room for innovation or change. A change in their attitude can be made slowly by sitting with them, listening to their deliberation, learning from their ideas and experience, discussing with them and using the technical knowledge in the last to get the Kondhs involved in the programme from the beginning. This approach is sustainable, long-lasting and fruitful.

*Material and Methods—*

- (a) Use of audio-visual aid-project of documentaries on Health,  
 (b) Performing small drama in Bondo language on various diseases and development programme,  
 (c) Composing songs in their language and making the boys and girls to learn it and sing them in social gatherings of Bondo,  
 (d) Exhibition on health matters with help of life-size clay models during festivals. This approach has been very successful in the past in Puri district during Car Festival from 1981-82 to 1983-84,

*(e) Organising training course for—*

- (i) Village Elders .. 1 day  
 20 persons, daily expenses Rs. 10 each per person comes to Rs. 200 per camp.  
 10 camps with the expenses of Rs. 2,000.

*(ii) Mothers :*

They can be trained on mother craft, child care use of O. R. S.

10 mothers	..	One day
Expenses	—	Rs. 100

Ten such camps with an expenses of Rs. 1,000.

- (f) Organising debate/essay competition in High School and M. E. School on matter of health, like personal hygiene, malaria, skin disease, immunisation, etc., prizes to be awarded.

*Expenditure involved—*

Non-recurring	..	Rs. 30,000
Recurring	..	Rs. 7,000

*Suggestions with Financial involvement—*

- (1) Ayurvedic dispensary at Mudulipada needs to be converted to Additional P. H. C. The C. D. M. O., Koraput has informed me during my visit to Koraput as Project Consultant, that one Additional P. H. C. has been sanctioned by Health Department for Mudulipada. All the expenses are to be borne by the said Department. Additional P. H. C. as per norm has 4 beds without provision of diet. The Micro project can provide the diet money along with a cook.

*Amount required:*

Pay of Cook	..	Rs. 15,000
Diet charge 4 beds at the rate of Rs. 5 per patient per day.	Rs.	7,300

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Total	..	Rs. 22,300
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- (2) Construction of Sub-Centre building, Estimated cost Rs. 2,00,000

(3) Creation of 3 posts of Male Health Workers at the rate of Rs. 1,500 per month  $1500 \times 12 \times 3$ . Rs. 54,000

3 posts of Female Health Workers as above .. Rs. 54,000

Construction of 3 low cost building: one room, kitchen and latrine in the Barracks at the rate of Rs. 50,000 each. Rs. 1,50,000

(4) Control of malaria—

(a) active and passive surveillance intensified,

(b) Ayurvedic dispensary at Mudulipada be provided with blood slide and Chloroquin tablet for passive surveillance.

(c) The defunct D. D. C. be—

(i) re-activated,

(ii) new D. D. C. in every school, Anganwadi centre, all non-formal teachers be asked to open D. D. C.,

(iii) in bigger villages one villager may be requested to start the D. D. C.,

(iv) there are voluntary organisations working in the area. The N. G. O. be requested for the D. D. C.,

(v) this requires regular visit and timely replenishment of drug by the P. H. C.

No extra fund is necessary. In case of shortage of Chloroquine supply, the project leader may provide financial help for the purpose. Hence Rs. 10,000 can be kept as reserve for exigencies. Rs. 10,000

(5) Respiratory infection is common among children

(I) high altitude

Excessive cold

Exposure of body to nudity

The health worker

Female be provided with Oral antibiotic and liquid long acting sulfa as a special measure outside the norm prescribed by Government of India. Rs. 6,000

*Financial Involvements—Yearwise—*

1st Year (a) Construction of Sub-Centre buildings at Mudulipada and Andraghal. Rs. 2,00,000

(b) Health, Education materials. .. Rs. 37,000

(c) Creation of one post of Male Health Worker and one post of Female Health Worker. Rs. 36,000

(d) Provision of tinned milk to 50 children as trial Rs. 15,000

Total .. Rs. 2,88,000

2nd Year (a) Continuation of posts created	..	Rs. 36,000
(1) Construction of low cost houses, Barrack type-cluster approach—3 Nos.		Rs. 1,50,000
(2) Creation of 2 male, 2 female workers	..	Rs. 72,000
(3) Provision of tinned milk for 170 children	..	Rs. 51,000
(4) Health Education	..	Rs. 7,000
		<hr/>
Total	..	Rs. 3,16,000
		<hr/>
3rd Year (1) Continuation of milk supply	..	Rs. 51,000
(2) Health Education	..	Rs. 7,000
(3) Augmentation of Additional P. H. C.	..	Rs. 22,300
(4) Continuation of M. & F. Health Workers	..	Rs. 1,08,000
		<hr/>
Total	..	Rs. 1,88,300
		<hr/>
4th Year (1) Health Education	..	Rs. 7,000
(2) Continuation of milk supply	..	Rs. 51,000
(3) Continuation of M. & F. Health Workers	..	Rs. 1,08,000
(4) Augmentation of Additional P. H. C.	..	Rs. 22,300
(6) Lump sum provision to complete all works	..	Rs. 2,00,000
		<hr/>
Total	..	Rs. 3,88,300
		<hr/>
Grand Total	..	Rs. 11,80,600
		<hr/>

*Conclusion*—The area is under-developed. The tribe is primitive. Literacy rate is about 2 per cent. People are generally apathetic and are under the spell of alcoholism highly. The people are individualistic with criminal propensity. They like to sit idle and gossip. But they have to be brought to the main stream and integrated but preserving their identity as a tribe. Task is not easy.

The Micro project so far has given emphasis on individual beneficiary. The Bondo society is based on community group or clan solidarity. Micro project now can give emphasis on development programme to cover the entire population. The village council has the background of experience to—

- (1) discuss what aspect of the projects are relevant to their situation;
- (2) talk it out fully with community;
- (3) act as a bridge, if they decide on its implementation.



Community based programme can make an impact if the officials sit with them, listen to their deliberation, learn from their ideas and experience, discuss with them and use the technical expertise to get the Bondos involved from the beginning for sustainable development. Pandit Jawaharlal Nehru once said "You may talk here day after day about development programmes in regard to schools and other matters, but you will fail completely if you do not touch the core of the problem. The problem is to understand the tribal people, their culture and ways of living and make them understand us and create a bond of affection and understanding between us". Let us act accordingly for a better future of our tribal brethren, the Bondos.

*Electricity*—Even after the passage of 44 years of independence not a single Bondo village has been so far electrified. Bondo have only the experience of solar light. As a result, lift irrigation which could give some economical input to Bondo has failed. This is quite surprising because in States like Haryana, Punjab and U. P. there are no villages left un electrified. Whereas in Orissa we do not feel concerned to such state of affairs. Now in the modern parameter electricity consumption counts to be the barometer of advancement. It is proverbial that rather it is better than never that during March, 1991 Mudulpada, the Headquarters of Bondo Development Agency got the proud privilege of getting benefit of electricity supply.

By lift irrigation process many uplands can come under irrigation and as a result sustainable growth can be contemplated, soil erosion can be checked by proper planning and its monitoring (See chapter under soil conservation). Horticulture programme can be effectively chalked out in this area which can change the face of this area (see chapter under Horticulture). Agriculture pattern can undergo a sea change by adopting multi-cropping system (See chapter under Agriculture programme).

Communication and health are pre-requisites for any developmental programme. Communication and Education are twin sisters. One is hardware and the other one is software—one is physical communication and the other is mental communication and both are concerned to healthy human growth. In absence of one, the other cannot have the full prosperous growth in future.

*Communication*—One of the vital reasons for the existing backwardness of the area is the lack of adequate communication facilities. Recently in the I. T. D. A. meeting held by the P. A. I. T. D. T. at Malkangiri, all the members present there expressed concern on the inadequate communication programme in the Bondo area during the past 16 years. For this, since inception of B. D. A. all the programmes those were implemented brought less result.

The Bondo even after the long years of independence remains isolated due to lack of communication facilities. Bondos are forced to remain economically backward being exploited by money-lenders. The product they produce are not well marketed. Lack of communication resulted ill transportation facilities. For any transaction, one is to negotiate the distance on foot. Even in the case of emergency to reach any village or to go to dispensary, one will go on foot. Sometimes all these cause disaster to individual as well as to the area at large. This area being the boarder area of Andhra and Orissa, outsiders take advantage of the condition of the people and the inaccessibility in this area.

We are told during our visit to Andrahal on the 29th March 1991 and to the Shri Sadhu Siga's model farm area situated on the other side of the Sanamali Parbat range of 1032 meter high from the mean sea level that sometimes the Nuxalites are taking in this area. The police force cannot approach these places as there are no road. bus communication remains as a day dream.

## Present status of Arterial road recorded on the 29th March 1991

Sl. No.	Name of the road	Distance from Mudulipada B. D. A. Hqrs. (in Kms. )	Type of road	Present position	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
1	Mudulipada-Khairput Road.	14	All-weather black topped.	3/4 completed, 1/4th was under construction.	The total estimated amount has been deposited with Rural Road Division.
2	Mudulipada-Andrahal Road.	12	Jeepable ..	Base formation has been framed.	Estimate has been framed by J. E. at Khairput.
3	Mudulipada-Patraput via Bondopada-Biseiguda.	14	Footpath ..	Footpath ..	Ditto
4	Mudulipada to Dumripada and Tulagurum via Berhabel.	5.6	Jeepable ..	Base formation has been framed.	Ditto
5	Mudulipada to Tulagurum, Sonuguda and Goiguda.	10	Footpath ..	Footpath ..	Estimate has been framed.
6	Mudulipada-Podeiguda-Kirsanipada-Gokharpada-Balidanger, Pindajangar-Biseiguda.	16	Do. ..	Fair-weather communication exists.	Ditto
7	Pindajangar-Kichapada-Jagaboda-Bhalipadar.	8	Do. ..	Ditto ..	Already work done for 14 Kms. road.
8	Patraput-Khalguda-Sindhiguda-Bhalipadar.	8	Do. ..	Ditto ..	Balance 91-6-14=77.6 Kms. road to be constructed.
9	Mudulipada-Khalguda Road to Baunsapada-Bandhaguda-Chalanpada.	4	Do. ..	Ditto	
Total		..	91.6		

All the above roads may be included under classification village road (C. V. R.) standard and black topped. It is now needed to have a 2nd approach to Mudulipada from 11 Kms. for Gobindapali towards Khairput to which should be of the M. D. R. standard. Length of the road will be about 12Kms. ghat road (c). In the 2nd phase a further access will be necessary approach to Mudulipada from Khairput-Balmela Road at Muniguda to Mudulipada. The length may be about 18Kms.

*Interior village road*—There are 32 villages and the list of names of the villages is enclosed in the annexure.

There is no defined village road existing in the villages and as a result the villages have grown halfhazardly. Hence all the villages are taken as slum growth. Now provision of such road will be necessary which will form village road standard and total length that will be necessary may be 6 Kms. (B).

Hence total cost will be—

(A) Category=78 Kms. @ 4 lakhs comes to 3.12 crores

(B) o. 50 Lakh/Km. 16 Kms.—8 lakhs

(C) 12 X 5=60 lakhs

Total A+B+C=380 lakh rupees

Say 4 crores involvement.

This may be phased out in four years ( In lakhs )

Sl. No.	1991-92	1992-93	1993-94	1994-95
1. Expenditure in lakh	50	200	100	50
2. Mandays created	25,000	1,00,000	50,000	25,000

The priority of taking construction of different roads may be fixed by discussion with E. G. R. D. and Project Leader and different authorities.

#### BONDO (B. D. A.)

Input on communication sector over different years

( Rs. in lakh )

year	Communicaton	DRDA	NREP	ITDA
1976-77	Nil	Nil	Nil	Nil
1977-78	6.21	Nil	Nil	Nil
1978-79	Nil	Nil	Nil	Nil
1979-80	0.50	Nil	Nil	Nil
1980-81	Nil	Nil	Nil	Nil
1981-82	0.305	Nil	0.15	Nil
1982-83	Nil	Nil	Nil	Nil
1983-84	Nil	Nil	0.13	Nil
1984-85	0.34	Nil	Nil	Nil
1985-86	Nil	Nil	Nil	Nil

year	Communication	DRDA	NREP	ITDA
1986-87	0.47	Nil	Nil	Nil
1987-88	1.95	Nil	1.23	Nil
1988-89	Nil	4.00	0.70	Nil
1989-90	Nil	Nil	0.55	0.41
1990-91	2.00	Nil	1.90	Nil
Total	11.775	4.00	4.66	0.41

Grand total=20,995, say 21 lakhs

Out of total outlay over the 15 years it comes to 102 lakhs. From the above it is found that during these years the investment in this sector is very disheartening with this snail speed one cannot venture to attain the goal. Hence the present policy needs revision. The above mentioned arterial roads will connect various interior villages with project headquarters, police station, health centre and block. As a result sustainable growth may be possible as well as there will be quick dissemination of information about developmental project and result of demonstration among them, easy travel by Government Officer, easy movement by the inhabitants, effective supervision of developmental activities, taking of immediate measure in case of any emergency demand. There will also be easy transportation of various inputs to the market, effective distribution of essential commodities to check price inflation. Procurement of surplus agricultural, forest and industrial products will be easier.

*Suggestion*—All the infrastructure development work concerned to the Engineering branch of this area may be taken up by the Government Department from their own resources and budget, on priority programme. Where the specification and quality of work can be adhered to by the Department and that to with supervision and control by the Department Officer. Progress can be achieved within the time frame. Nodal Officer may be the Project Leader, B. D. A. who should monitor the work of all the sections meant for Bondo area.

In case of resource constrain an integrated project may be framed and world bank assistance or assistance from any other Finance Institute outside may be sought for.

It is worth mentioning here that the present Project Leader is doing marvelous work with all the constrain. He should be given more power, equipped with man and machine which will hasten up the work programme and complete it within time frame.

*Engineering personnel*—To look after all the road works during the period, one E. E. with two A. Es. may be posted with their headquarters at Khairput and Mudulipada, respectively to control the work and complete the same within the time frame.

*Water-supply and Sanitary programme (Preventive Health Programme)*—All the time the saying holds good that prevention is better than cure. Date back to 400 years England's economy was not better. The people of England were suffering from all kinds of diseases beginning from Gastro Enteritis to Beriberi, the highly epidemic disease. They, the English people, adopted the method of preventive one. They checked the cause for the disease. They used to drink portable water, kept their environment clean, made sewerage system effective and as a result controlled all types of gastro diseases and the communicable disease.

Now in India particularly in Bondo area we are to adopt more preventive one. The Bondos mostly suffer from the following diseases in order of the incidence, (a) Malaria, (b) Gastritis and hepatitis, (c) Br. Asthma, (d) Skin disease, (e) Muscular pain and Traumatic. In all the diseases as mentioned, the causative one is either unsafe drinking water or unhealthy living and

Casualty unhealthy Lack of knowledge of personal hygiene. If all these conditions are taken care of and hepatitis, (c) Br. Asthma, (d) Skin disease, (e) Muscular pain and traumatic then the incidence will be reduced. In order to achieve the same portable water is to be supplied by constructing deep tube-well which can only be constructed by D.T.H. rigs. Since the villages are situated at different hill ranges where there is no road, the movement of the rig is impossible. By now only there are nine (9) numbers of tube-wells done by the P. H. E. organisation. These tube-wells have been constructed out of the fund deposited by I. T. D. A. for 11 nos. It was informed by the P. H. E. organisation that in the programme for the year 1991-92 there is provision of 13 nos. of tube-wells more. With the last year's back log the programme for this year will be 22 nos. Taking the prospective population Bondo population will be reaching 6,543 by 1991 and 7,263 by 2001. Considering 150 persons for one tube-well, total no. of tube-wells required is 30-(A). Here we are also to consider pipe water supply to big villages or cluster of villages having 4000 persons. For schools and Institutes the requirement is 10 nos. (B) of tube-wells.

(A)+(B)=40 nos.

Cost of each T/W with platform will be @ Rs. 50,000 each tube-well  $40 \times 50,000 = 20$  lakhs (A)

Since the habitats are located in high terrains the rig may not approach all places. In such cases, the pipe water supply from the big diameter T/W in the nearby place may be chosen and the water may be pumped and distributed with network of distribution pipe.

It is prudent to design W/S to big villages and clustered villages, like Mudulipada, Dantipada, Podeiguda, Seleiguda and Bandhuguda. The present population of these places by 2000 or 2001 will be about 2,280. Mudulipada is the headquarters of Mudulipada Gram Panchayat.

Second group will be Andrahal, Badabel and Dumuripada. The population of this Grampanchayat will be 1,500 and prospective population will be 1,700. The cost of the two piped W/S scheme for  $2280 + 1700 = 3980$  say 4000 population will be @ Rs. 500,  $4000 \times 500 = 20,00,000$  (twenty lakhs).

Total (A)+(B)=Rs. 40,00,000

**Sanitary Latrine Programme**—Under Government of India scheme the safety type latrine is provided to S./T. & S./C. area and 95% of the cost is borne by the Government of India and State Government. The balance 5% may be borne by the B. D. A. and with the idea that all the families of the Bondo area may be provided with such latrine. The design part is with P. H. E. O. in the C. E. P. H. office. The cost of such latrine is Rs. 1,500 and there are 1,700 families. As such cost will be Rs. 25,00,000. So the total outlay under W/S and sanitary programme will be Rs. 65,00,000 which will be distributed within the span of four years.

Rupees in lakhs

Serial No.		1991-92	1992-93	1993-94	1994-95
(1)	(2)	(3)	(4)	(5)	(6)
1	Expenditure schedule Rupees in lakhs.	20	40	25	20
2	Mandays created by the programme.	9,600	19,200	12,000	9,600

A comparative table will show the meagre allotment made over the last 15 years span to achieve the important goal.

Input on water-supply of sanitation sector over 15 years since creation of B. D. A. in terms of rupees

Serial No.	Year	Agencies			
		B. D. A.	D. R. D. A.	N. R. E. P.	I. T. D. A.
(1)	(2)	(3)	(4)	(5)	(6)
1	1976-77	Nil	Nil	Nil	Nil
2	1977-78	Nil	Nil	Nil	Nil
3	1978-79	Nil	Nil	Nil	Nil
4	1979-80	9,500	Nil	Nil	Nil
5	1980-81	17,718	Nil	Nil	Nil
6	1981-82	Nil	Nil	Nil	Nil
7	1982-83	31,120	Nil	Nil	Nil
8	1983-84	16,684	Nil	Nil	Nil
9	1984-85	Nil	Nil	Nil	Nil
10	1985-86	Nil	Nil	Nil	Nil
11	1986-87	Nil	Nil	Nil	Nil
12	1987-88	Nil	Nil	Nil	Nil
13	1988-89	Nil	Nil	50,000	4,01,000
14	1989-90	Nil	Nil	Nil	Nil
15	1990-91	60,000	Nil	Nil	Nil
Total		1,35,022	Nil	50,000	4,01,000
					=Rs. 5,86,022

STATEMENT SHOWING THE TOTAL EXPENDITURE IN B. D. A.

Vis-a-Vis Communication, Water-supply & Sanitation Programme

Serial No.	Sector	Expenditure (Fig. in lakhs)	Total Expenditure (in lakhs)	% of expenditure to total
(1)	(2)	(3)	(4)	(5)
1	Communication ..	21	102.5	20.48
2	Water-supply & Sanitation.	5.8	102.5	5.65

From the figures appeared in the preceding paras., it is revealed that the allotment received and achievement required are far apart.

*Suggestion* : The P. H. E. organisation may post one Assistant Engineer specifically to take this programme with this time frame with its headquarters at Mudulipada.

*Sari Programme*: This comes under health programme and was indicated in the meeting held in THRTI under the Chairmanship of Commissioner-cum-Secretary to H. & T. W. Department. Where a comparative study has been put up as regards longevity of women from that of men. Throughout the world the survey report of W.H.O. shows that women live more than that of men for the reason they have covered body. But this is contrast to Bondo. Since the women remain half naked they remain disease prone. This view was very much appreciated by the Commissioner as well as Collector, Koraput. Commissioner recommended that Sari programme in the Bondo area should be taken up on priority basis.

For all these days the water-supply and sanitation programme in the area has received a low priority even though the water-supply and sanitation decade is going to be closed in the year 1991.

*Electrification* : Coming down to the cost factor, the total expenditure in this sector having 75 kilometers of line drawal, erection of electric poles, installation of transformer will be Rs. 80,00,000/ (Eight lakh rupees). To take up this programme the electricity board may post one A.E. with necessary J.E. to take up the work within the time period of 4 years starting from 1991-92 to 1994-95. This expenditure may be met from the departmental expenditure.

Before closing this chapter, any Engineer will be tempted to discuss on the Bondo House. The house requires a change. House becomes the centre of all activities of human life from birth to death. This becomes a very sensitive issue. Similar to town planning a village planning unit should be created under the Government for village planning and its architecture. There should be legislation as regards the size of the house and its ventilation. This part of it may be taken as a preventive health programme. The materials that are used in the building requires our thought. Mud brick in this area may be introduced as an alternative material.

*Training programme* : Training programme for mason may be imparted. Women may be trained in this line since during visit it was observed that Bondo women are more laborious and have got learning to any skilled work.

Besides this regular training programme to the personnel those who are working in the developmental programme of Bondo area are to be separately organised.

*Seminar and Workshop* : Regular seminar and workshops are required to be conducted at different Micro Project areas and the Officers of other Micro Project areas should attend such programme to have interaction with other Micro Project in order to created sound background.

#### 4-9. Education

Education has universally been accepted as the most potent instrument of socio-economic transformation in a community. In the context of acceptance of 'social justice' as the national objective, the formulation of a clear-cut policy for tribal development and the place of education therein, assumes a new significance. The object of tribal development is to make the socio-economic transformation smooth, so that the tribal communities can maintain their identity avoiding social disintegration and become partner in the wider national life. The basic task of tribal development, therefore, is to bridge the gap between the tribal and the non-tribal communities.

It is an admitted fact that due to lack of communication and contact some primitive tribes like the Bondos have remained segregated from the rest of the world. They are not aware of the processes of the modern organised communities and the socio-economic systems. The exploitative processes are well-entrenched in such communities which get reinforced by the forces generated by the developmental efforts. Elimination of exploitation is one of the important tasks in the tribal areas. All help from outside for providing protection to the tribals from exploitation have proved unsatisfactory. Therefore, building up an inner strength of the tribal communities for effectively dealing with other groups and forces on terms of equality assumes the highest priority. Education alone can build up an inner strength which is considered as a crucial input into the system of tribal life.

Successful implementation of the development programmes in the tribal areas presupposes thorough understanding and appreciation of the details of the schemes, their objectives, modes and methods of implementation and benefits accruing therefrom. The powers of understanding of the programmes can be given by education. Education gives powers to individuals to compare, discriminate, appreciate the relative merits and demerits of schemes. Education should have been utilized as a key to the introduction of development programmes and as such special care should have been taken to educate the tribal communities. As a matter of fact adequate efforts have not been made to bring the people of the Bondo community to the fold of education. The following sub-sectionwise discussions would reveal that no sincerity of purpose has been exhibited in implementing the education programmes in the Hill-Bondo village.

*Adult Education:*—No adult education programme has ever been implemented in the Hill-Bondo areas. Since Hill-Bondos are a primitive tribe and literacy among them is extremely low, they should have been the first target group for adult education under an appropriate prioritization programme. The Bondo Development Project started to operate with effect from 1977-78. If an adult education programme under R. F. L. P. (Rural Functional Literacy Programme) or SAEP (State Adult Education Programme) could start to operate from 1978, if not earlier, it would have generated awareness among the Hill-Bondos about their problems and a lot of improvements could have been achieved.

Introduction of an adult education programme even a decade ago could not only have brought a lot of developments in their economic life but motivated them for education of their children. Unfortunately no thought has gone into the problem of adult education of the Bondo-highlanders.

The adult education branch of the Directorate of School Education, while determining priorities for adult education should have identified the primitive tribes on the first place and prepared regular long-acting programmes for them till the entire community is covered and made literate. The area-based project approach now followed by the Directorate of Adult Education, Orissa is not considered suitable for the primitive tribes. Under the project approach 300 centres are supposed to run for 10 months only and then shifted to some other area. But when an entire community is illiterate, efforts should be made to completely liquidate illiteracy without any reference to the time limit.

At the advent of creation of a separate Directorate for Adult Education it was naturally expected that a detailed survey of the literacy position of different areas and segments of the population would be made to identify target groups and preparation of priority programmes. Unfortunately the same approach was continued without any change in the policy. Those who waited to see some spectacular changes in the approach and achievements in adult education sector had to be disappointed. It is no wonder that the entire Bondo community has been left out and no programme has been designed and operated for them under adult education during the post-independence period.

*Literacy Position:*—As per 1990 survey the total population of Hill-Bondos is 6355 and the literacy is 2.75 per cent. Among male persons it is 5.60 per cent and among females 0.69 per cent. The extremely poor literacy position indicates that no educative effort has succeeded in the entire Bondo project area in the past. As literacy is an indicator of success of adult and elementary education, the failure of the education system in the Bondo hills is evident.

No effort has been made in the past to collect information about the literacy position of the Hill Bondo and the lower Bondos (those living in the plains of Khairput block) separately. Information is available about the literacy position of the Bondo tribe in general which includes both the Hill and the plain Bondos. The plain Bondos who spread over the plains of Khairput block are comparatively more advanced than the Hill-Bondos. They have adopted some of the improved modes and styles of non-tribals living including education. Yet, their literacy position was not satisfactory upto 1981 till the census operations were undertaken. A comparative picture would reveal that as per 1961 census the literacy percentage among the Bondos (Both plain and Hill Bondos) was 2.1 which was reduced to 1.4 within a period of 10 years i. e. by 1971. According to 1981 census the literacy percentage rose to 3.6. The present literacy position of the Hill-Bondos only is 3.46. When compared to the State average literacy of 40.97 the position of the Hill Bondos presents a disappointing picture.

The above analysis would prove that the policy adopted by Government in respect of adult education is adequate as it does not attach due importance to the primitive and other backward tribals. It appears that the primitive tribes have been taken at par with other tribes



and non-tribals. The primitive tribes which are extremely educationally backward need special attention and care. The Bondo tribe should have been identified as special target groups for adult education. Specially designed primers suitable to the culture and customs of the Bondos should have been provided to them for facilitating their literacy programme. Action-Plan may be referred to for suggestions.

*Pre-School Education*—It has been observed that formal education could not make appreciable headway in tribal areas particularly for its rigidity and formality. When direct approach with formal education could not make the desired impact some school readiness programme could be introduced for motivating the parents and the children.

A school readiness programme is composed of play, music, dance, hearing stories looking at picture books, action pictures, stories in pictures etc. which are likely to attract children. When the school readiness programme is coupled with the feeding scheme it is likely to fascinate children every day. In the process, children are oriented with the school system, particularly going to pre-school centre in time, staying there sometime and participating in the activities conducted by the pre-school teacher. The pre-school education prepares the ground for a successful schooling programme. At a later stage of the pre-school education programme recognition of a few alphabets and counting up to 100 could be introduced with facility with the help of pictures, models and other learning materials.

The Anganwadis attempt to combine the feeding and pre-school programmes under the Integrated Child Development Scheme (I. C. D. S.). There are six Anganwadis in the following villages of the Bondo hills:—

1. Bondopada
2. Dumuripada
3. Mudulipada
4. Andrahal
5. Badabel
6. Kirsanipada

The Anganwadis undertake activities in the following broad areas, namely:—

- (a) Supplementary nutrition
- (b) Health check-up
- (c) Immunisation
- (d) Pre-school education
- (e) Referral services

Under the pre-school education programme, Anganwadi workers utilise play materials, action songs and counting beads for educational purposes. No reader is introduced at the pre-school stages. Thus pictures which are very attractive and effective media for education of the beginners is not utilised. No pre-school programme can afford to neglect pictures which have an universal language and appeal for everyone irrespective of age, education and culture. Children, in particular, are more interested in action pictures, story pictures and pictures in multi-colours.

The Anganwadis of the Bondo project area are working well. The response of the Bondo children and women to the Anganwadi activities is good. But the education component is extremely weak. It is not only true of the Anganwadis of the Bondo hills, but also of all the Anganwadis of the State. In theory the pre-school programme is enunciated to be an integral part of the Anganwadis but in practice it is very weak and almost neglected, perhaps the Anganwadi workers feel that it is one of the programmes undertaken by them or they don't find adequate time to conduct the educational activities. Whatever be the cause, education component has to be strengthened. Suggestions are given in the Action-Plan for enriching the education component of the Anganwadis which may be referred to.

*Elementary Education*—Universalization of elementary education is a Constitutional mandate. Article 45 under Directive Principles of State Policy in the Constitution states to achieve the targets of universalization of elementary education for the children in the age-group of 6—14 years within 10 years of the commencement of the Constitution (i. e. by 1960). Thirty years have elapsed beyond the target year yet the objectives could not be achieved. The reasons for non-achievement of the objective chiefly are physical and financial constraints. The mountainous terrain of the tribal belts posed problems in the past for extension of educational facilities into such regions. In spite of the physical constraints, educational facilities have been created in many tribal areas where people are responsive and enthusiastic to receive education. But such efforts have not been successful in the Bondo hills where the Bondo people live.

The Bondos have been identified as one of the primitive tribes on the basis of their low level of literacy and pre-agricultural level of technology adopted by them. They live in complete geographical isolation on the slopes of the Bendo hill which are hardly communicated with the rest of the world. The spirit of independence and the sense of superiority coupled with their aggressive tendencies have made them resistant to all developmental programmes including education.

The area inhabited by the Hill-Bondos is inaccessible. They have hardly any contact with the world outside. They speak 'Remo' which belongs to the South Mundari group of languages. While trying to preserve their culture they also try to preserve their language. Language is one of the barriers for spread of education among the Bondos.

Strangely enough the Bondo never felt the need for education in their life. The style of life they lead need no education at all. They earn a living by gathering fruits, roots and tubers, hunting animals and shifting cultivation. There are rare occasions for reading and writing in the life of the Bondos. Now-a-days under the impact of the development programmes they start to feel that there is a need for putting a signature for availing of the benefit of different schemes.

*Provision of schooling facilities*—There are 32 villages in the Bondo Development Project area. The following 8 Primary Schools have been established in 8 villages by the State Education Department.

TABLE No. IV. 9.1  
LIST OF PRIMARY SCHOOLS

Sl. No.	Name of the Primary Schools	Teachers working/ vacant	Enrolment
(1)	(2)	(3)	(4)
1	Patraput Primary School	1. Teacher working 2. Teacher working	31
2	Dumuripada Primary School	1. Teacher working 2. Teacher working	53
3	Dantipada Primary School	1. Teacher placed under suspension. 2. Post vacant	19
4	Pindajangar Primary School	1. Teacher working 2. Post vacant	23
5	Bondopada Primary School	1. Teacher working 2. Post vacant	29
6	Badabel Primary School	1. Post vacant 2. Post vacant	20
7	Kirsanipada Primary School	1. Post vacant 2. Post vacant	..
8	Andrahal Primary School	1. Post vacant 2. Post vacant	20

A Sevashram of the Primary standard was established by the Harijan and Tribal Welfare Department at Mudulipada, the Project Headquarters in the year 1960. It was upgraded to an Ashram School of M. E. standard in the year 1979. It was subsequently upgraded to a High School status in 1988. This is the only educational institution in the entire Bondo hills which is functional since this is a fully residential school in which the entire boarding and lodging expenses of all children are borne by Government.

The entire school facilities provided to the Bondo Development Project area are limited to the above 8 Primary Schools and one High School located at the Project Headquarters, Mudulipada having Classes from I to X.

There is no M. E. School in the Bondo hills except the M. E. section of the High School located at Mudulipada.

It naturally follows that 24 villages of the BDA have not yet been provided with Primary School facilities. Bondo villages/habitations being distant from one another a Primary School cannot serve any other village/habitation except that in which it is located. Therefore the existing 8 Primary Schools can serve only the villages of their location. The remaining 24 villages are to be provided with schooling facilities either by opening new Primary Schools in the villages or by creating lodging and boarding facilities in a neighbourhood school which preferably may be the Primary School of the cluster Headquarters.

Secondly theilly terrain of the Bondo area would not allow any child of Primary School age to attend the neighbourhood School as a day-scholar. There are the dangers of wild animals. Distance is another factor which stands as a barrier.

*Building Position*—An investigation into the present situation revealed that none of the 8 Primary Schools has a building of its own. Records of the Directorate of Elementary Education, Orissa reveal that building grants were sanctioned in favour of all the 8 Primary Schools in the year, 1984-85 at the rate of Rs. 20,998 each. These building grants have not yet been utilised in full. The records of the Office of the B. D. O., Khairput reveal that a sum of Rs. 78,233 has been either utilised or paid as advance to the Contractors and remaining portion amounting to Rs. 89,944 are left unutilised. The following statement would indicate the physical progress reported by the Block:—

PHYSICAL PROGRESS

Sl. No.	Name of Schools	Amount Sanctioned	Amount utilised	Balance left	Reported physical progress
(1)	(2)	(3)	(4)	(5)	(6)
		Rs.	Rs.	Rs.	
1	Bondopada L. P. School	20,998	20,900	98	Structure completed Windows and doors not fitted. Flooring not done.
2	Dantipada L. P. School ..	20,998	6,500	14,498	Not started Amount advanced.
3	Patraput L. P. School ..	20,998	20,998	..	Completed. Not ready for use.
4	Dumuripada L. P. School..	20,998	..	20,998	Not started
5	Kirsanipada L. P. School..	20,998	11,320	9,878	Not started
6	Badabel L. P. School ..	20,998	11,915	9,083	Not started
7	Pindajangar L. P. School ..	20,998	6,600	14,398	Not started
8	Andrahal L. P. School ..	20,998	..	20,998	Land not available
Total		1,67,944.00	78,233.00	89,944.00	

While discussing with the Project Leader about the slow progress of building construction, he pointed out a few salient problems in connection with construction. In a nutshell the problems are—

- (1) Suitable land is not available for the purpose,
- (2) Building materials, like bricks, sand, cement are not available,
- (3) Schedule of rate approved by the P. W. Department is too inadequate to meet the expenses. A revision of rate is necessary and extra carriage cost has to be provided,
- (4) Carriage of materials to the building site is a problem. Trucks cannot ply even to the project headquarters. Only mini-trucks are now plying after the approach road to Mudulipada is blacktopped,
- (5) Contractors do not come forward to undertake the construction work.
- (6) Advances are demanded by the Contractors before commencement of the work and very often Contractors dictate terms.

These problems are genuine, yet some solutions could be arrived at. Local materials, like granite stones could be utilised in place of bricks or wooden structures (as timber is available in plenty) with mud walls and asbestos roofing could be tried. Education Department authorised the Collector to approve modifications in the plan and estimates. The C. D. Department also authorised them to provide additional amounts from the B.L.E.G.P. as and when necessary. There were no difficulties in changing the total plan and estimate in a few cases to suit to the local conditions. It appears that no alternative means have been tried, nor the problem was brought to the notice of the Directorate of Elementary Education, Orissa which was monitoring the building scheme. The unspent balance out of the sanctioned amount has been kept in the P. L. Account of the block. Non-provision of Buildings is one of the major factors that contributed to the neglect of education in the Bondo Development Agency area.

*Teacher Position*—Teacher is the single largest factor which is responsible for the quality of education in the schools. In the Bondo Development Agency schools, teacher absenteeism is a chronic disease that continues without treatment. "The Bondo and their response to development (1984), published by the THRTI gives a good evidence of teacher absenteeism in the primary schools of Bondo hills. It mentions—

"Prior to the operation of the Bondo Development Agency there were eight single teachers in Lower Primary Schools located in each of the eight Bondo villages. There was one Ashram School at Mudulipada. All these schools are in existence. The lower primary schools are run by the Education Department and the Ashram School by the Harijan and Tribal Welfare Department. Except the Ashram School which functions properly all the lower Primary Schools exist only in paper and the teachers appointed for these schools have rarely visited these schools now are they found anywhere in the Bondo country" (PP-125)

It appears that after publication of the above government report no follow-up action was taken. The information remained confined to the book only. No impact was generated due to lack of pursuant action against teacher-absenteeism.

Referring to the statement it may be said that this is a very serious statement made seven years ago in a Government report which was published in the form of book. It should have agitated both the State Department of Education and Harijan and Tribal Welfare and action should have been initiated against absentee teachers. It seems that nothing has been done even after such a startling information was published. The same position still continues without any change. The teachers are not attending to their legitimate duties of teaching children. Such a state of affairs is deplorable and need be dealt with all seriousness.

It may be seen from Table-1 that out of 16 posts of teachers nine posts are vacant, 3 schools such as Badabel Primary School, Kirsanipada Primary School and Andrahal Primary Schools are closed. In 3 schools one teacher each is in position. Only in 2 schools two teachers are in position.

On spot visit to Dumuripada it was ascertained from the villagers that the teachers occasionally come to the village almost once in a fortnight and stay there for an hour or so and then go away. Hence the children have not developed a habit of going to the School. Enrolment is made only in pen and paper. A teaching learning situation has never been created.

The people of Andrahal said that they could not remember a teaching-learning situation that had ever been created in the village. Incidentally both the posts of teachers are vacant and no teacher is supposed to have worked there in the recent past.

In Dantipada which is only 1½ Kms. distant from Mudulipada the situation is different. There is an elevated spot where the villagers said that a house for the Primary School existed. But it was blown off by wind. The blown off G. C. I. sheets of the roof were collected and a temporary structure was said to have been built. But on the date of visit no structure was seen. Only one wooden post was seen on the elevated spot. There are two sanctioned posts of teachers, one post was vacant. The other post was filled up by a lady teacher who is reported to have been placed under suspension. The school is virtually non-functional. The villagers seemed to be more conscious about education of their children. They demanded that both the posts of teachers should be filled up and their children should continue to have the practice of attending the school daily.

Thus it may be seen that the D. I. of Schools who is the controlling authority of Primary Schools has not given due attention to the school of Bondo hills. His negligence has been reflected in keeping the posts vacant for long periods. Of course the District Inspector of Schools must have been constrained to find out willing teachers for the Bondo hills where a teacher is likely to be inconvenienced for his accommodation, food and other social problems, yet some solution could be arrived at by selecting teachers from the neighbourhood who are oriented with the language of the Bondos or a short course training could be arranged for the non-Bondo teachers for learning the Bondo language, culture and customs. The teacher-problem has not been taken as special issue and no attempt has been made to solve it.

One of the causes of teacher-absenteeism is the problem of their living accommodation. None of the Primary Schools of the Bondo hills has a building of its own where, in absence of other living accommodation, the teacher could reside. No other accommodation is available in the Bondo villages. The youth dormitories of the villages (Dhangdagar and Dhangdighar) are sometimes used for entertaining guests, but that only for a day or two. A teacher cannot be accommodated there for more than a day or two. The youthful activities of the youngmen and women are more important than accommodating a teacher, may be for a temporary period. From humanitarian point of view, the authorities must provide the basic minimum amenities while asking a teacher to work regularly in a school. The situation prevailing in Bondo villages is not favourable for any non-Bondo people. In addition to that non-provision of living accommodation makes it difficult for the teachers to work in the schools regularly. The chief weakness of the educational administration of the schools of the Bondo hills is lack of inspection. Had there been the fear of inspection the teachers would not have dared to remain absent for long periods. The teacher absenteeism which has been pointed out and recorded in the report quoted earlier in this chapter is mainly due to lack of supervision and inspection. Closure of the schools for long periods is caused due to teachers absenteeism which is the result of lack of inspection.

The Sub-Inspector of schools, Khairput who is in-charge of supervision and inspection of the Primary Schools of the Bondo Project area was asked to produce his check list in order to ascertain the frequency of inspection. He did not produce it as he was not maintaining the check list. There was no other way to ascertain the frequency of inspection except taking evidence from the people. The people of Dumuripada, Andrahal, Bidabel and Dantipada told that they had not come across any occasion of the Sub-Inspector's visit to their respective schools. When the Sub-Inspector of schools did not visit any school it is no use raising the question of the District Inspector of Schools, Malkangiri-I inspecting any Primary Schools. In short the present plight of the educational institutions is due to the negligence and lack of supervision and inspection. No attention has been given to the educational development of the area inhabited by a primitive tribe.

*Teaching-learning materials*—It is ridiculous to expect teaching-learning materials in the schools when there are no buildings for the schools. Yet, the importance of teaching aids in the education system particularly in Primary Schools of the tribal areas has to be admitted. Teaching-learning materials can facilitate understanding and create interest in the children. Teaching in our Primary Schools without adequate aids is usually dry, formal and uninteresting. It is through play materials, readers with good pictures and illustrations, charts, flash cards, models—both still and in action, story, pictures that Children are attracted to schools. Use of aids in schools of backward areas is one of the motivating factors for education. Realising the importance of aids, teaching-learning materials including games, and sports articles, musical instruments have been supplied to all the 8 Primary Schools of the Bondo hills under the "Operation Black Board Scheme".

It transpired from the records of the Directorate of Elementary Education, Orissa that Khairput Block came under the 'Operation Black Board Scheme' in the first phase in the year, 1987—1989. All the Primary Schools of the Block have been provided with materials worth Rs. 7,315] each. It is learnt that materials have been supplied to the schools through the Block. Since the schools have no buildings, there are apprehensions about the safety of the materials. To add to this the teachers are absentee teachers who seldom attend schools.

It was informed that the teachers of the respective schools have received the materials supplied to the schools. A few questions arise out of the present situation.

- 1 Where are the materials kept ?
- 2 Who is the custodian of the materials ?
- 3 What happened to the materials of those schools where teacher posts were vacant ?
- 4 Since no record could be seen in favour of any school, how is the stock maintained ?
- 5 Are these materials made over to the successors when a teacher is transferred ?

It is apprehended that teaching-learning materials worth about Rs. 58,000 will be lost in due course. Since the supply was made recently within a period of 2 years and memory about the supply is fresh, the question of verification of the materials arises at present. Alongwith lapse of time the matter may be forgotten and the materials which were meant to improve the quality of instruction and teaching would be lost and the sale proceeds thereof would be misappropriated. It was not even possible to ascertain the present stock position. The Sub-Inspector of Schools who is in-charge of distribution of the materials could not ensure the present stock position. In course of discussion when it was pointed out since the schools have no buildings of their own, why were the materials distributed ? And after distribution where are the materials stored ? He replied that the teachers concerned might have kept the materials under the charge of some persons of the villages concerned. Any way, an investigation should be made to ensure the stock position and safe storage of the materials for use by the teachers in future.

*Non-formal education*—There are six non-formal education centres in the following villages of the Bondo Project area.

1. Bondopada
2. Mudulipada
3. Andrahal
4. Badabel
5. Dantipada
6. Badapada

It may be seen that there is concentration of formal primary schools, non-formal education centres and Anganwadis in the following five villages.

1. Bondopada
2. Andrahal
3. Badabel
4. Mudulipada
5. Dantipada

Twenty-three villages do not have any educational facilities at all. Even after concentration of the above three types of educational facilities the impact generated is not at all satisfactory. Improvement of literacy position is an indicator of educational development. Since percentage of literacy remains almost constant, it may be taken for granted that the desired impact has not been generated even concentration of educational efforts. The position remains static over a period of 10 years i. e. from 1981 to 1991.

Non-formal education is different from informal or incidental education which is casual in nature. But non-formal education is a deliberate attempt to impart education to unschooled and part-schooled children through learning materials specially designed for target groups. Non-formal education is flexible in administration, especially in respect of timing. The timing suitable to the learner is fixed for instruction. Moreover education is imparted through episodes, modules and capsules composed of local customs, folklores, folk tales, characters, legends etc. wherein children are likely to be interested.

Terminal competence at the end of a stage of education, say primary or Middle School remaining the same as in formal education, separate curriculum and text, books are prepared for the non-formal education in the shape of modules and capsules. The capsules are prepared in a simple language with local episodes, folktales, beliefs, characters etc. in a short length. It may be composed about the customs, festivals, dances and music, system and type of agricultural patterns or any other materials with which the children are acquainted. A few capsules belonging to one category of contents make a module. These modules are well graded to suit to different standards. At the end of a stage of education the non-formal teacher should ensure that the learners have achieved the competence prescribed for formal schools.

The type of non-formal education imparted in the Bondo Project area does not confirm to the pattern and curriculum discussed above. The type of administration of non-formal education is entirely different from that practised in other areas of the State. A multi-purpose worker is appointed who is also called as the teacher of non-formal education. He is supposed to do his duties in the field of agriculture, health services and other social work in addition to the teaching work. He is not in a position to give adequate attention to teaching work. Because teaching is one of the programmes alongwith others not figuring as important programme.

Records revealed that a sum of Rs. 4,60,241.50 has been spent for non-formal education over a period of 13 years. The annual break-up of the expenditure is as follows:—

1978-79	..	Rs.	3,939.00
1979-80	..	Rs.	18,218.89
1980-81	..	Rs.	58,069.95
1981-82	..	Rs.	21,438.54
1982-83	..	Rs.	44,467.85
1983-84	..	Rs.	29,626.35

1984-85	..	Rs. 40,599.76
1985-86	..	Rs. 1,20,060.90
1986-87	..	Rs. 88,297.25
1987-88	..	..
1988-89	..	..
1989-90	..	Rs. 6,877.00
1990-91	..	Rs. 28,646.00
		Rs. 4,60,241.59

The above amount was spent to pay the salary of the multi-purpose workers who, alongwith other social welfare programmes was doing teaching work. Since the amount was not specifically meant for non-formal education, the impact generated (if any) cannot be attributed to education only. As has already been said earlier, there is no indication of educational development over the last one decade. Of course some social awareness is felt to have been generated among the Bondos, a portion of which may be attributed to the educative effort in general.

**Lower Secondary Education (Upper Primary or M. E. School education)**  
There is no M. E. School in the Bondo Project area except classes VI and VII of Mudulipada High School. There should have at least one M. E. School for every two Primary Schools in the tribal areas as per the norms fixed by Government of India. Although the Education Department is running 8 (eight) Primary Schools since long, the question of opening of M. E. Schools has never arisen. It is strange that no action has emerged even to fulfil the constitutional mandate for universalization of elementary education which includes the M. E. Classes. It is true that non-Government, M. E. Schools cannot be established in the Bondo Project area as no body is interested to open M. E. Schools and run them till Government grant is available. Government in the Education Department could open M. E. Schools by upgrading 3 or 4 primary Schools which are centrally located.

A possible explanation for negligence of the M. E. School education may be that since the Primary Schools are not functioning and no student has passed from the Primary Schools of the Bondo hills, the question of opening M. E. Schools should not have arisen. Any way serious neglect in the sector of education is corroborated by non-establishment of M. E. Schools.

**Secondary Education**—A residential Sevashram (Primary Standard) was established by the Harijan and Tribal Welfare Department at Mudalipada in the year, 1960 which was upgraded to an Ashram School (M. E. Standard) in the year, 1979. That was the first M. E. School in the Bondo project area and is still continuing to be the lone section of M. E. standard. The Ashram School (M. E.) was upgraded to a residential High School in the year, 1988. The High School maintains 10 classes from Class-I to X in one campus under the administration of one Headmaster. The school is not yet fully equipped with buildings for School, Hostel, Teacher's quarters, Science apparatus, teaching aids, furniture and other necessary accessories. It has a number of deficiencies and shortfalls which stand in the way of development.

**Building Position**—There are two blocks of buildings standing face to face with asbestos roof. The buildings are used as offices, class-rooms and residential accommodation of students as well. There is a dearth of rooms for holding classes. Hence four lower classes are adjusted in two rooms. One room is used as Headmaster's Chamber and School Office. Naturally no accommodation is available for teachers' common room, optional classes, library store room for games and sports articles, science room etc.. Building deficiency reduces school efficiency to a great extent.



*Hostel Buildings*—As has been stated above there is no building for the hostel. The students reaccommodated in their respective class rooms for residential purposes. Since the school is fully residential, hostel buildings for living accommodation of all the students have to be provided.

There is no kitchen. A shaky structure is now used for cooking. It is an ugly hall without walls but some how covered by old rusted G. C. I. sheets-half exposed to the outside—not suitable for cooking of food materials for such a large number of students. Utensils used for cooking are too old and broken. The aluminium utensils used by students are ugly and unhygienic. Students could be supplied stainless steel trays for taking their food. Cooks and servants are not provided. Students cook their own food. It is dangerous to entrust such large scale cooking to the students. There are small kiddies among the students. Any time there may be accident. Quality of food is very poor. There is no dining hall. Students take their food on the school verandah.

Lavatories and latrines have not been provided. All the students are used to attend the call of nature in the open air.

*Teachers' Quarters*—Living accommodation is one of the most important requirement of service, particularly in these areas where no house is available on rent. There are eight sets of quarters for 22 members of the staff. The existing quarters are a plea for quarters. Requisite amenities are not available there. However, all the teachers share these so called quarters and somehow manage to live there. No house is available to be taken on rent. It is a dream to think about rented houses in any Bondo village.

*Staff Position*—There are seventeen sanctioned posts of teachers including the Headmaster, one post of Clerk, one Diptary and 3 Peons for the school. Five posts are lying vacant at present as detailed below :—

(1) Science Teacher—B. Sc., B. Ed. ( C. B. Z. )	..	1
(2) Arts Teacher—B. A., B. Ed.	..	1
(3) Classical Teacher—Acharya or B. A. with Sanskrit	..	1
(4) Agriculture Teacher—B. Sc. Ag.	..	1
(5) Craft Teacher—Craft Training	..	1
		5
Total	..	5

The remaining posts are filled up by the following teachers/non-teachers who come from different districts.

Serial No.	Designation	Qualification	Home district	Date of joining
(1)	(2)	(3)	(4)	(5)
1	Headmaster	B. A., B. Ed.	Keonjhar	23-3-1991
2	Sc. Teacher	B. Sc., B. Ed.	Cuttack	11-12-1988
3	Assistant Teacher	B. A., B. Ed.	Keonjhar	12-8-1989
4	Assistant Teacher	I. A., C. T.	Cuttack	4-6-1983

(1)	(2)	(3)	(4)	(5)
5	Assistant Teacher ..	I. A., C. T. ..	Cuttack ..	10-6-1983
6	Assistant Teacher ..	I. A., C. T. ..	Cuttack ..	25-5-1989
7	Assistant Teacher ..	B. A., C. T. ..	Ganjam ..	29-4-1990
8	Assistant Teacher ..	Matric ..	Koraput ..	19-7-1990
9	Assistant Teacher ..	Matric ..	Keonjhar ..	10-10-1990
10	Hindi Teacher ..	Matric Kovid ..	Koraput ..	15-9-1990
11	Tailoring Teacher ..	Diploma ..	Koraput ..	6-4-1991
12	P. E. T. ..	Matric ..	Koraput ..	25-1-1991
13	Clerk ..	Matric ..	Koraput ..	4-8-1989
14	Daftary ..	Non-matric ..	Koraput ..	7-3-1990
15	Peon ..	Non-matric ..	Koraput ..	20-5-1966
16	Peon ..	Non-matric ..	Koraput ..	19-7-1990
17	Peon ..	Non-matric ..	Koraput ..	19-7-1990

It may be seen that three Peons have been appointed from Bondo tribe in order to provide examples to the Bondo children to get education so that they could enjoy similar service and salary facility as their brothers. Moreover, these Bondo Peons would persuade the Bondo parents and children to take up education for their own benefits. These appointments are likely to successfully motivate the Bondos and fascinate towards education. There are three untrained teachers who should be deputed to training as in service candidates. The physical education teacher is untrained. An untrained PET cannot effectively organise games and sports, his training is an immediate need. The vacant posts should be filled up immediately to facilitate teaching learning process.

*Furniture*—It was seen that the students were sitting on the floor. No Benches and desks have been provided for students. The habit of sitting on floor during school hours would lead to postural defects. Chairs and Tables were not provided for the teachers in some classes. Almirahs have not been provided for class libraries. Maps stands have not been provided for safe-keeping of maps and charts.

*Games and Sports*—A major play-ground is not available for the school where football hockey, cricket could be played. A small field is available in front of the school which is being utilised as volley court and for other minor games. Ofcourse it is very difficult to find out plain land for the major play ground. But slightly inclined slope which lies at  $\frac{1}{2}$  Km. distance from school can be levelled to make a major play-ground.

Games and sports materials supplied to the school are inadequate. A small number of students are kept engaged in games only. Annual sports are not held since it is not possible to hold the track events. Non-existence of a play ground is itself an evidence of negligence of physical education activities. Archery, in which Bondo children are proficient could be practised as one of the major items in sports.

*Science apparatus*—In the syllabus for the high school students the dose of science is very heavy. A number of observations and experiments can only facilitate understanding. It is seen that science apparatus is too inadequate to meet the needs of the syllabus. Science teaching becomes abstract without aids. The tribal children are generally weak in academic studies. Their weakness is enhanced by making science teaching abstract.

The project leader informed that a sum of Rs. 3,000 has been sanctioned for purchase of science apparatus. But this amount will not be adequate. Further grants are necessary for the purpose.

*Teaching aids*—Aids make teaching easy, interesting, effective and concrete. Two dimensional pictures, three dimensional models and audio-visual aids are necessary for quick understanding of the lessons delivered by teachers. Tribal children who are usually slow in learning should be taught with aids so as to understand and consolidate the lessons in memory. It is found that the school is very poor in teaching aids. Historical maps and charts have not been procured. Models for teaching eclipses, season-change, barometer etc. for teaching geography have not been supplied. Models/pictures of national leaders, historically important figures have not been provided. Teaching aids like epidiascopes, slide projectors, film projector, televisions, radios could be supplied for enrichment of teaching-learning process,

*Enrolment and attendance structure*—The classwise enrolment and attendance as on the 27th March 1991, the date of visit, was as follows :

Class	Attendance	Enrolment
(1)	(2)	(3)
I	65	115
II	7	11
III	10	16
IV	8	10
V	5	5
VI	17	23
VII	12	15
VIII	4	4
IX	9	9
X	10	11
Total	147	219 (67%)

The attendance was 67 per cent on the date of visit which is unsatisfactory for any fully residential school. An analysis of the enrolment pattern indicates that enrolment of 115 students is a sudden departure from the consistent pattern so far followed. This departure on the plus side indicates that a special drive was made for enrolment in Class I of the school. This was possible for two reasons (1) Food for the child is ensured and (2) there was persuasion for such enrolment. However the enthusiasm evinced at enrolment time gradually died down and 40 children dropped out from Class I by the date of visit.

TABLE No. IV-9-2

Class-wise Tribewise enrolment of Mudulipada High School

Class	Upper Bondo		Lower Bondo		Paraja		Bhumia		Gadaba	
	B	G	B	G	B	G	B	G	B	G
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
I	84	19	2	2	2	..	2	1	1	..
II	3	..	3	..	..	..	4	..	..	..
III	3	..	5	..	..	..	4	..	..	..
IV	..	1	1	..	..	..	4	1	..	..
V	..	..	3	1	1	..	..	..	..	..
VI	1	..	7	..	2	..	5	..	3	..
VII	..	..	3	..	4	..	4	..	1	..
VIII	..	..	1	..	2	..	..	..	..	..
IX	1	..	4	..	1	..	2	..	..	..
X	2	..	..	..	4	..	3	..	..	..
<b>Total</b>	<b>94</b>	<b>20</b>	<b>29</b>	<b>3</b>	<b>16</b>	<b>..</b>	<b>28</b>	<b>2</b>	<b>5</b>	<b>..</b>

Didayi		Koya		Kutia		S. C.		Other		Total		
B	G	B	G	B	G	B	G	B	G	B	G	T
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
..	..	1	1	..	..	..	..	1	1	93	22	115
..	..	..	..	..	..	1	..	..	..	11	..	11
..	..	..	..	..	..	2	..	1	1	15	1	16
..	..	1	..	..	..	1	..	..	1	7	3	10
..	..	..	..	1	..	..	..	5	..	5	..	5
..	..	..	..	1	..	4	..	..	..	23	..	23
..	..	1	..	..	..	1	..	1	..	15	..	15
1	..	..	..	..	..	..	..	..	..	4	..	4
1	..	..	..	..	..	..	..	..	..	9	..	9
2	..	..	..	..	..	..	..	..	..	11	..	11
4	..	3	1	2	..	9	..	8	3	193	26	219

An analysis of the Tribewise enrolment reveals that 52.05 per cent of the total enrolment belong to the Upper Bondo Tribe. If 40 children who have already dropped out are deducted from the enrolment of Upper Bondo Tribe the percentage comes down to 33.78. It appears that the current years' enrolment from Upper Bondo Tribe is an abnormality. A picture of the stabilized trend of enrolment can be obtained if enrolment figures of all the classes except Class I is taken into account. The total enrolment from Class-II to Class-X is 104 out of which enrolment from Upper Bondo Tribe is 11 constituting 10.5 per cent of the total.

It is encouraging to note that the enrolment from Upper Bondo Tribe rose from 10.5 per cent (Up to 1990-91) to 33.78 (1991-92) after deducting the drop-outs. It may be hoped that vigorously tried the enrolment of Upper Bondo children can grow if a feeding programme is attached to the school programme.

Since Mudulipada high school is the only high school in the Bondo project area, the enrolment in Class IV and VI from outside the school would indicate the number of pass-out from the existing eight Primary Schools. Strangely enough it is seen from the records that whatever number of students were enrolled in Class-IV and VI had been promoted from the classes next below. There has hardly been any admission from outside. Analysis of the admission pattern proves that the eight Primary Schools run by Education Department have not sent single child to the high school.

It is worth observing that children from Lower Bondo, Paraja, Bhumia, Gadaba, Didayi, Koya and Kutia Kondh tribes residing outside the Bondo hills have come to Mudulipada High School for their studies. This is an indication of increase of awareness among other tribes including some primitive tribes, like Didayi and Kutia Kondh.

The problem of high rate of drop-out is likely to agitate the minds of all educational administrators. 45 students have dropped from Class-I alone during the current year. There were 32 students in Class-I during the last academic session. During the current year only 11 students are continuing, which means 21 students dropped out. It is seen from records that out of the last year's enrolment 41 children dropped out. This being a fully residential school such number of drop-out is abnormal. At least the feeding programme would have retained the students. Hence, a special study has to be conducted to ascertain the causes of drop-out and remedies have to be thought of.

*Compound Wall*—The school does not have a compound wall. A green hedge is now functioning as compound wall. For safety, social security, discipline and other administrative convenience a compound wall around the school should be constructed as early as possible.

*Supply of text books and reading and writing materials*—It is learnt that supply of text books, reading and writing materials are inordinately delayed. The delay kills the best part of the year for study purposes. Beginning of the academic session after the summer vacation provided a freshness of mind and inclination for studies. Advantage cannot be taken of this opportunity if text books are not available. There is constant criticism regarding delayed supply of reading and writing materials, yet the same mistake recurs every year.

*Drinking water facilities*—A tube-well has been sunk in the School campus which supplies drinking water to the students and teachers as well. One tube-well is not adequate for supply of drinking water to 200 students and 20 families of the teachers and non-teaching staff of the school. At least two more tube-wells may be sunk inside the school campus for supply of drinking water.

The High School has a number of deficiencies in respect of buildings, teaching staff, games and sports, major playground, hostels for boys and girls. Above all an academic atmosphere is lacking. Teachers and students seemed to be mechanically working as if under compulsion. The spirit of education seemed to be wanting. The reasons for such mechanical management of the institution are that no co-curricular activities are introduced and practised in the school student, did not seem to be having a spirit of adventure and spirit of social service. Scouting, red-cross which, if introduced, could generate a spirit of service to the needy and poor. Students confine their activities to cooking their own food, eating and attending classes. Teachers do not have any incentive for their work. They feel as if they have been forced to work here for some days. Thus, it is necessary to put life into the school. It must work like a school full of vigour, activities and studies.

*Higher Secondary Education*—There is no higher secondary institution in the Bondo project area, neither there is a need for it at present. Those who pass the H. S. C. Examination may be admitted into Vikram Dev College, Joypore which is only 50 Kms. away from Bondo hills. Full cost of the studies of the Bondo children should be borne by Government and seats should be reserved for them in the +2 classes. They should not face any competition for admission into the +2 classes.

*Overview*—An overview of the total educational scenario reveals that sincere efforts have not been made to educate the people and children of the Bondo hills. Eight Primary Schools had been set up in the past with good intention. But steps have not been taken to ensure functionality of the schools. As a result the Primary Schools did not function. The enrolments shown against the schools were fake. Teachers did not attend their normal duties of teaching. No body has ever thought about the education of the children beyond Primary Schools stage. No M. E. School has been established by the Education Department anywhere in the Bondo villages in order to admit the passouts from Primary Schools. Perhaps the Education Department was in know of the fact that no child has passed from any of the Primary Schools established by them. They were also conscious that the Primary Schools in the Bondo hills were not functional not even till now. Yet, no remedial measure has been taken to improve the situation.

Human resource development was not given due importance in the developmental sector. Development of functional literacy and the consequent awareness should have formed the core sector and key to all-round development. On the whole education has not been treated as it should have been.

*A resume of the annual educational plan for 1991-92*—In the annual action plan for 1991-92 (approved by the Governing Body in its sixteenth meeting held on the 9th July 1991), a provision has been kept for Rs. 75,000 for education and literacy development of the Upper Bondo area. An extract of the provision is as follows:—

1. (a) Development of literacy and socio-economic awareness through non-formal education campaign (supply of reading and writing materials to pre-school children and adults, supply of toys, lamps, radios and remuneration to N. F. E. teachers @ Rs. 750 P. M. ).	200 F	Rs. 50,000-00
(b) Incentive to Upper Bondo students for school education for U. P. classes @ Rs. 20 P. M. and for High School students @ Rs. 75 per month.		Rs. 25,000-00
		Rs. 75,000-00

The above provision is not only inadequate but also unrealistic. There are 1,000 families in the Bondo project area. This provision of Rs. 50,000/—is meant for 200 families which constitute 20 per cent of the total number of families.

Secondly, educational developmental programmes should be continuous. It cannot be in piecemeals. 200 families this year and 200 families next year, discontinuing the education of the former 200 families—This is not how educational development can be effectively achieved.

Thirdly, the remuneration of the existing 6 non-formal teachers at the rate of Rs. 750/—per month is Rs. 54,000/—per annum. There will be deficit of Rs. 4,000/—only for payment of remuneration to non-formal teachers. No money will be left for purchase of reading and writing materials, radios, toys for adults and pre-school children. Unless the existing provision is augmented by an additional provision of Rs. 30,000 the plan cannot be implemented. But while preparing plans the provision should not fall short to achieve the physical targets.

The provision of Rs. 25,000 kept for the incentive programme of the Upper Bondo children is too inadequate. This amount can be paid only to 150 children at best. It is not clearly mentioned whether the amounts are to be paid to day-scholars or boarders. However, inadequacy of the amount is conspicuous.

## ACTION PLAN

A study of the present situation of the Bondo hills indicates that no plan was ever prepared in the past for development of education in the project area. Whatever have been done are only sporadic actions of chance element. For example eight Primary Schools were established in the distant past but no M. E. School has been opened as yet for admission of the pass-outs from the Primary Schools. Was it ever conceived by the planners of Education Department that no student would pass-out of the Primary Schools of the Bondo hills ?

The Primary Schools are said to be functioning for more than 20 years but no building has been constructed for any of the schools. Building grants were sanctioned only in the year 1984-85. It is not known whether any survey of the area was made before opening of the Primary Schools. The educational authorities must have had the idea that Bondo houses do not have an inch extra space for any activity other than living of the limited family members. How could they expect that the Primary Schools were running without buildings in Bondo villages ? These are all evidences of unplanned sporadic actions of the educational administration.

In any good project construction of staff quarters constitutes one of the major programmes. Because good living conditions can only ensure efficient work. It is futile to expect good work from a person who is constantly in trouble for his living accommodation. One of the major defects of the previous plans prepared and implemented by the authorities of different sectors was creation of posts and appointment of functionaries without providing residential accommodation for them. As a result the functionaries posted here were physically handicapped to work even if they had desire and sincerity for doing their duties. Most of the workers deceived their higher authorities by submission of false figures without any achievement. Workers submitted false reports without any fear, because they knew that no body was going to verify facts. There was absolutely no supervision due to lack of road communication to the Bondo hills. No supervisor or any officer was supposed to cover 12—25 Kms. on foot to verify the reports. Thus it was difficult to ascertain the magnitude of actual achievement out of the administrative reports.

*The cluster approach*—In order to scale over the difficulties pointed out in connection with facility of administration, residential accommodation and social security of the functionaries the cluster approach is considered to be the most helpful. After a discussion among the project consultants it was agreed that the cluster approach would be the best for the functionaries of all the Departments for implementing developmental schemes in the Bondo project area.

The Bondo Project area has been divided into five clusters taking into consideration the location of villages, convenient road communication and easy approach to the cluster headquarters.

32 villages of the Bondo project area have been included in the clusters as mentioned hereunder.

### I. Headquarters—Mudulipada

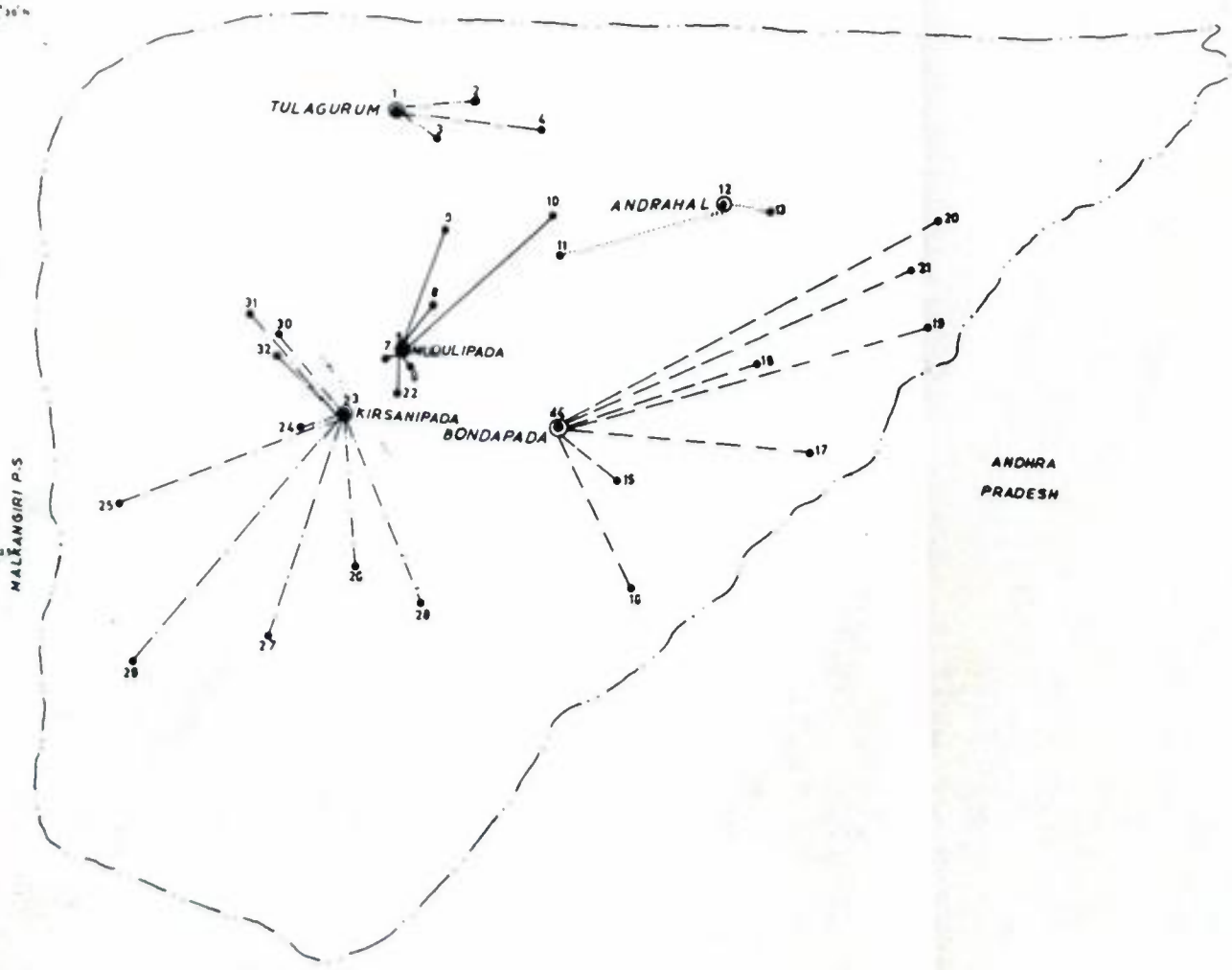
1. Mudulipada
2. Podniguda
3. Bandhaguda
4. Siloiguda
5. Dumuripada
6. Badapada
7. Dantipada

### II. Headquarters—Andrahal

1. Andrahal
2. Katamguda
3. Badabel



MAP SHOWING GROWTH CENTRE WITH SATELLITE VILLEGES  
OF BONDO DEVELOPMENT AGENCY



MALANGIRI P.S.

ANDHRA  
PRADESH

After liquidation of illiteracy in the above villages, the non-formal teachers are to take up the neighbouring villages. The programme is to be reviewed every year end and re-adjustments are to be made as per need.

Before the adult education programme is launched adequate motivation should be taken up to prepare a favourable environment. A new strategy has to be evolved not only for the Bondo highlanders but also for all the primitive tribes of the State. The following strategy is recommended.

1. A mobile Audio-visual unit with all the accessories including a generator set may be engaged for two specific purposes—(a) Motivation of the people and (b) Actual teaching learning to be conducted through audio-visual method.
2. Films are to be prepared with "Remo" language as the medium of discourse alongwith Oriya renderings on regular lessons on health education, animal rearing, animal diseases, treatment thereof, horticulture, agriculture, irrigation etc. still pictures may be utilised but better if action picture are developed. Entertainment pictures are also to be screened for motivation of the people.
3. Bondo culture, customs, festivals, and way of life should be given due importance in special primers to be developed for the adult education centres of the Bondo hills. State Resource Centre, Orissa may be requested to develop special primers for which they have the expertise.

The audio-visual unit should move from village to village by turns and cover the entire population.

*Pre-School Education*—Every village having a population of 100 or more should have an Anganwadi having an enriched pre-school programme. As has been discussed earlier the education component of the Anganwadi should be strengthened and enriched with school-readiness programme so as to cater to the educational needs of the tribe.

There are already 6 Anganwadis in the following villages of the Bondo Project Area under the I. C. D. S. Scheme. The 10 villages mentioned in the right hand side may be allotted one Anganwadi each.

Name of villages having Anganwadi	Name of proposed villages to be allotted Anganwadi
1. Mudulipada	1. Goiguda
2. Dumuripada	2. Bandhaguda
3. Andrahal	3. Dantipada
4. Badabel	4. Badapada
5. Bondopada	5. Katanguda
6. Kiranipada	6. Patraput
	7. Khalaguda
	8. Pindijangar
	9. Kichapada
	10. Bandiguda

In order to make the pre-school education programme more effective, the Anganwadis should function in the vicinity of the primary schools. When the older child will be in the primary school, the younger may be in the pre-school centre run by the Anganwadi. In case of any problem with the younger child the elder one may help and tackle the problem.

*Elementary Education*—Universalisation of elementary education being a constitutional mandate, it is an obligation of Government to (1) provide educational facilities to all children of the country, (2) ensure enrolment and retention of all children up to 14 years of age in the school and (3) ensure suitable participation and attainment by the children. The target year for achievement of the goals of universalisation was 1960. Government have not been able to attain the goals as yet. The chief hurdles in the process are the intractable tribal areas and tribal people who are not inclined towards education. The Bondo hills and the Bondo population are at the base level of educational development. The first step of universalisation has not been attained in this area so far. Educational facilities have not been provided for all the children.

According to existing norms of the State Government, a village having 200 population or more in the tribal areas is eligible to have a Primary School. The following villages have more than 200 population and Primary Schools have not been opened.

Serial No.	Name of the village	Population
(1)	(2)	(3)
1	Bandhaguda	239
2	Badapada	284
3	Similiguda	242
4	Kichapada	235

Four Primary Schools are to be opened immediately in these four villages.

Goiguda village having 154 population may have a school as a special case. Because a low cost hostel is to be attached to this school to accommodate the children of Sonuguda and Uttamguda for their study in this school. The villages Sonuguda and Uttamguda being very small do not justify any other type of Primary Schools.

Non-formal education centres were being recommended as an alternative channel of primary education. But recent experiences have proved that non-formal education centres are good enough for the drop-outs just for continuance of their studies to higher standards. But they cannot function as a substitute for Primary Schools neither are they suitable for unschooled children.

The following five villages have population between 100 and 200. Five extension schools may be opened in these villages in order to provide primary education facilities to the children.

*Extension School*—When population of some village does not justify opening of a Primary School where usually two teachers work, an additional teacher is allocated to an existing neighbourhood school, who is borne as a staff member of the old school but

functions as a teacher of the extension school opened in the smaller village. This new school is an extension of the existing old school. The villages are—

Serial No.	Name of villages	Population	Original school to which to be attached
(1)	(2)	(3)	(4)
1	Podeiguda	108	Mudulipada High School
2	Katamguda	124	Andrahal Primary School
3	Khalaguda	131	Patraput Primary School
4	Tagabeda	110	Kichapada Proposed Primary School
5	Bandiguda	173	Kirsanipada Primary School
6	Chalanpada	83	Kirsanipada Primary School
	Baunsapada	+ 56	

The village Chalanpada with a population of 83 has a special problem. It is situated at the extreme end of the Bondo Project Area. The population is nearing 100. The children of Baunsapada are also to be admitted here. A low cost hostel may be attached to it to accommodate the children of Baunsapada. Hence an extension school may be opened here for the children of Chalanpada and Baunsapada villages.

In course of time when the population of these villages reaches 200 each, the extension schools may be converted to regular Primary Schools.

There are 8 Primary Schools in 8 villages and there is a Primary Section in Mudulipada High School. A non-Government Primary School is run by a voluntary agency at Tulaguram. Five Primary Schools are proposed to be opened in 5 villages. 6 extension schools are proposed to be opened for seven villages.

Ten very small villages will still be left unserved even after opening Primary Schools and extension schools. The children of these villages are to be provided with schooling facilities in the neighbouring Primary Schools. Low cost hostels are to be attached to the neighbourhood Primary Schools of these villages with free boarding and lodging facilities for the children. The scheme is placed hereunder to indicate the provisions.

- |                |   |   |
|----------------|---|---|
| 1. Uttamguda   | } | Low cost hostel to be attached to<br>Goiguda proposed Primary School. |
| 2. Sonuguda    |   |   |
| 3. Tuseipada   | } | Bondopada Primary School  |
| 4. Bajaguda    |   |   |
| 5. Gulangpadar |   |   |
| 6. Bhaliapadar | } | Khalaguda proposed extension Primary School                           |
| 7. Sindhiguda  |   |   |
| 8. Sileiguda   | } | Kirsanipada Primary School  |
| 9. Gophurpada  |   |   |
| 10. Baraguda   |   | Kichapada proposed Primary School                                     |

The above arrangements provide schooling facilities for primary education of all the children of the 32 villages of the Bondo Project Area. But for universalisation of primary education, provision of schooling facilities is the preliminary step. More important programmes are enrolment, retention and effective participation of the children in the educative process.

The causes of non-enrolment and drop-out are manifold. The following few are important among them:—

1. All the children will be first generation learners. There is no parental pressure for education of children.
2. All the parents are in abject poverty. Their children do not get two meals a day. An empty stomach resents to education.
3. When both the parents go out to work in the field or forest the old child take care of the baby, if there is any.
4. Children supplement the family income by collecting mohua flower or other forest products.
5. Children are not interested in the curriculum and text books which are far away from their culture and customs.

In order to overcome these problems some positive steps should be taken. The motivation part may be performed by the audiovisual mobile squad and by the teachers who will be staying in the barracks to be constructed in the cluster headquarters.

Regular feeding programmes should be introduced in the schools at the mid-day. The feeding programme should be good enough to motivate children to come to the school.

Low cost hostels should be constructed in the six schools where the children of the unserved villages are to be accommodated after enrolment.

The anganwadis should be attached to the Primary Schools where pre-school education would be taken up and smaller children may be left under the charge of the Anganwadi worker. In case of difficulty, the elder brother or sister enrolled in the Primary School may take care of the younger child, if necessary.

The curriculum should be modified and changed to suit to the culture of the Bondos. Terminal competencies being kept in mind the preliminary approach must change. Bilingual primers are to be developed for classes I and II with adequate illustrations and action pictures. The State Council of Education Research and Training may be entrusted with the responsibility of developing primers. Children may be required to switch over to Oriya language at Class III stage onwards.

Recruitment of teachers who are conversant with the language of the Bondos is an important task. Mutual intelligibility is the beginning of the education process. Some such teachers who have orientation in the language of the Bondos and willing to work in the Bondo hills will have to be recruited. If necessary the qualification may be relaxed and teachers may be deputed to training as inservice candidates. Besides that they should be paid an allowance equivalent to 25 percent of their salary as incentive. A special drive for recruitment of teachers may be made. Indiscriminate appointment of teachers has resulted in failure in the past. Hence, adequate attention should be given to teacher selection and recruitment.

Supervision of the work of the teachers is more important than any other programme. The present plight of the Primary Schools run by the Education Department was mainly due to want of supervision. It is, therefore, suggested that atleast one Sub-Inspector of Schools should be posted for Bondo Project Area schools with headquarters at Mudulipada. His services should be placed under the Project Leader including payment of his salary.

**M. E. Schools**—Classes VI, VII and VIII constitute a part of the programme of universalisation of elementary education. In Orissa, Class VIII is not a part of M. E. School education. We may therefore, consider the question of establishment of M. E. Schools in the Bondo Project Area having classes VI and VII only.

As per the norms suggested by the Kothari Commission there should be one M. E. School for every 3 Primary Schools. But Government of India in their Report of the working group on 'Early Childhood Education and Elementary Education' have recommended for one M. E. School for every two Primary School. The Bondo hills being the abode of a primitive tribe having problems of road communication the recommendation of Government of India may be executed.

The distance and population norms for opening of M. E. Schools are the distance of a newly opened M. E. School should be atleast 3 Kms. from an existing M. E. School and it must serve a population of 1,200. In this area distance will not create any problem. The usual distance of one village is 3 Kms. from another. But the population norm cannot be observed if M. E. School education is to be provided for all the children.

The cluster headquarters have been selected at the geographical centre of a patch of villages. It may be suggested that five M. E. Schools may be established in the five cluster headquarters out of which there is one M. E. section at Mudulipada in the local High school. Hence four more M. E. Schools may be established in the following four cluster headquarters.—

1. Ardral
2. Kirsani pada
3. Bondapada
4. Tulagurum

It seems that the problem of provision of M. E. Schools within 3 Kms. distance from the home of children cannot be solved with these four M. E. Schools. Two more M. E. Schools may be opened to serve the villages mentioned against each:—

- |                       |    |  |
|-----------------------|----|--|
| 1. Patraput to serve  | .. | Patraput, Bajaguda, Tuscipada, Khalaguda, Sindhiguda, Bhaliapadar. |
| 2. Kichapada to serve | .. | Tagabeda, Baraguda, Pindajangar, Rameliguda/Smiliguda.             |

There are 10 existing Primary Schools. We have proposed to open 5 new Primary Schools and six extension Primary Schools. The total number of M. E. Schools shall be seven after opening of these 6 M. E. Schools. The proportion between M. E. and Primary Schools shall be 1:3.

*Secondary Education*—The State Government norms for opening High Schools is that each Grama Panchayat should have a high school. There are two Grama Panchayats in the Bondo Project Area. There is a high school in Mudulipada Grama Panchayat. So there should be another high school in Ardral Grama Panchayat.

Distance and population norms for opening of high schools are 8 Kms. distance from an existing school and 6,000 feeding population. Viewed from the population norm the entire Bondo Development Agency requires one high school which it has. The distance norm cannot be satisfied in this area.

Six M. E. Schools are now proposed to be established during the coming 4 years. No student is likely to pass M. E. during the coming four years. If some students pass from the M. E. Schools to be opened this year after 2 years, they may be admitted to Mudulipada High School. Thereafter if the outturn goes beyond the capacity of Mudulipada High School, another High School may be established.

The deficiencies of Mudulipada High School should be removed during the 8th plan period. The deficiencies are—

1. Construction of hostel for boys
2. Construction of kitchen and dining hall
3. Purchase of utensils for the kitchen and students dining trays
4. Construction of Septic Latrines
5. Levelling of a major play ground
6. Supply of library books
7. Purchase of science apparatus.

There are many other problems of the high school like construction of a compound wall, training of the students in some vocation or job-oriented courses, medical check up of student's health etc. But the above deficiencies have been given priority to be taken up as per the plan.

*Package Programmes*—It is desirable to have package programmes in this area inhabited by the primitive tribes. In case of disintegrated proposals for plans, it may so happen that a part of a scheme is worked out but due to non-sanction of the remaining part of the entire scheme remains in operative for long periods. As has been soon, schools were opened since more than 20 years but building grants were not sanctioned till 1984-85. Even after building grants were sanctioned and communicated buildings have not been completed as yet. Under a package programmes such problems would not arise.

Another advantage of the package programme is that its operation can be regulated when all the components of a scheme are executed at a time. It is necessary that units should be spelt out in details and unit cost may be worked out to facilitate operation and sanction of funds.

#### UNIT COST OF PRIMARY SCHOOLS

##### Non-recurring cost

1. (a)	Building with toilet	..	Rs.	75,000.00
(b)	Equipments	..	Rs.	8,000.00
(c)	Furniture	—	Rs.	7,000.00
				Total .. Rs. 90,000.00

##### Recurring cost per annum

2.	Matric C. T. Teachers—			
	Salary	..	Rs.	1,850.00
	H. R. A.	..	Rs.	90.00
	R. C. M.	..	Rs.	25.00
	Incentive	..	Rs.	300.00
				Total .. Rs. 2,265.00

$$2 \times 12 \times \text{Rs. } 2,265 = \text{Rs. } 54,360.00$$

#### UNIT COST FOR M. E. SCHOOLS

##### Non-recurring expenditure

1. (a)	Building with toilet	..	Rs.	95,000.00
(b)	Equipment—			
	(i) Teaching aids—maps and charts	..	Rs.	7,000.00
	(ii) Science apparatus	..	Rs.	2,000.00
(c)	Furniture	..	Rs.	8,000.00
(d)	Library books	..	Rs.	5,000.00
(e)	Games and Sports articles	..	Rs.	3,000.00
				Total .. Rs. 1,20,000.00

## Recurring expenditure

1. One trained graduate Headmaster	Rs. 3,000 × 12	..	Rs.	36,000-00
One I. Sc., C. T. Assistant Teacher	Rs. 2,265 × 12		Rs.	27,180-00
One Motivator-cum-peon	Rs. 750 × 12	..	Rs.	9,000-00
Contingent expenditure		..	Rs.	500-00
Annual building repair		..	Rs.	1,000-00
				Total .. Rs. 73,680-00
				'or'
				Rs. 74,000-00

## UNIT COST FOR ADULT AND NON-FORMAL EDUCATION CENTRE

The Primary School building is to be utilised for teaching-learning work

Remuneration of one non-formal teacher	Rs. 750 × 12	Rs.	9,000-00
= Rs. 9,000.			
Cost of primers, posters, pictures, teaching aids, slate, exercise book, pen, pencil etc.		Rs.	1,000-00

## UNIT COST FOR ANGANWADIS

The toys, learning materials, food materials are to be supplied by the Panchayati Raj Department under the I. C. D. S. Programme.

The remuneration of the Anganwadis workers = Rs. 750 per month. Cost per annum is Rs. 750 × 12 = Rs. 9,000-00. Construction of a school measuring 20' × 15' is to be taken up at a cost of Rs. 20,000 each. The entire cost is to be met by the Panchayati Raj Department.

## UNIT COST FOR LOW-COST HOSTELS FOR 40 STUDENTS

Building	..	Rs.	1,50,000-00
One Cook and one Helper remuneration @ Rs. 750 × 12 × 2.		Rs.	18,000-00
Stipend per boarder Rs. 120 P. M.—Rs. 120 × 40 × 12		Rs.	57,600-00

During the years 1991-92 and 1992-93 extensive construction work may be undertaken for opening of schools. It is not desirable to introduce schemes and appoint functionaries without any venue for work and residential accommodation. Immediate steps may be taken to initiate construction of school buildings for which grants were sanctioned in the year 1984-85 and placed with the B. D. O., Khairput. In case the building construction is not completed before opening a school a delay may be made in opening the school but no chance should be created for waste of money by premature opening of schools.

One audio-visual unit may be created during 1991-92 for motivation of the people. The unit should have a generator set, a 16 m.m. projector with screen and stand, a 4-wheeled trolley Rickshaw. The posts of an operator and a rickshaw driver-cum-helper may be created. The S. R. C. and SCERT may be requested to prepare scripts for developing films with the help of Educational Television Studio of Education Department. The medium of discourse shall be 'Remo' the language of the Bondos. Films may be prepared for adult, pre-primary and primary schools.



## Phasing of the programmes and financial estimates of the plan proposals

1991-92

## Non-recurring expenditure

	Rs.
1. Audio-visual unit with a generator set, projector, trolley Rickshaw.	35,000.00
2. Opening of two Primary Schools at Kichapada and Goiguda, Rs. 90,000×2.	1,80,000.00
3. Opening of two Extension Primary Schools at Katamguda and Bandiguda, Rs. 50,000×2.	1,00,000.00
4. Construction of a kitchen and a dining hall in the Mudulipada High School.	60,000.00
5. Opening of two Anganwadi centres at Badapada and Kichapada, construction of sheds.	40,000.00
Total ..	4,15,000.00

## Recurring expenditure

1. Salary of one Operator and one Rickshaw Driver-cum-Helper, Rs. 1,600×12×1.	19,200.00
Rs. 750×12×1 ..	9,000.00
2. 6 Matric C. T. Teachers for two Primary Schools and two extension Primary Schools for 4 months, Rs. 2,265×4×6.	54,360.00
3. Creation of one post of Helper and one cook for Mudulipada High School Rs. 750×12×2.	18,000.00
4. Creation of two posts of Anganwadi workers, Rs. 750×12×2.	18,000.00
5. Creation of 3 posts of non-formal teachers for adult education at Dumuripada, Bandhuguda and Katamguda for six months.	13,500.00
Total ..	1,32,060.00
Total—Non-Recurring+Recurring ..	5,47,060.00

1992-93

## Non-recurring expenditure

1. Opening of two Primary Schools at Badapada and Similiguda /Ramliguda (Construction of buildings, etc.), Rs. 90,000×2.	1,80,000.00
2. Opening of two extension Primary Schools at Khalaguda and Tagabeda (Construction of buildings).	1,00,000.00
3. Construction of a Hostel for 100 students in Mudulipada High School.	4,50,000.00
4. Opening of two Anganwadi centres at Pindajangar and Patraout.	40,000.00
Total ..	7,70,000.00

Recurring expenditure		Rs.
1.	Continuance of one Operater and one Rickshaw Driver-cum-Helper.	28,200·00
2.	Continuance of 6 Matric C. T. Primary Teachers and creation of 6 posts of Matric C. T. Primary Teachers for 6 months.	
	Rs. $2,265 \times 6 \times 12 =$ Rs. 1,63,080·00	} 2,44,620·00
	Rs. $2,265 \times 6 \times 6 =$ Rs. 81,540·00	
3.	Continuance of one post of Cook and one post of Helper ..	18,000·00
4.	Continuance of 2 posts of Angarwadi workers and creation of two more posts for 6 months.	27,000·00
5.	Continuance of 3 posts of Non-formal Teachers and creation of 3 posts for 6 months at Patraput, Kirsanipada and Khalaguda.	40,500·00
Total ..		3,58,320·00
Total—Non-recurring+Recurring ..		11,28,320·00

1993-94

Non-recurring expenditure		Rs.
1.	Opening of one Primary School at Bandhaguda—construction of building and other non-recurring expenditure.	90,000·00
2.	Opening of two extension Primary Schools at Chalanpada (Building).	1,00,000·00
3.	Upgrading of two Primary Schools to M. E. Schools at Andrahal and Kirsanipada—construction of building and purchase of equipments, furniture, etc.	2,40,000·00
4.	Construction of low-cost hostels at Bondapada Primary School and Kirsanipada Primary School.	3,00,000·00
5.	Purchase of utensils and supply of library books and science apparatus to Mudulipada High School.	25,000·00
6.	Opening of 3 Anganwadi centres at Bandiguda, Goiguda and Dantipada (construction of shed).	60,000·00
Total ..		8,15,000·00

Recurring expenditure		Rs.
1.	Continuance of one Operator and one Rickshaw Driver-cum-Helper.	28,200·00
2.	Continuance of 12 Primary School teachers and creation of 4 posts of Primary teachers for six months.	
	Rs. $2265 \times 12 \times 12 =$ Rs. 3,26,160·00	} 3,80,520·00
	Rs. $2,265 \times 6 \times 4 =$ Rs. 54,360·00	

	Rs.
3. Creation of 2 posts of T. G. Headmasters, 2 posts of Assistant Teachers and one Motivator with contingency for six months.	
Rs. $3,000 \times 6 \times 2 =$ Rs. 36,000·00	} 68,180·00
Rs. $2,265 \times 6 \times 2 =$ Rs. 27,180·00	
Rs. $750 \times 6 \times 1 =$ Rs. 4,500·00	
Contingency Rs. 500·00	
4. Continuance of one post of Cook, one post of Helper and creation of two posts of Cooks and two posts of Helpers for 6 months.	
Rs. $750 \times 12 \times 2$	} 36,000·00
Rs. $750 \times 6 \times 4$	
5. Provision for stipend to 80 Boarders of low cost hostel @ Rs. 120 per head per month for 6 months. Rs. $120 \times 80 \times 6$ .	57,600·00
6. Continuance of 4 posts of Anganwadi workers and creation of 3 posts for 6 months.	
Rs. $750 \times 12 \times 4$	} 49,500·00
Rs. $750 \times 6 \times 3$	
7. Continuance of 6 posts of non-formal workers and creation of 3 posts for 6 months at Pindajangar, Kichapada and Tulagurum.	67,500·00
8. Establishment of two Janasiksha Nialayams, creation of 2 posts of Preraks. Salary Rs. 750 per month for 6 months = Rs. $750 \times 6 \times 2$	9,000·00
Total ..	6,96,500·00
Total—Non-recurring+Recurring 1994-95 ..	15,11,500·00
Non-recurring expenditure	
1. Upgradation of 2 Primary Schools to M. E. standard at Bondapada and Patraput—construction of building.	1,90,000·00
2. Opening of 3 Anganwadi centres at Bandhaguda, Katamguda and Khalaguda—construction of shed.	60,000·00
3. Construction of Toilets for Mudulipada High School/ Hostel.	30,000·00
4. Construction of a low-cost hostel at Andrahal ..	1,50,000·00
Total ..	4,30,000·00

## Recurring Expenditure

	Rs.
1. Continuance of one post of Operator and one post of Rickshaw Driver-cum-Helper.	28,200.00
2. Continuance of 16 posts of Matric C. T. Primary School Teachers Rs. 2,265×12×16.	4,34,880.00
3. Continuance of 2 posts of T. G. Headmasters and 2 posts of I. Sc. C. T. Assistant teachers and creation of 2 posts of T. G. Headmasters and 2 posts of I. Sc. C. T. Assistant Teachers for 6 months.	1,89,540.00
4. Continuance of 3 posts of Cook and 3 posts of Helpers and creation of one post of cook and one post of Helper for 6 months.	63,000.00
5. Continuance of provision for stipends for 80 Boarders for one year and for 40 boarders for 6 months. Rs 120×80×12 Rs. 120×40×6	} 1,44,000.00
6. Continuance of 7 posts of Anganwadi workers and reation of 3 posts for 6 months— Rs. 750×12×7 Rs. 750×6×3	} 76,500.00
7. Continuance of 9 posts of non-formal teachers for adult education.	81,000.00
8. Continuance of two Perraks for Janasiksha Nilayam Rs. 750×12×2	18,000.00
Total	.. 10,35,120.00
Total—Non-recurring+Recurring	.. 14,65,120.00

## TOTAL EXPENDITURE FOR THE SCHEME

Year	Recurring	Non-recurring	Total
(1)	(2)	(3)	(4)
	Rs.	Rs.	Rs.
1991-92	1,32,060	4,15,000	5,47,060.00
1992-93	3,58,320	7,70,000	11,28,320.00
1993-94	6,96,500	8,15,000	15,11,500.00
1994-95	10,35,120	4,30,000	14,65,120.00
Total	22,22,000	24,30,000	46,52,000

The schemes are arranged as per priority. While submitting proposals for sanction of funds further details may be worked out.

Efforts should be made to construct the sheds for the Anganwadis close to the Primary School so that school and the Anganwadi will supplement each other.

All the Primary Schools old and new should be covered under the mid-day meal programme. This being an area inhabited by primitive tribes, deserves to be included under the mid-day meals programme.

The Directorate of Adult Education, Orissa may be requested to establish Jana Siksha Nilayam in the cluster headquarters under their regular programme. They may be requested to develop social programme for the primitive tribes.

*Some assumptions and expectations*—1. Adult education kits for learning of adults are to be supplied by the State Resource Centre, Bhubaneswar free of cost as in other tribal cases.

2. Reading materials may be supplied by the State Resource Centre for the neo-literates to be stored in Jana Siksha Nilayam and distributed among neo-literates in their villages.

3. Learning materials are to be developed alongwith bilingual primers with discourses in 'Remo' for preparation of films. The S. I. E. T., Orissa may be requested to prepare films for screening.

4. Food materials, toys, learning materials, play materials are to be supplied by the C. D. Department for the Anganwadis to be established in the Bondo villages under the I. C. D. Scheme.

5. The State Council for Educational Research and Training may be entrusted with the responsibility of developing bilingual primers (Remo and Oriya) and materials for developing films for which they have got the necessary expertise being academic wing of Government in the Education Department.

6. State Government norms for different programmes should be relaxed under special consideration for the primitive tribal areas.

7. Scheduled of rates of the P. W. D. should not be applied to the construction programme in the Bondo hills. Extra carriage cost should be allowed in case of location having no road communication.

*A note on implementations of the programmes*—A cell may be created for co-ordination of developmental activities in all the micro projects in addition to the project leaders/Special Officer at the project level. The problems encountered at the State level should be sorted out and effectively dealt with at Government level in order to ensure successful implementation of the Programmes.

The Bondos have been neglected over the last 44 years of post-independence period. These cases are, therefore, to be disposed of on priority basis, so as to give the minimum justice they deserve.

### 5.1. Summary

The tribal development scene was critically reviewed on the eve of the Fifth Five-year Plan and new strategy and approach were suggested for the development of the tribal people, keeping in view their pattern of distribution and level of development. The new approach gave birth to the Tribal Sub-Plan covering the area having tribal concentration for giving special attention for all round development for the primitive tribal communities selected on the basis of criteria, such as pre-agricultural level of technology, low literacy rate, diminishing or near stagnant population, geographical isolation, archaic mode of living were also brought within the ambit of special programme for their sustainable socio-economic development through a special approach known as Micro-Project. Thus, at present, 15 Micro-projects are functioning for 12 primitive tribal groups of the Orissa State. The Bondo

Development Agency. Mudulipada is one of such Micro Projects, taking care of the all round development of the Upper Bondos of Mudulipada and Andrahal Gram Panchayats in Khairiput C. D. Block of the Koraput district. Assessment of the progress and evaluation of different development programmes in the area has depicted that the desired goals have not been achieved to an appreciable extent. It was seriously felt that the pre-farming, pre-marginal and primitive Bondos require a special care through suitable programmes for their development and change. For systematic and scientific development, the Government felt the necessity of preparing an action plan based on Techno-economic survey for them. A group of specialists from different disciplines, like Soil Conservation, Agriculture, Irrigation, Forestry, Veterinary and Animal Husbandry, Education, Communication, Health and Public Health, not attached to Government services were entrusted with the task of conducting Techno-economic survey and formulation of the action plan thereof. In a phased manner they conducted field studies, consulted the Bondos and other neighbouring ethnic groups, Government and non-government officials and authorities incharge of the development of the Bondos. They have suggested suitable remedial measures to combat with several problems in their respective lines.

The Bondos live on the hills and mountains. Their habitation is situated from 3000 to 5000 ft. above the sea level. The agency area can broadly be divided into four eco-cultural zones viz. Mudulipada, Andrahal, Pindajangar and Patraput, on the basis of their socio-cultural, geographical and agro-climatic factors as well as impact of development programmes and access to modernity and acceptance and rejection of innovations.

The Bondo Development Agency covers 32 inhabited revenue villages of Mudulipada and Andrahal Gram Panchayats of Khairiput block under Malkangiri subdivision in Koraput district. The villages are scattered in an area of about 130 Sq. Kms. The areas lay between 18°-15' and 18°-30' N. Latitude and 82°-15' to 18°-30' E. Longitude. The Bondo population in the project area is 4,207 of which 2,034 are males and 2,173 females. As per the survey conducted in the year 1990 by the Bondo Development Agency the total population of the 32 villages is 6,355. The percentage of literacy is only 2.75 of which 5.06 in case of males and 0.69 in case of the females. With regard to availability of infrastructural facilities the Agency headquarters at Mudulipada is connected by Khairiput-Mudulipada all-weather road. In addition to this 77.6 Kms. of katcha road connecting different Bondo villages are also existing in the area. There are six Anganwadi Centres, 8 Primary Schools, 1 High School, 6 Non-formal Education centres, one Ayurvedic Dispensary, one additional P. H. C., one Live-stock Aid Centre, one Police-Station, one Post Office and one LAMP found in the area. The sample survey has revealed that on an average a full time adult Bondo worker is engaged for 240 days in various productive works round the year. He has no work for 69 days and other 54 days he spends in unproductive works. Maximum time he spends in forest collection and shifting cultivation. Of all income sources agriculture is found as the main source of their livelihood. They grow a number of cash crops in axe cultivation. Most of the cereal, pulses, oilseeds and vegetables they grow in the shifting cultivation fields. The average annual income per Bondo household is estimated to be Rs. 3,264 of which Rs. 2,093 from Agriculture. The yield rate reveals that they produce 14.25 quintals of paddy, 9.54 quintals of ragi and 9.64 quintals of maize per hectare. The Bondo households spend Rs. 3,418 annually out of which consumption expenditure constitutes 90%. They go for loan to celebrate traditional festival and propitiating their spirits and rarely for food. They save very little in the shape of cash and kind. The Bondos are very aggressive, freedom loving, upright, suspicious, ill-tempered and hostile people. The women are lovely, hard working, peace loving, sincere and shoulder major responsibilities of the family. The Bondos are furious and known for their criminal propensity and homicidal tendency. They live in the midst of forests and collect different food items and fire wood, medicine and materials for house construction in the forest. Their age-old practice of shifting cultivation is not only an economic means but also a way of life. In a village the houses are jumbled up. Each house is made of mud wall and roof thatched with jungle grass. The material belongings of the Bondos comprise some utensils, bow and arrow, traps, snares, agricultural implements, hunting weapons, etc. Women put on a lot of ornaments starting from the head up to waist. They weave their own small clothes out of "Keranga" fibre. Women get their head clean shaved regularly. They never put on any cloth to cover the upper part of the body.

The Bondos are divided into two broad divisions known as Moieties, Ontal (Cobra) and Killo (Tiger). Further it is divided into several clan groups. Each village has its own traditional administrative-cum-economic territory. They have strong lineage affinity. In each

village there is a place marked with elevated stone platform known as 'Sindibor'. Each village, is having one or more girl's dormitory known as "Selanidingo" and another dormitory meant for the unmarried boys known as "Ingerisung". For different socio-cultural and religious purposes the villagers get united together.

The political life of the Bondos is based on rigid democratic principle. The traditional village council is very powerful for all indigenous socio-political matters. The "Naik" is the traditional secular head man who is assisted by the "Chalan". The "Barika" works as messenger. The functionaries of the council also exercise some of the power in magico-religious matters. The council decides disputes connected with property, marriage, religion, sorcery, quarrel, conflict and tension.

The Bondos are influenced by a number of supernatural beings. They consider 'Mahaprabhu' as the supreme being and believe in the existence of a number of spirits responsible for various happenings. The "Hundi" is very powerful deity normally enshrined within the village boundary. They celebrate different festivals either to appease several spirits or for eating new food crops. The magico-religious specialists in the village are known "Sisa" and the person who deals with magic, astrology and herbal medicine are known as "Dissari". Their magico-religious performance is associated with sacrifice, prayer and trance. The life cycle of the Bondos is full of love and affection, pleasure and merrymaking, cares and anxieties, struggle and strive, aspiration and aggression. The males and females develop different types of personality through the process of socialisation. Their marriage is very expensive and full of adventures. The boys marry at late childhood in between the age of 12 to 16 years. The girls marry within the age of 22 to 25 years. Land Survey and settlement in the Bondo area is not yet completed. There are no reserve forests. According to the Forest Department about 70% of the forest area has been damaged by axe cultivation. As per recent survey conducted by ORSAC, 25% of Podu Cultivation has been increased during the year 1975 to 1991. The Bondo Development Agency has already implemented various development schemes to provide suitable economic alternatives to control the age-old practice of shifting cultivation. But in the long run the objective to wean them away from it would not be achieved because of several reasons. Keeping in view the past experiences and present felt-needs of the Bondos some of the suitable economic alternatives have been recommended. Stopping Agriculture Land Technology (SALT) may be experimented in the area. Moreover, low cost farming technology which the people can understand, accept and practise may be of practical significance. In the subsequent stages sample agro-livestock technology, agro-forestry and sustainable agro-forest land technology may be adopted to develop forest and the people simultaneously.

On the basis of physical features of cultivable land the Bondo area can be divided into hill slopes, valleys, dry semi-Plain areas and wet land meant for terraced cultivation. The soils are mostly sedentary in nature and geology of the area is mainly of Khondalite and Chromocite rocks. The drainage texture is worse and solid and permissible enough to allow a good infiltration. The colour of the soils is mostly red and skeletal in nature. The soils are acidic in reaction and the texture vary from coarse loamy at the upper region to sandy clay loam at the foot-hills. The problems encountered in the Bondo area in connection with soil are shifting cultivation, waste land, gullied land, stream bank erosion, soil acidity, lack of irrigation facility, land settlement, destruction of vegetative cover etc. Possible soil and water conservation measures in the Bondo area are resource inventory, land development, gully control, construction of water harvesting structure, installation of lift irrigation points, establishment of stream bank erosion control, diversion bunds, sisal plantation, Jhola land protection, miscellaneous plantation of Soil conservation species and liming of acidic soil. As regards soil conservation work something has been done by the Bondo Development Agency. But adequate staff and infrastructural facilities to work in the line of soil conservation and participation of the Bondos in the environmental development may bring the success of the soil conservation measures in the Bondo area.

The Bondos are basically agriculturists. They depend on shifting cultivation as well as wet land cultivation for their livelihood. Since inception of the Micro-Project in the Bondo area a lot of new varieties and better types of agricultural crops have been initiated. Of the special varieties mention may be made of high yielding paddy, wheat, potato, vegetables, pulses and oil-seeds. They were also taught to grow crops using chemical fertilizers and insecticides. Prior to developmental intervention, they were also growing mixed

crops. double cropping, crop rotation and scientific mixed cropping were introduced through trained agricultural staff. Apart from these provision of input assistance and organisation of compost pits were some of the special programmes implemented by the Bondo Development Agency. The agency supplied high yielding pulses, oil seeds, tubers, etc. Out of the total area of 130 Sq. Kms. the area under cultivation found to be 2,200 hectares only. A total land of 154 616 hectares are covered under crops like paddy, maize, jawar, ragi, small millets, pulses, like arhar, green-gram, black-gram, oil-seeds like, niger, castor, mustard, etc. In rabi they grow paddy, wheat, ragi, maize, green-gram, black-gram, horse-gram, peanut and many others.

Keeping in view the food requirement of the Bondos, their age-old agricultural practices and experiences the achievements of the agency of last 15 years, some suitable measures for agricultural development have been proposed. Attempts should be made to provide input assistance to control the age-old practice of shifting cultivation in the area. Special training in agricultural practices may be imparted to the Bondos for better yield and management of soil. Free supply of agricultural implements, fertilizers, pesticides and provision of other infrastructural facilities may bring sustainable change in the traditional agricultural practices. In addition to this agricultural training programme and agricultural fair in the area should be organised to motivate them for undertaking new improved varieties of crops. By and large now the Bondos have learnt a lot through the Development Agency. Through special endeavour of the Bondo Development Agency several new varieties of crops and improved techniques have been introduced among the Bondos. By taking the help of experts and specialists, agricultural production in the area can be increased as well as the Bondos can gain practical experience to continue the same in future. Constant guidance to create interest and sincerity among the beneficiaries can bring immense change in the traditional agricultural practices of the Bondos. Agricultural Development will be core programme for the development of the Upper Bondos. The Bondos are fond of taking various seasonal fruits and vegetables. They collect fruits from the forests in different seasons and grow vegetables in their kitchen garden and in swiddens. In the Bondo Agency area there are 240 hectares of up-land in which some sort of fruit trees are found and vegetables are also grown in little scale. The homestead land measuring 32 hectares are mostly used for growing vegetables, such as brinjal, gourds, pumpkins, beans, sweet potato, edible tubers, papaya and varieties of green leaves, etc. In the jungle where swiddens are located fruit trees, like banana, mango, jackfruits, guava, etc. are also grown. To meet minimum requirement of vegetables for the Bondo 70 hectares should be covered under different varieties of vegetable cultivation in scientific manner. Intensive use of lands for raising vegetables can increase vegetable production in the area. Utilisation of irrigation potential and provision of dug-wells may bring success in vegetable programme. In some places, the Bondo Development Agency has successfully demonstrated vegetable crops. The future possibility and scope for growing vegetables like potato, tomato, tubers, pumpkin, gourd, beans, brinjal and many other green vegetables are encouraging. In case of the fruit bearing trees the Agency has demonstrated and supplied varieties of plants which in many places has not yielded good result. This is due to lack of proper assessment of the need and aptitude of the people and implementation of the programme and it did not also cope up with the traditional horticultural practices of the people. Because most of the fruit bearing trees were grown by their forefathers and rarely a Bondo replaces the tree when found dead. Due to practice of shifting cultivation also a lot of fruit bearing trees have been damaged. The Agency has already introduced the plantation of grafted mango, lemon, orange, lichi, sapeta and guava. The Bondo farmers have interested only in growing fruit bearing trees. The horticulture programme in the past could not be successful as the beneficiaries were not involved in the process of horticultural activities. The major problem of the area is cattle who damage the plants.

Keeping in view the past experiences in the field of horticulture the Bondos may be motivated to grow different varieties of plants alongwith their food crops only after they are trained up in scientific method of plantation. Those who have adequate and suitable land for horticultural plantation may be provided necessary assistance for extensive plantation of profitable fruit trees. Keeping in view the individual income generating programmes and to provide opportunity to the landless Bondos. Cultivable Government waste land may be utilised for plantation of fruit bearing trees and the beneficiaries may be given the usufructuary right. Starting from selection of site and species up to the harvest and marketing the Bondos should be involved fully. The Beneficiaries should be imparted training about the total packages of the programme.



During the gestation period the people should be engaged as caretakers and watchmen of the plantations on payment of remuneration. During a period of five years a sum of Rs. 3,75,000 may be required for implementation of the horticultural programmes in the Bondo area.

The Bondo area is full of perennial streams. The water of such streams are used for wet cultivation. The topography and soil type of the Bondo area and rainfall hardly allow to make best use of the water throughout the year in the area. Distribution of rainfall do not support better production of the crops.

The Bondo Development Agency has already attempted to provide irrigation to the Bondo farmers through dug-wells, construction of water harvesting structure, contour irrigation channel etc. They have already constructed one M. I. P. but the irrigation provision so far is quite inadequate and hardly supplies water to the target ayacut area. There is enough scope to install life irrigation points at several places to provide irrigation facility. Under irrigation either through flow or life sum of Rs. 96,00,000 will be the total requirement for providing irrigation facility to 800 hectares of cultivated and cultivable land.

The Bondos domesticate animals, like cow, buffalo, bullocks, sheep, goat, pig, dog and cats. They keep birds like chicken, pigeon and duck etc. They domesticate animals and birds for economic, social and religious purposes. They breed birds for consumption and sacrificial purpose and cattle to be given as bride price and fine imposed by their tribal council.

The cattle which the Bondos possess are of low quality and local variety. The cattle are left to natural condition for food and water. No special care is taken by the owners when the animals are at home.

Attempts were made by the Bondo Development Agency to improve the livestock population and condition in the Bondo areas. But due to lack of adequate care on the part of the Bondos and follow up action by the Agency the programme did not show good result. The animals suffer from general debility, anaetoxia, sprain, injuries, enterites etc. No adequate treatment of diseases like prophylactic vaccination against haemorrhagic septicaemia, blackwater, rinderpest, foot and mouth diseases are taken care of. The occurrence of epidemics among the livestock needed curative and preventive measures. Inaccessibility of the area and lack of adequate infrastructural stand on way to check such epidemics.

Keeping in view the achievements of the Agency and urgent felt-need of the people in connection with success and failure of the Animal Husbandry Scheme the following programmes may be brought into action. For this purpose the Agency area can be divided into some clusters. Each cluster may comprises of several adjacent villages, each cluster will be provided with minimum technical staff, equipment and infrastructural facilities.

For improving natural breeding system, Jersey bull and he-buffalo may be introduced. Apart from this composite buck and boar scheme, through cluster approach may help in improving the local variety of goats and pigs. Under this upgradation programmes it is proposed to set up veterinary dispensary at Mudulipada and Livestock Aid Centre at Kirsanipada and at Bondapada for taking care of the livestock. The norms for opening of Livestock Centres and Veterinary Dispensary on the basis of livestock population should not be made applicable in Bondo area. The involvement of the people and constant follow up action in the long run would definitely help the people to achieve better result in this programme. Total amount of Rs. 11,13,470 has been proposed to be spent during the period of four years to bring promotion and positive change through the Animal Husbandry Programme.

The Bondos have been facing various health problems. They live in unhealthy climatic conditions of the isolated hills and mountainous areas. They depend on food items mostly which are available in the area and irregular diets. Due to devastation of

forests and growth of population these are not sufficiently available as before. Malnutrition and lack of knowledge in proper utilisation of food items cause several health problems among the Bondos. The most diseases from which they suffer are malaria, black water, scabies, diarrhoea, wounds, frequent accident etc. Since the Bondos are not aware of various preventive and curative measures but depend on propitiating the spirits, God and Goddesses. The health problems have been multiplying. Since 1963 an Ayurvedic dispensary is functioning at Mudulpada and rendering necessary services mostly to the people of adjacent villages. The people are neither very much conscious nor make use of the facilities of the health centre. Rather they take the help of the magicians and religious specialist for both curative and preventive measures. The problem of safe drinking water and unclean habit of the Bondos put the Bondos into peril. The use of large number of heavy ornaments is an additional cause of their health problems. The calorie intake is inadequate causing weak health amount them. There is high death rate and low birth rate in Bondo community. Number of old males among them is much less than the old females. The area is badly in need of different health measures to develop the health condition and hygienic habit of the Bondos. Not only the curative measures but also a lot of preventive methods are to be followed with all sincerity and devotion. To bring down the chronic health hazards in the area, the people must be motivated in the line of their own culture to accept modern health care facilities and to adopt necessary hygienic methods. Programmes, like control of malaria, organisation of mobile health camp, special drive to check respiratory infection and stomach problems may bring considerable change in the health condition of the people. Establishment of a new medical sub-centre and extension of health education in the area can definitely change the gravity of situation to short out several chronic health problems. Adequate supply of medicine to the centres and regular functioning of medical institution and posting of various categories of medical staff in the area are to be ensured. By and by the situation will change provided the health staff get proper orientation training. Keeping in view several core and its interrelated health problems some suitable proposals have been suggested with an estimated cost of Rs. 11,50,600 only. However, money can not be the only factor to solve the varied health problems of the Bondos. It involves human factor, delicate socio-cultural nexus which need to be handled very carefully are to be taken into account for ensuring success in the health problems of the Bondos.

The Bondo area was isolated since long from the other areas due lack of communication facility. Even at present other than the all-weather road from Khairput to Mudulpada and 77.6 Kms. in length of fair-weather roads communication facilities are lacking in the agency area. A number of villages have been cut off from the Bondo development Agency headquarters. The problem of inaccessibility is acute in the rainy season. If the above mentioned 77.6 Kms. of length roads in some form or the other existing in Bondo area at least can be improved, reconstructed and repaired, as the case may be, and made all-weather, contact throughout the year can be made with the interior villages. The project headquarters can be communicated with outside the Bondo areas also. The developmental activities taken up by the Bondo Development Agency and other line departments can be properly supervised by implementing personnel provided communication facility is improved in the area. At the same time the Agency area will be opened up which will not only help in the easy movement of men and materials for development but also allow the Bondos to come in contact with the general mass. Thus communication is to be improved on priority basis. In this regard adequate technical staff and required funds will be required.

In the Bondo area due to lack of pure drinking water facilities the Bondo suffer from a lot of water borne diseases. The use of stream water is responsible for several diseases affecting their health status and causing increase in the death rate. Since the DTH rigs can not be taken to inaccessible Bondo villages, tube-wells may not be possible all over the area. The villages which are connected by road may be listed under the provision of tube-well. The cluster of villages adjacent to the Agency headquarters may be supplied with pipe water from a reservoir. Since the Agency headquarters has electricity there will be no problem for providing safe drinking water through pipes.

The Bondos suffer from various gastro-intestinal trouble and look very pale and weak being infected by different worms. The sanitation programme in the area has received very low priority. The remote villages may be electrified. The settlement patterns facility of ventilation in the houses constructed in line of their traditional architectural design may help the Bondos to develop present health and sanitary condition.

The spread of education among the Bondos is equally essential like their economic development. The percentage of literacy is very low in comparison with other tribal communities of the State and this is more appalling among the women folk. Since several decades attempts have been made in one way or other to make the Bondos literate and educationally developed. All the efforts made by the Government for educational development has no impact on them to the extent desired. The formal education, process of study teaching methods and persons entrusted with the job did not suit to the culture and people of the area. In the area the I. C. D. S. Schemes are under operation in six centres. The schemes give emphasis on supplementing nutrition, health checkup, immunisation pre-school education, welfare services and some other allied problems of the children. The Anganwadi workers posted in the area are doing good job but they need some orientation training for better results. The elementary education has not achieved to a desired extent. The eight primary schools, run by the Education Department, are not functioning well. A residential Sevashram of primary standard was functioning at Mudulipada since 1960. It has been upgraded to Ashram School of M. E. standard in the year 1979 and subsequently to High School standard but number of the Bondo students reading in the High School is quite meagre. The condition of the school building and staff quarters and other problems of the Institution deserve special attention. All the lower primary schools exist in paper but in practice teachers posted there in rarely stay in the area. In some schools the posts of teachers lay vacant for a pretty long period. The teachers recruited from outside are ignorant of the customs and cultural values of the the Bondo tribe. Lack of inspection non-existence of school building and teachers quarters, disgusted courses of studies are some of the factors which hinder educational development among the Bondos. The reading and writing materials supplied to the Bondos by the Harijan & Tribal Welfare Department and materials expected under operation Black Board Scheme rarely reach in time. The non-formal education centres run in the area, have not brought much success because of the unsuitable curriculum. It does not suit to the culture of the people and also not within the reach of the small children. The Upper Primary or M. E. School education in the Bondo area has least impact because of their high percentage of dropouts. The High School at Mudulipada has very good impact in the outside area but not on the Bondo students. The school is not well equipped with good buildings, hostels, teacher's quarters, science apparatus, teaching aids, furniture and other ancillary materials. Some of the post of teachers in the High School lying vacant for long period. Hence students face a lot of problems to complete their courses of studies within the stipulated period. Different games and sports items, teaching aids which are absolutely needed for teaching students are lacking. Somehow or other the students are enrolled in lower classes but the moment go to higher classes the percentage of drop-outs increases. From the result of last decade it is found that the educational programme has not been successful. No serious step has been taken by the concerned authority to ensure proper functioning of the educational institutions and to rarely supervise the works of the teachers. The educational institutions established by the Education Department are not functioning in several places of the Bondo area whereas the institutions established by the H. & T. W. Department are functioning comparatively better. Keeping in view the inaccessibility of the area, aggressive personality of the people, present condition of the educational institution, constraints of the students, condition of the school houses, unrealistic methods of teaching, late supply of reading and writing materials, constant absenteeism of the teachers etc. suitable action plan for the development of education among the Bondos has been chalked out.

It has been suggested that the cluster approach would be the suitable method for implementation of the educational schemes in the Bondo area. The area can be divided into five clusters taking into consideration of the location, accessibility and similar socio-cultural characteristics of group of villages. To cover all the villages, Mudulipada, Andrahal, Bandapada, Kirsanipada and Tulguram may be selected as the cluster headquarters. Each cluster may be facilitated with minimum infrastructural facilities so that all the primary school teachers, non-formal teachers, V. A. W., V. L. W., A. N. M., Livestock Inspector and other grassroot level staff can be accommodated in a barrack. For execution and success of non-formal education and adult literacy programme adequate motivation campaign may be conducted. It can create conducive atmosphere in the area, to attract the attention of the small children as well as adults towards Non-formal Education Centres and Adult Literacy Centres respectively. For this a mobile audio-visual unit with trained staff and equipments may be provided to motivate the people towards

learning, reading and writing. Keeping in view the customs, traditions, particularly folk traditions, courses of studies as well as reading and writing materials may be developed for use by the students.

Before sending children to the school pre-primary education through the Anganwadi workers may be imparted. Establishment of new schools in inaccessible villages, free lodging and boarding facilities near the primary schools and constant follow up action must bring success in the educational programme. Recruitment of sincere, interested and knowledgeable teachers and constant supervision of the higher authorities of Education Department can develop the present situation. Establishment of one more M. E. School and High School in other side of the agency and extension of educational facility as well as package of programmes for smooth operation of the scheme will be of immense value. It has been suggested to involve the Directorate of Adult Education, SIET, Orissa, State Resource Centre, C. D. Department, S. C. E. R. T., P. W. D. Department and the Bardo Development Agency to bring full success in the programme of education. A sum of Rs. 46,52,000 has been proposed for implementation of the scheme.

The financial implication, for different sectors of development will be worth of Rs. 47,093,096 For implementation of different schemes in the first year a sum of Rs. 2,09,06,704 has been earmarked. The outlay proposed for the second year is Rs. 3,70,09,804 and for the third year Rs. 2,59,98,584. A sum of Rs 2,12,55,004 has been estimated as the total expenditure in the fourth and fifth year. The details of sector-wise outlay proposed during a period of five years is mentioned below :—

Serial No.	Sectors	Financial outlay ( in Rs. )
1	Forests	5,48,900
2	Soil Conservation	2,33,57,000
3	Agriculture	32,32,126
4	Horticulture	28,24,000
5	Irrigation	96,00,000
6	Animal Husbandry	11,13,470
7	Health	11,80,600
8	Communication, Water Supply Sanitation & Electrification.	5,85,000
9	Education	46,52,000
Total ..		4,70,93,096

### 5.2. Growth Positive, Growth Neutral & Growth Negative Values

Since long time the Bardo community have been depending upon the gifts of the environment for their survival. Multifarious mushrooms, green leaves, tubers, roots, shoots, fruits, fish and flesh of animals found abundantly have been used as the basic means of their subsistence. Their natural surroundings, rich and varied, are in several ways associated with their socio-spiritual matrix. They have their own ways to maintain their livelihood and had adopted suitable means for better survival. They have been struggling very hard for their survival. Yet we brand them as primitive pre-agricultural and pre-literate and contemplate for their development as per our own value system.

The Bardos have developed a society and culture of their own. They have similarities and also differences with neighbouring ethnic groups in respect of their behaviour, action, attitude, aspiration and way of thinking for their survival as well as for their

future growth and development. In their organisational lifestyle, institutional arrangements, socio-cultural interaction and functional aspects the Bondos possess certain values and significant traits which play a vital role either to accelerate or impede development, growth and change in the community. There are several practices and cultural patterns that may result positive or negative development process which depend on the mode of operation. The significant cultural traits which are beneficial to the community may be classed as growth positive and those mores and values that reveal negative aspects and set back the development process are regarded as growth negative. There are some other cultural traits which bring better result and at times cause harm depending on mode of their use. These are termed as growth neutral.

The environmental factors in the development of Bondo community and character are very much relevant. Their area is relatively isolated and comparatively free from the impact of modern influence. The hills are now bald because of the pernicious practice of slash-and-burn type of cultivation. There are also stretches of valleys and irrigated terraced land quite suitable for wet cultivation. The gigantic growth of jack fruit and mango trees indicate the suitability of land for future success of plantation of fruit-bearing trees. The existing agro-climatic condition and soil types are also suitable for horticulture. The Bondos possess adequate skill and have acquired sufficient knowledge through their continuous traditional agricultural and horticultural practices.

They have their own architectural design, construction pattern, measurement and functional distribution of space in a house. As per the tradition the central pillar is erected first at the time of construction of new house and prescribed rituals are performed to install the ancestral spirits. The Bondo males and females use a lot of ornaments but never put on nose ornaments. The bangles worn by women have a magical effect on child bearing. On the other hand it is taboo to use anklet as it is believed to put, to a woman wearing it into peril by the "Dagoi" a malevolent spirit. A woman puts on a number of heavy metal neckbands and bead necklaces of imitation coins and cowrie fasteners. These numerous ornaments on the neck do not allow free movement of the heat. The women and little boys also have their heads clean shaved. But the boys at late childhood become very careful to keep long hairs and look very much attractive.

The Bondos are controlled by the village community which is a secular-cum-sacred entity. The other important group is the "Kuda". A Bondo has to maintain intimate relationship with his neighbours who are regarded as "Sorubhai" meaning people of a single group sharing the same sacrificial food. This sacred relationship is highlighted with utmost moral and religious importance. There is the practice of village exogamy and women of the same village are considered as sisters. The institution of girls' dormitory is restricted for the boys of the same village with few exceptions particularly when immigrant family belongs to other clan and not assimilated into the new community. The "Kuda" is nothing but an exogamous patrilineal clan more or less co-terminus with territorial groups. At communal festivals each "Kuda" chooses its own "Sisa" as representative for specific ritual purposes. The memorial menhirs of a particular "Kuda" are installed at one place. As mentioned earlier the Bondos are broadly divided into two broad groups, locally known as "Banso", one is "Cobra" (Ontal), and the other is "Tiger" (Killo). The "Banso" are totemistic, they never cause harm or kill their totemic animals. Each "Banso" has several "Kudas". Since the "Cobra" and "Tiger" groups are not always exogamous, one can find marriage with own "Banso" and even own "Kuda" which is regarded improper. A good number of cases are prevalent where marriages between different "Kudas" within the same "Banso" are found. Larger percentage marriages have been solemnised outside the "Banso" and "Kuda". But the Bondos mostly restrict marriage with the "Sorubhai" of the village community. Within the nine "Kudas" found in Bondo area marriage prohibition is strictly followed. Several villages are in the name of their paternal "Kuda". Among the Bondos 'Mahaprasad' or 'Moitar' relationship or the ritual kinship is very strong. Two 'Moitar' friends behave just like kinsmen and avoid marital relationship among the members of their "Moitar" groups. Boys and girls also form flower friendship which is normally an expression of mutual love and affection between the two persons. The economic life of the Bondos is mostly associated with religious functions and cultural interactions. The natural and material resources are not only concerned with human factors but also with magico-religious values. The Bondos have a subsistence economy. They try to avoid using outside materials unless something is absolutely required. They collect edibles and harvest their foodgrains, weave their own clothes, construct their own house and appease their numerous Gods and Goddess with the materials available in their locality. Whatever they use, they try to make by themselves. The

physical surroundings of their area has provided them with ample opportunities for collection of different food items, medicines and many other items needed for their survival. The growth of different trees indicates that area is very much suitable for plantation. The slash-and-burn type of cultivation for them is not only an economic means but a way of life. There are also irrigated fields most suitable for wet cultivation. The Bondos have traditional skill and knowledge to make use of such land. They are expert vegetable growers. Even today Bondos are fond of hunting and fishing. They have ceremonial drive associated with hunting and fishing activities. They are very much fond of sago-palm sap, beer and wine. Sago-palm trees are considered very valuable possession and are associated with several ritualistic observances. They distill their own liquor out of 'Mahua' flower and several other food stuff. The Bondo women weave a small cloth having colored strip. It looks very beautiful and is associated with traditional beliefs. These clothes are made out of a shrub fibre available in the local jungle. They have their own system of marketing and saving. They are not so easily cheated by the outsiders. They eat beef, pork and fowl. They keep cattle and birds for breeding purposes. They are very much fond of rats, reptiles and insects. They follow very carefully the seasonal calendar for smooth management of their annual economic activities. The cultivation which is at present regarded as their mainstay of economy is of three types, viz. shifting cultivation, dry and slope area cultivation and cultivation of irrigated terraced fields. In the axe-cultivation they grow their main cereal, ragi and varieties of minor millets. They adopt mixed cropping to harvest different crops one after the other. They also grow oil seeds and paddy for their self consumption. The Bondos have their own idea and technology for use of land and water. Their beliefs and practices are associated with operation of different stages of agricultural activities.

The Bondos are very conscious of the quest for love and it has socio-cultural relevance. The dormitory among the Bondos can be regarded as the centre for process of socialisation and cultural development. It is also a sort of matrimonial agency and stimulant to economic activities. It is a place of ordeal and centre for entertaining the guests from other villages. For selection of a bride one has to visit dormitory. The dance and music in case of the Bondos is associated with religious values as well as selection of suitable bride. The Bondos mostly marry with the consent of the girl which is confirmed through mixing and ordeals and such actions are reinforced by the opinion of the society members. The normal process of marriage is not only very expensive but also goes through a series of complex rituals. The barren women are looked down upon. The child died after birth is buried near the hearth of living house. It is a rule that after a child is born no seed is taken out until the child is given a name. The Bondo parents are very much affectionate and give their children freedom in several spheres. During one's life period for supernatural protection particularly to check divine troubles of 'Dogoi' one has to perform magico-religious rites three times along with sacrificial feast. Another ritual is celebrated for promoting the harmony and compatibility in married life. The domestic life of the Bondos is affected by two very unusual factors that the wife is always elder to that of her husband. One has liberty to marry one's deceased husband's elder and also younger brother. The Bondo women show a number of reasons in favour of marrying younger husband which are more psychological than scientific. Due to prevalence of age difference between husband and wife, it often leads to polygamy. The widow has every right to accept a second husband. Both husband and wife are usually faithful and the infidelity has fatal consequences. When a woman is divorced by her husband her relatives may come and kill a pig of her husband or belonging to any one of his village. The number of unsuccessful marriage among the Bondos is comparatively higher mainly because of disparity of age between the partners. As per the rules if a woman leaves her husband, her parents or new husband have to pay compensation. In case of widow re-marriage bride price is to be paid to the widow's deceased husband's party.

The character of Bondo religion is somewhat ambiguous and associated with multifarious factors. Starting from the house up to the top of the forest, inclusive of places within the village and community territory, several God and Goddess and spirits take shelter needing appeasement in the prescribed manner. The supreme being is called "Mahaprabhu" who is regarded as the main cause of all happenings in the world. He is the creator of everything and can see in and around. A sword in the "Banyan" tree at the centre of the grove in the village Mudulipada is worshipped. Apart from all these several demi-gods are associated with the life of Bondos who blackmail the God fearing Bondos. To ensure safety and security of the community members and cattle wealth, success in hunting and fertility in the fields, some festivals are observed with much sincerity and devotion. These are linked with economic, social and psychological aspects. After death a monhir is erected in honour to the deceased. The "Disari" is the Shaman having knowledge of diagnosing the cause and prescribing the curative and preventive measures to get rid of illness and other related problems. He is the person to

officiate in magico-religious rites connected with it. He renders such services willingly whenever anybody seeks his help without receiving any remuneration. On the other hand, he is a respected guest in all households and is entertained generously. The "Sisa" is community religious head to officiate in the religious rites. Offering of animal blood is an essential ingredient for all magico-religious rites. The sacrificial animals are slaughtered with a bow on the head with the blunt edge of an axe. Before the slaughtered animal is dead, blood is taken out and offered to the supernatural powers. The sacrificial food is shared by the members of the same community of the village. They opine that the blood of the ceremony helps in bringing confidence in the members of the group. Association with demi-gods and magico-religious values are taboo for the women.

The "Sindibor" is a sort of stone pandal usually raised above the ground under a tree inside the village settlement. Large slabs of flat stone are set to form a platform-like structure. At the centre a place is earmarked where fire can be set. The area and the arrangement and location of "Sindibor" as well as its mode of use vary from village to village. Many feasts and festival are associated with "Sindibor". It has some magical and ceremonial significance. Women are not allowed to enter the area. This is a central place for meeting of the village council and place to meet co-villagers at leisure time for gossiping. The Bondos are very careful in protecting themselves from the unseen powers. They abstain from work on those days. Each festival has a series of rituals to appease a number of unseen powers. The most important festivals of socio-cultural significance, economically relevant and ritually important are the "Sumegelirak" "Susugige", "Gag-Gige" and "Gewrsung". These are associated with social, political, religious and economic activities of the community.

Witchcraft and sorcery are never liked, rather feared. The Bondos believe that one can take revenge on a person by inflicting injuries and danger with the help of invisible weapons from a distance. According to Bondo ethics, incest, murder and black magic can not be tolerated. The persons involved suffer from blindness, bodily weakness and leprosy. Apart from these, theft, adultery and violation of sex rules are some of the evil deeds which bring social maladies. A murderer is regarded as a rude fellow and hated by others. A person who is kind to everybody, generous to neighbours, not jealous to any body and hospitable considered as good person. A person becomes praiseworthy when takes adequate care of his elders, co-operates with family members and other relations in works. But by and large, one can find Bondo very arrogant, rude, rough, hostile and ill-tempered for slightest mistake or humiliation. The Bondos have no regard for human life. The human morality among them is protected by divine sanction. They believe that "Mahaprabhu" knows all sins committed and virtues of all individuals. The Bondos are very much afraid of whirlwind and echo. The woman who dies during pregnancy, child birth, menstruation, cholera, small-pox and accident is buried. The "Gunom" ceremony is an occasion in which stone memorials are erected for protection of family members, increase of fertility in the field and for success in hunting. The "Gunom" stone is usually a flat standing stone kept across on three or more small stones. The "Gunom" ceremony brings fame and prosperity to the person who celebrates the same.

The problem of mal adjustment in the Bondo community is a serious problem. The gravity of situation is not declining in spite of continuous efforts for their development. One can find more than expected number of Bondo are involved in criminal activities. The revengeful attitude among the Bondos and regular blood feuds deserve special attention. The adult male Bondos whenever going outside the village are armed with very deadly weapons, like bow, sharp arrows and axe. As and when required they make use of other weapons at their hand. Murder takes place out of one's anxiety for revenge or fear of being murdered. Psychological maladjustment leads to dispute and disrupts social harmony and affects feeling of togetherness. Murder for possession of land, acquiring trees, mortgaging of land, forfeiting right over land cannot be tolerated by any Bondo and it may lead to murder, quarrel, conflict and tension. Repayment of debt, humiliation and open assault and non-payment of debt end in disaster. Sometimes quarrel and conflict for minor things may lead to murder. Under the influence of alcoholic drinks, there occurs murder abruptly without any motive or intention or any situation created for such action. By and large, aggressive criminal propensity of the Bondos are mostly due to alcoholic addiction, self-criticism and self-restraints. They boldly confess their crimes and repeatedly commit the same mistake. The quarrelsome temperament of the Bondos create problems for neighbouring ethnic groups. In Bondo community the women folk play major role preventing their male members from murder or being murdered. During festive occasions when percentage of murders are comparatively more mother, wife, sister, daughter and other female relatives have an eye on their male relatives to avoid conflict and the resultant situation. After

conviction and return from jail again some of them revert to their criminal habit which may again lead to murder and imprisonment. But in many cases the ex-convicts try to make compromise with the victim's family in a rice beer party.

The freedom loving Bondos are indifferent to human life and indifferent to nature. Their ill-manner, aggression on the one hand and courage, love for equality and freedom on the other help them in developing egoistic personality. The democratic spirit and carelessness in day-to-day activities put the Bondos into peril. The life of the Bondos is full of adventures and excitements. They are quite inflammable and explosive in behaviour. There are certain mechanisms of social control and rules which keep them abstained from mischievous deeds. The geographical isolation, low material development and struggle for existence in their environment are some of the causes for development of aggressive personality of the Bondos. However, all these traits in their behavioural pattern can be modified by better efforts. It depends on how one handles the situation and makes use of the traits.

### 5.3 Financial leaver for development intervention

While formulating the action plan for the Bondo Development Agency area through techno-economic survey conducted by the Project Consultants and T. H. R. T. I. staffs, the financial requirements for sectorwise development programmes were evolved. There are altogether 9 sectors, such as the Forests, Soil Conservation, Agriculture, Horticulture, Irrigation, Animal Husbandry, Health, Communication, Water-supply, Sanitation and Electrification and Education. Each such sector includes a number of schemes and schemewise requirement of funds spread over a period of 4 years have been worked out.

The total requirement of funds for a period of 4 years in all sectors has been estimated at Rs. 10,48,11,316. Out of the total estimate, the requirement for the first year comes to Rs. 2,10,15,424 and in rest 3 years to Rs. 3,69,55,804, Rs. 2,59,39,084 and Rs. 2,09,01,004, respectively. When we look into the sectoral requirement of funds the maximum amount is necessary for sector, 8 i. e., communication, water-supply, sanitation and electrification to the tune of Rs. 5,85,00,000 and the minimum requirement is for Sector, 1—Forests, i. e. Rs. 5,48,900. The sectorwise details which are self-explanatory are shown in the tables given hereunder:—



**TABLE No. V. 1**  
**FINANCIAL LEVER FOR DEVELOPMENT INTERVENTION**  
**ABSTRACT**

Serial No.	Name of the Scheme	Funds required (in Rs.)				Total	Remarks
		1st year (3)	2nd year (4)	3rd year (5)	4th year (6)		
(1)	(2)						(8)
1	Forest ..	50,000	1,17,500	1,73,800	2,07,600	5,48,900	
2	Soil Conservation ..	62,07,000	52,11,000	54,65,000	64,74,000	2,33,57,000	
3	Agriculture ..	8,48,644	8,48,494	8,48,494	8,48,494	33,94,126	
4	Horticulture ..	11,26,000	7,06,000	7,16,000	2,76,000	28,24,000	
5	Irrigation ..	24,00,000	24,00,000	24,00,000	24,00,000	96,00,000	
6	Animal Husbandry ..	4,40,000	2,82,490	1,95,490	1,95,490	11,13,470	
7	Health ..	2,88,000	3,16,000	1,88,300	3,88,300	11,80,600	
8	Communication, Water Supply, Sanitation and Electrification.	90,00,000	2,60,00,000	1,45,00,000	90,00,000	5,85,00,000	
9	Education ..	5,47,060	11,28,320	15,11,500	14,65,120	46,52,000	
	<b>Total</b> ..	<b>2,09,06,704</b>	<b>3,70,09,804</b>	<b>2,59,98,584</b>	<b>2,12,55,004</b>	<b>10,51,70,096</b>	

TABLE No. V-2

## SECTORWISE DETAILS—(Contd.)

Sl. No.	Name of the scheme	Funds required (In Rs.)				Total	Remarks
		1st year (3)	2nd year (4)	3rd year (5)	4th year (6)		
<b>1. FORESTS</b>							
1	Preliminary expenditure on staff, tools, etc.	50,000	..	..	..	50,000	Each year Rs. 50,000 will be spent on staff, tools, etc.
2	Demonstration plots to be laid out	..	67,500 + 50,000	..	..	1,17,500	
3	Ditto	..	..	1,23,800 + 50,000	..	1,73,000	
4	Ditto	..	..	..	1,57,600 + 50,000	2,07,600	
	<b>Sub-Total</b>	50,000	1,17,500	1,73,800	2,07,600	5,48,900	

N. B. —From 5th to 8th year 18 more Demonstration plots may be established and all these plots be maintained with a cost of Rs. 6,38,900.

TABLE No. V. 2

## SECTORWISE DETAILS (Contd.)

## 2 SOIL CONSERVATION

Sl. No.	Name of the scheme	Funds required (in Rs.)				Total	Remarks
		1st year (3)	2nd year (4)	3rd year (5)	4th year (6)		
1	Resource Inventory	1,50,000	..	..	..	1,50,000	
2	Land Development	12,50,000	12,50,000	12,50,000	16,05,000	53,55,000	
3	Gully Control & Maintenance	7,50,000	7,80,000	8,10,000	8,40,000	31,80,000	
4	Water Harvesting Structure	14,02,000	14,30,000	14,58,000	18,86,000	61,76,000	
5	Lift Irrigation Points	50,000	50,000	50,000	50,000	2,00,000	
6	Diversion Bund & Maintenance	1,00,000	1,05,000	1,10,000	1,15,000	4,30,000	
7	Stream Bank Erosion Control and Maintenance.	1,00,000	1,05,000	1,10,000	1,15,000	4,30,000	
8	Sisal Plantation and Maintenance	4,00,000	5,32,000	6,64,000	7,96,000	23,92,000	
9	Jhola Land protection and Maintenance.	80,000	84,000	88,000	92,000	3,44,000	
10	Misc. plantation & Maintenance	5,00,000	5,50,000	6,00,000	6,50,000	23,00,000	
11	Conservation Farming Development	1,25,000	1,25,000	1,25,000	1,25,000	5,00,000	
12	Liming of Acid Soils	1,00,000	1,00,000	1,00,000	1,00,000	4,00,000	
13	Incentive to staff	25,000	25,000	25,000	25,000	1,00,000	
14	Contingencies	75,000	75,000	75,000	75,000	3,00,000	
	Sub-Total	62,07,000	52,11,000	54,65,000	64,74,000	2,33,57,000	

## 3. AGRICULTURE

1	Prevention of shifting cultivation ..	4,47,354	4,47,354	4,47,354	4,47,354	17,89,416
2	Agricultural Training & Fair ..	8,640	8,640	8,640	8,640	34,560
3	Free supply of Agriculture Implementments.	46,250	46,100	46,100	46,100	1,84,550
4	Production of organic manures ..	23,200	23,200	23,200	23,200	92,800
5	Community-based Fertilizer and Pesticides application.	2,82,000	2,82,000	2,82,000	2,82,000	11,28,000
6	(a) Maintenance of plough bullock & pumpsets.	41,200	41,200	41,200	41,200	1,64,800
	(b) Posting of village motivator ..					
	Sub-Total ..	8,48,644	8,48,494	8,48,494	8,48,494	33,94,126

## 4. HORTICULTURE

1	(a) Vegetable Demonstration, Input supply @ Rs. 4,000 hectare.	80,000	80,000	80,000	..	2,40,000
	(b) Fencing veg. area @ Rs. 500 per hec.	10,000	10,000	10,000	..	30,000
2	Mixed Orchards					
	(a) Planting Rs. 7.50 per hect.	3,00,000	3,00,000	3,00,000	..	9,00,000
	(b) Bunding Rs. 250 per hec.	1,00,000	1,00,000	1,00,000	50,000	3,50,000
	(c) Watching (Common)					50,000
	(d) Grafting ..				10,000	20,000
					10,000	10,000

TABLE No. V. 2

SECTORWISE DETAILS (Contd.)

Serial No.	Name of the scheme	Funds required ( In Rs.)				Total	Remarks
		1st year	2nd year	3rd year	4th year		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
3	Staff						
	(a) Jr. Horticulturist Rs. 3,000 per month.	36,000	36,000	36,000	36,000	1,44,000	36,000
	(b) Grafters (six) Rs. 2,000 P. M.	1,44,000	1,44,000	1,44,000	1,44,000	5,76,000	1,44,000
	(c) Deputation Allowance @ Rs. 20%...	36,000	36,000	36,000	36,000	1,44,000	36,000
4	Building						
	(a) Jr. Horticulturist	1,00,000	..	..	..	1,00,000	
	(b) Grafters (Six)	3,00,000	..	..	..	3,00,000	
	(c) Training shed	20,000	..	..	..	20,000	
	Sub-Total	11,26,000	7,06,000	7,16,000	2,76,000	28,24,000	3,76,000
5.	IRRIGATION						
1	Irrigation Projects including Lift Irrigation.	24,00,000	24,00,000	24,00,000	24,00,000	96,00,000	
	Sub-Total	24,00,000	24,00,000	24,00,000	24,00,000	96,00,000	

### 6. Animal Husbandry

1	Construction of bull shed at Mudulipada and Andrahal.	32,000	..	..	..	32,000
2	Construction of buck and boar sheds at Kirsaniipada and Bondopada.	28,000	..	..	..	28,000
3	Construction of Veterinary Dispensary at Mudulipada and quarters for V.A.S. and L. I.	3,50,000	..	..	..	3,50,000
4	Construction of composite scheme for bulls at Mudulipada and Andrahal.	30,000	..	..	..	30,000
5	Introduction of composite scheme for bulls at Mudulipada and Andrahal.	..	59,740	..	..	59,740
6	Introduction of Buck and Boar schemes	..	38,250	..	..	38,250
7	Upgradation of L.A.C. at Mudulipada and two Veterinary Dispensaries.	..	1,18,500	..	..	1,18,500
8	Setting up of two L. A. Cs. at Kirsaniipada & Bondopada.	..	66,000	..	..	66,000
9	Continuance of the composite scheme for bulls at Mudulipada and Andrahal.	..	..	32,740	..	32,740
10	Continuance of the buck and boar scheme at Kirsaniipada and Bondopada.	..	..	29,250	..	29,250
11	Continuance of the Veterinary Dispensary at Mudulipada.	..	..	75,500	..	75,500
12	Continuance of 2 L. A Cs. at Kirsaniipada & Bondopada.	..	..	58,000	..	58,000
13	Continuance of the composite scheme for bulls at Mudulipada & Andrahal.	..	..	..	32,740	32,740

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
14	Continuance of the buck and baw scheme at Kirsaniapada and Bondopada.	..	..	..	29,250	29,250	
15	Continuance of the Veterinary Dispensary at Mudulipada.	..	..	..	75,500	75,500	
16	Continuance of 2 L. A. Cs. at Kirsaniapada and Bondopada.	..	..	..	58,000	58,000	
	Sub-Total	4,40,000	2,82,490	1,95,490	1,95,490	11,13,470	
7. Health							
1	Construction of Sub-Centres building at Mudulipada & Andrabal.	2,00,000	..	..	..	2,00,000	
2	Health, Education materials.	37,000	..	..	..	37,000	
3	Creation of one post of male & one post of female Health workers.	36,000	..	..	..	36,000	
4	Provision of tinned milk to 50 children on trial.	15,000	..	..	..	15,000	
5	Continuance of post created	..	36,000	..	..	36,000	
6	Construction of low cost houses, barrack type-eastern approach-3 Nos.	..	1,50,000	..	..	1,50,000	
7	Creation of 2 male, 2 female workers	..	72,000	..	..	72,000	

8	Provision of tinned milk for 170 children.	..	51,000	..	..	..	51,000	..
9	Health Education	..	7,000	..	..	..	7,000	..
10	Continuation of milk supply	..	..	51,000	..	..	51,000	..
11	Health Education	..	7,000	..	..	..	7,000	..
12	Augmentation of Additional P. H. C.	..	22,300	..	..	..	22,300	..
13	Continuance of M. & F. Health Workers.	..	1,08,000	..	..	..	1,08,000	..
14	Health Education	..	..	..	7,000	..	7,000	..
15	Continuation of milk supply	..	..	..	51,000	..	51,000	..
16	Continuation of M. & F. Health Workers.	..	..	..	1,08,000	..	1,08,000	..
17	Augmentation of Additional P. H. C.	..	..	..	22,300	..	22,300	..
18	Lump sum provision to complete all work.	..	..	..	2,00,000	..	2,00,000	..
	Sub-Total	2,88,000	3,16,000	1,88,300	3,88,300	..	11,80,600	..
8. Communication, Water-Supply, Sanitation and Electrification :								
1	Construction of interior village road	50,00,000	2,00,00,000	1,00,00,000	50,00,000	..	4,00,00,000	..
2	Water supply and sanitary programme.	20,00,000	40,00,000	25,00,000	20,00,000	..	1,05,00,000	..
3	Drawing of electric lines (75 Km.) and erection of electric poles.	20,00,000	20,00,000	20,00,000	20,00,000	..	80,00,000	..
	Sub-Total	90,00,000	2,60,00,000	1,45,00,000	90,00,000	..	5,85,00,000	..



(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	9. Education						
1	Audio-visual unit with a generator set, projector, trolley rickshaw.	35,000	..	..	..	35,000	
2	Opening of two primary Schools at Kichapada and Goiguda, Rs. 90,000 × 2	1,80,000	..	..	..	1,80,000	
3	Opening of two Extension Primary Schools at Ratamguda and Bandiguda Rs. 50,000 × 2.	1,00,000	..	..	..	1,00,000	
4	Construction of a Kitchen and a dining hall in the Mudulipada High School.	60,000	..	..	..	60,000	
5	Opening of two Anganwadi Centres at Badapada & Kichapada, construction of 2 sheds.	40,000	..	..	..	40,000	
6	Recurring expenditure ..	1,32,060	..	..	..	1,32,060	
7	Opening of two Primary Schools at Badapada & Semiliguda-Ramliguda, construction of building, etc. Rs. 90,000 × 2	..	1,80,000	..	..	1,80,000	
8	Opening of 2 Extension Primary Schools at Khalaguda & Tagabeda & construction of building.	..	1,00,000	..	..	1,00,000	
9	Construction of hostel for 100 students in Mudulipada High School.	..	4,50,000	..	..	4,50,000	
10	Opening of two Anganwadi Centres at Pinda jangar and Patraput.	..	40,000	..	..	40,000	

11	Recurring expenditure	..	3,58,320	..	..	3,58,320
12	Opening of one Primary School at Bandhaguda, construction of building and other non-recurring expenditure.	..	..	90,000	..	90,000
13	Opening of two Extension Primary Schools at Chalainpada (building).	..	..	1,00,000	..	1,00,000
14	Upgradation of two Primary Schools to M. E. School at Andrahal and Kiranipada, construction of building and purchase of equipments and furnitures.	..	..	2,40,000	..	2,40,000
15	Construction of low cost hostels at Bondapada Primary School and Kiranipada Primary School.	..	..	3,00,000	..	3,00,000
16	Purchase of utensils and supply of library books and science apparatus to Mudulpada High School.	..	..	25,000	..	25,000
17	Opening of three Anganwadi Centres at Bandiguda, Gorguda and Dantipada (construction of shed).	..	..	60,000	..	60,000
18	Recurring expenditure	..	..	6,96,500	..	6,96,500
19	Upgradation of two Primary Schools to M. E. School standard at Bondapada and Paraput, construction of building.	..	..	..	1,90,000	1,90,000
20	Opening of three Anganwadi Centres at Bandhaguda, Katamguda and Khalaguda, construction of shed.	..	..	..	60,000	60,000
21	Construction of Toilets for Mudulpada High School/Hostel.	..	..	..	30,000	30,000
22	Construction of a low cost hostel at Andrahal.	..	..	..	1,50,000	1,50,000
23	Recurring expenditure	..	..	..	10,35,120	10,35,120
Sub-Total		5,47,060	11,28,320	15,11,500	14,65,120	46,52,000
Grand—Total		..	..	..	..	..

#### 5.4. Concluding Suggestions

*Forests* (a) In order to stop the shifting cultivation in Bondo hills, it is necessary to adopt Sloping Agricultural Land Technology (SALT) as an alternative. The different stages of SALT are as follows:—

(i) SALT—1 (Sloping Agricultural Land Technology)—This is applicable to land with gentle slopes where agriculture can be practised with minimal anti-erosion method.

(ii) SALT—2 (Simple Agro-live-stock Technology)—It is goat based agro-forestry with land use up to 40% agriculture, 20% forestry and 40% live-stock. Besides soil conservation, it will provide a regular decent income to the family.

(iii) SALT—3 (Sustainable-Agro-forest Land Technology)—It is an answer to the problem in steep hill slopes where the tribal people practise "pod", in the absence of any other alternative.

(b) The funding of the scheme and control of the staff should vest directly on the Project Leader, B. D. A. under the over all supervision of the P. A., I. T. D. A.

*Soil Conservation*—(a) An inventory of land and water resources available in the area will be prepared and problem of land and water management and potentials of land and water resources are to be ascertained.

(b) Development of *Padar* land and protection of *Jhola* land now under utilisation need be done by way of terracing.

(c) To arrest soil erosion, programmes, like gully control of valley bottom and stream bank erosion control and diversion bunds on vulnerable spots are to be implemented.

(d) To provide irrigation facilities new water harvesting structures are to be constructed and the existing W. H. S. are to be maintained and lift Irrigation points are to be installed.

(e) Sisal plantation and other miscellaneous plantation are to be undertaken to check soil erosion and also to provide raw materials for household crafts and for food purposes will be taken up.

*Agriculture*—(a) The shifting cultivation be checked slowly and settled cultivation be encouraged by providing input assistance to individual beneficiaries. Improved agricultural implements be supplied free to the land holders as these are very much necessary for cultivation work. Since Bondos do not know preparation of F. Y. M., they should be allotted with compost pits.

(b) When the community as a whole takes up cropping in a massive scale the fertilizer and pesticide need be given partly free.

(c) It is necessary to educate and motivate the farmers properly for undertaking new methods of growing field crops and training is essential for them as they can learn every aspect of agriculture.

(d) Infrastructure development, such as maintenance of plough bullocks and pump sets and posting of village motivators/contact man should be undertaken.

(e) Self-sufficiency in food, oilseeds and pulses can be achieved by following proper crops planning in the area and providing technical guidance to the farmers.

(f) Fairs may be organised exhibiting different agricultural implements and other allied disciplines.

(g) The overall management of the personnel of the B. D. A. lies with the P. A., I. T. D. A., Malkangiri. But the officials of Agriculture Department and Forest Department along with the P. A., I. T. D. A. should look into the developmental aspect very seriously.

*Horticulture*—(a) As the food-stuff produced by Bondos are not adequate, the horticultural crops, like fruits, vegetables, spices will supplement the food supply in the area as well as fetch money as cash crops.

(b) In order to meet the vegetable requirements it is necessary to put about 70 hectares under vegetable cultivation.

(c) Attempt should be made for increasing the yield rate per hectare by adoption of improved cultural practices by the Bondo farmers for which successful demonstration (not free distribution) is the first step.

(d) The total wet land after the harvest of paddy can conveniently be utilised for taking a second crops like wheat and vegetable during the winter and late summer seasons. Besides, the uplands should be provided with irrigation facilities to take up double cropping.

(e) A lot of motivation and education is required to be taken up among the Bondos to take proper care of crops which will include various practices like manuring, inter-culture, plant protection against stray cattle and marketing etc.

(f) Co-operative Societies may be set up at the village level involving all farmers for producing and marketing various food, fruit and vegetable crops. The LAMPs operating at Mudulipada may be strengthened and more branches may be opened in the area.

(g) One Agriculture-cum-Horticulture nursery may be set up by B. D. A. at Danti-pada for raising vegetable seedlings to supply these to the needy farmers.

(h) For backyard plantation, papaya and pineapple may be supplied for suitable land and during the first year basal dose fertilizer may be supplied to the farmers free of cost.

(i) The major sources of extension of area under fruit cultivation will be the swiddens or hill slopes used for shifting cultivation.

(j) After the orchards are fully established the lands may be finally allotted to the farmers concerned. However, in the beginning this should be made clear to the Bondo farmers.

(k) A contact-person may be posted for every cluster consisting of 5 to 6 villages. He should preferably be a trained grafter with some experience in village work. To supervise their work, a horticulturist and a grafter may be posted in the headquarters at B. D. A.

*Irrigation*—(a) Immediate action may be taken to conduct survey and to construct one field channel of the only Diversion weir in the area which is without distribution system.

(b) The sanctioned post of Junior Engineer in the B. D. A. may be filled up early and his services may be best utilised for investigation and taking up feasible M. I. Ps. after proper investigation.

(c) Necessary action may be taken to provide L. I. points for small holdings after taking up electrification of the area.

(d) Skilled masons and carpenters may be brought from other places to train local Bondo youths properly to construct buildings by utilising local materials.

(c) It is important to construct staff quarters at different Panchayat or cluster headquarters for the staff working in the area.

(f) Suitable forest lands having gentle slopes may be selected and allotted to Bondo families for taking up settled cultivation.

*Animal Husbandry*—(a) The Bondos may be trained on ideal animal husbandry practices through audio-visual propaganda. A mobile audio-visual unit may be set up to motivate and educate them for better animal care. The Animal Husbandry programme may be introduced among the Bondos only after sufficient motivation is done through publicity and their receptivity and capacity are ascertained.

(b) For effective administration of Bondo hills, the administrative jurisdiction needs to be reduced and accommodation facilities be provided to different functionaries. A barrack consisting of 8 to 10 spacious rooms at cluster headquarters may be constructed to accommodate functionaries of various departments like, Education, Agriculture, Community Development, Animal Husbandry, Health and others.

(c) A composite scheme of Jersey Bull and Buffalo Bull may be introduced for upliftment of the economic condition of the Bondo families through upgradation of local varieties of cattles.

(d) A composite Buck and Boar Scheme may also be introduced in the area to render herd service.

(e) The existing livestock Aid Centre at Mudulipada may be upgraded to a Veterinary Dispensary. Besides, 2 Livestock Aid Centres, one at Kirsanipada and the other at Bondopada may be set up.

*Health*—(a) Ayurvedic system is not acceptable to the people. Hence, either a 6-bedded hospital or an additional P. H. C. may be started. One additional P. H. C. has been sanctioned at Mudulipada, but there is no provision for diet there which will have an adverse effect from the beginning. The matter needs consideration as a special case.

(b) There is no sub-centre building at Mudulipada or at Andrahal. The female health workers though posted to the sub-centres are physically staying at Khairput. The posts of male health workers are laying vacant. The allotted amount is not fully utilised for this reason.

The performance of the health workers in the area is poor in relation to the amount spent by the Health Department.

(c) The area and the people require special consideration for providing efficient services in maternal and child health. A specialist in O. & G., may be posted to the Additional P. H. C. when it starts functioning.

(d) All the wells to be dug or already in existence should be made real sanitary type with a hand pump fixed. When tube-wells are installed, one person from the village should be trained for repair of minor defects and some spares be available with him in consultation with the P. H. D. Official.

(e) Almost all the nursing mothers and babies show protein calorie deficiency. Therefore, all the infants may be provided with a tinned milk powder for a period of one year from birth.

(f) The area is hyper endemic for malaria. The spray of D. D. T. or B. H. C. is not effective in tribal region due to various reasons. The only way to control malaria nuisance is to intensify surveillance, both active and passive and presumptive treatment of all fever cases.

(g) Three additional sub-centres each to be run by a male and a female health workers are necessary at Bandiguda, Rameliguda and Talagurum to look after the surrounding villages.

Efforts may be made in the area to cover all the pregnant cases with frequent and regular Ant-natal and post-natal visit by female health workers who must stay in the respective sub-centres. The Project Leader may provide sub-centre buildings at Mudulipada and Andrahal from the project fund.

(h) The Project Leader, B. D. A. and Project Officer, I. C. D. S. should monitor and evaluate the feeding programme taken up under I. C. D. S. The Medical Officer, Khairput may be asked for medical cover of the beneficiaries of the programme.

(i) Immunisation programme may be geared up with the help of Anganwadi workers non-formal teachers, community leaders and village elders.

(j) A change in the attitude of Bondos can be made slowly by sitting with them, listening to their deliberation, learning from their ideas and experience, discussing with them and using technical knowledge in the last to get them involved in the programme from the beginning. Material and method of health education include audio-visual aids, performing small drama, composing songs in their language, exhibition on health matters, organising training course and debate/competition etc.

(k) The micro-project which has been giving more emphasis on family-oriented programme to some can now give emphasis on development programme covering the entire population as the Bondo Society is based on community and group or clam.

*Water-Supply, Sanitation, Electrification and Communication*—(a) In B. D. A. area, preventive method of disease should be adopted.

(b) Potable water should be supplied by constructing deep tube-wells in order to check many diseases. The places located in high terrains can not be approached by rigs. In such places the pipe water supply from the big diameter T/W in the nearby area may be chosen. It is prudent to design water-supply to big villages and clustered villages.

(c) All the Bondo families may be provided with safety type latrine. 95% of the cost is borne by Government of India and Government of Orissa and the rest 5% may be borne by the B. D. A. The P. H. E. Organisation may post one A. E. with headquarters at Mudulipada to take up the programme within the time frame.

(d) Similar to town planning, a village planning unit should be created under the Government for village planning and architecture in B. D. A. area. There should be legislation regarding size of the house, its ventilation etc.

(e) Adequate communication facilities should be provided in the B. D. A. area. It is needed to have a 12 Kms. second approach road of M. D. R. standard to Mudulipada from 1 Km. from Gobindapali towards Khairput. In the second phase, a further access will be necessary approach to Mudulipada from Khairput-Balimala road at Handiguda. The length of the road may be about 18 Kms. There should be provision of 16 Kms. road of village road standard in the interior villages of B. D. A. area. The incomplete 78 Kms. of arterial roads already planned should be constructed. The priorities of taking different roads may be fixed by discussing with different authorities in the area.

(f) All the infrastructure development work concerning to engineering branch of this area may be taken up by Government Departments from their own resources and budget on priority programme.

(g) The Project Leader, B. D. A. may function as the nodal officer. He should monitor progress of the work of all the sectors meant for B. D. A. area.

(h) In case of resource constraints an integrated project may be framed and World Bank assistance or assistance from any other outside Financial Institute may be sought for.

(i) One E. E. and two A. Es. may be posted in the area to look into all the road work and complete those in the time frame.

*Education*—(a) Adult education programme should have been introduced in the area much earlier in order to bring in a lot of economic development as well as to motivate the Bondos for education of their children. When an entire community is illiterate area based project approach now followed is not suitable and therefore efforts should be made to completely liquidate illiteracy without any reference to the time limit. The number of non-formal teachers working in the area should be increased and they should be entrusted with the responsibility of adult education.

(b) The Anganwadis of the Bondo project area working well but the pre-school education component of their activities is extremely weak. This has to be strengthened and enriched with school readiness programme so as to cater to the educational needs of the tribe.

(c) None of the 8 Primary schools has its own building. There are many genuine problems for which the progress in building construction work has been poor. But some solutions have to be found out. All villages with population above 200 should be provided with a primary school each and extension schools be opened in the villages with 100 to 200 population. The children of smaller villages are to be provided with schooling facilities in the neighbouring primary schools by attaching low cost hostels to those schools.

(d) In B. D. A. area teacher absenteeism is a chronic disease that continues without treatment. The teachers are not attending to their legitimate duties of teaching children. Such a state of affairs is deplorable and needs to be dealt with all seriousness. More than half the number of posts of teachers are lying vacant. A teaching-learning situation has never been created. These aspects have to be taken care of. The authorities must provide the basic minimum amenities to the teachers while asking them to stay in the villages and to work regularly in the schools. The present plight of the educational institutions is mostly due to negligence and lack of supervision and inspection. Inspection has to be intensified in order to check teacher absenteeism.

(e) An investigation should be made to ensure the stock position and safe storage of the materials worth Rs. 7,315 supplied to each school under "Operation Black Board Scheme" recently.

(f) Government in Education Department should have opened M. E. schools by upgrading 3 or 4 primary schools which are centrally located. The only residential high school in the area located at Mudulipada is not yet fully equipped with buildings for school, hostel and teachers' quarters, drinking water, teaching staff, games, sports and science apparatus, teaching aids furnitures and other necessary accessories. These deficiencies need be removed. A compound wall around the school should be constructed early.

(g) A special study may be conducted to ascertain the causes of drop out which is abnormally high in the residential school and to find out the remedial measures.

(h) Delay in supply of reading and writing materials should be avoided.

(i) The provision made in the Annual Action Plan for 1991-92 is not only inadequate but also unrealistic.

(j) The area should be divided into a few clusters and in each cluster headquarters, a barrack consisting of 8 to 10 spacious rooms may be constructed to accommodate primary school teachers and functionaries of other Departments.

##### **5.5. A word for Development Practitioners**

The Bondo development experience in the Bondo Development Agency (BDA) over during the post-independence period is really unique because of the typical ecocultural niche. We have attempted to unravel glimpses of their society, economy politico-jural aspects, ethos, ideology, world-view and various dimensions of culture, in course or conducting the techno-economic survey in various sectors for the formulation of action plan. Any action plan or a blue-print for Development is implemented by a mechanism constituted by the Development practitioners, who are expected to be diligent, devoted dutiful, sincere and honest as per normative expectations. In the contextual frame-work of the Bondo development, the developers who are varied and represented various sectors go to the area with their own approaches, methodologies and operational strategies in order to transform abstract in to concrete. In course of their endeavour they meet with a number of stimulants and barriers which either catalyse the process or stand as stumbling blocks in the path of development. The Bondo who are headstrong and prone to aggressiveness live below subsistence level and require special treatment. As human beings they possess the basic societal characteristics, rationality and conscientious attitude which are to be taken care of while inducing change in their society and culture through planned development efforts.

In a remote and relatively isolated Grama-Panchayat headquarters at Andrahal it is gratifying to note that the Bondo people have been able to express their felt needs before us. We were convinced to note that like several other tribal groups, they are also conscious of their socio-economic development and ultimately of their well-being. They no doubt lack our jargons of improvement of the quality of environment (QOE) and the quality of life (QOL) which they very much mean and practise. Their indigenous skill and worker-manship require our improved technological know-how for sustainable development. In this context, the development practioners are in an advantageous positions is not enslaving people through meagre help in cash or kind but in inculcating a spirit of self help and dignity. The mechanism of self-management of the community is already inherent among them and they are to be helped in developing and utilising the same in order to cope up with the changing situations. In other words, participatory development approach is essential.

A through analysis of the Social system in any tribal society would reveal that the tribal people are tuned to a single authoritarian system whether secular or sacerdotal rather than multiplicity. For any problem they approach their village headman in the traditional set up for solution or remedial measures without delay. Instead of persons in a village the headman becomes answerable to outsiders. Thus, in principle and in practice they adhere to a single line of politico-jural set up. Currently, the development administration cherishes to practise in tribal sub-plan areas the single line of administrative structure which would be uniquely compatible in consonance with the 3-tier Panchayat Raj system. This type of administrative structure would emphasize join-handed efforts of development practioners from various line Departments by pulling them together to work for the goal-attainment. It would further ensure decipherable accountability of efforts of various line departments working in the area for tribal development. The single line of administrative structure would make the monitoring or concurrent evaluation of on-going projects/schemes more meaningful so that the bottlenecks or shortcomings on the way could be avoided at the time of implementation or nipped at the bud.

In so far as the development of primitive groups of tribal people are concerned special attention is necessary through the working of development agencies. These areas coming under microproject, most of which are included in the I. T. D. As. which function for development of larger areas. The Special Officer who is the kingpin in the development activities in the micro project area is to co-ordinate the activities of officers and staff from various line departments and pull their expertise for the benefit of the people.

A significant dimension of the development intervention is the cluster approach in various sub-zones. It is noticed that the development inputes are generally more concentrated in a small area, i. e. in and around the project headquarters, leaving other places in rain-shadow areas, where the flow of input is generally low and attention is sparse.

The development practioners should go to the Bondo area with zeal, enthusiasm and smile in their lips as the aggressive, ill-tempered and suspicious Bondos are attracted by outsiders when meet with laughing face. The developers should gather background knowledge about the Bondo ecology, culture, and magico religious aspects, ethos, ideology, world view and other significant traits of their culture. This would facilitate them to understand the crux of the situation under which they are to work for the intended beneficiaries. The Project Leader of B. D.A. should be gradually conversant with the past development experience in the area in order to evolve ways to proceed further. He is expected to come nearer the people and also maintain a distance with the Bondos inhabiting villages situated in different eco-cultural zones. He should inculcate a sense of dignity among the people so that they realize that something good is going to happen for them. He is expected to keep face-to-face contact and address them by personal names which is mostly admired by the Bondos and it bring immense change in their aggressive attitude. Any development practitioner is ought to learn their dialect, traditional techniques, process of resource management and manner of getting things done. By visiting villages, families and persons and organising group meetings in growth centres and satellite villages in the area, he would be able to understand the needs of the people. He should create a feeling that he loves Bondos and their culture and he is one among them. After gaining confidence of the people and acquiring background knowledge about them he should induce change as per the Action Plan.



Taking into account the potentiality and receptivity of the intended beneficiaries the priority of programmes/schemes may be planned. By keeping frequent contact, the development practitioners shall guide them at every step. The follow-up actions and development of social relationship with the intended beneficiaries can bridge up the hiatus between the beneficiaries and developers. The developers should avoid cultural inhibitions and avoid to affect the hard-core of culture for the sake of economic development. The day-to-day routine, agricultural calendar, age-old practices, traditional technology and general habit and behavioural pattern of the people should not be abruptly interfered with. Rather the people should be given sufficient exposure to think and realise to accept new path of development and change. Moreover, it should emanate from within and not something imposed from outside. It would always be kept in mind that the development is for them hence everything should be done by them and they should be trained in the process to take adequate care in tailoring their own future. As per necessity, the folk traditions, such as myths, legends, tales, jokes, chants, curse, reprimand, taunts, greeting, dance, songs, music, art, craft and folk medicine of the Bondos should be utilised during development efforts.

The traditional secular heads, politico-jural actors, elites and persons of social importance should be taken into confidence for developmental support services.

The Bondo women who play vital role in the household economy and counteract the social tension and aggression of male persons should be respected and they should be associated with implementation of development schemes and retention of indigenous values and social harmony.

The Goti system and jealousy due to accumulation of personal property, clan feuds should be tackled with great care and sincerity.

Their magico-religious specialists and sorcerers may not only be considered as primitive experts but also regarded as the agents of change and their services be utilised as catalyst in the development process. Keeping in view the aggressive character criminal propensity, suspicious attitude and ill-temper, the Bondos should be tackled with smiles, sympathy, love and affection and soothing words. By organising group meetings, motivation camps and through special campaign the Bondos should be made conscious of the ill-effects of drinking habits, homicide, murder, theft, burglary, arson and break of law and order. The development practitioners should not hurt the sentiment and emotions of the Bondo rather their ideas and indigenous skills should be appreciated and encouraged to satisfy the ego-centric Bondos for better result in development process.

The development practitioners should not behave with the Bondo as outsider and superior authorities. In no case they should taunt, tease, hurt the sentiment of the Bondo which will result in conflict and cause set back to the development programmes. The development practitioners should follow the policy of equality while giving input assistance irrespective of the economic condition and social status of the beneficiaries. There should not be any unilateral decision by the developers eclipsing the people. Any new innovation should be introduced with sufficient care and over-innovation is to be avoided. The pace of change should be from simple to complex so that the assimilation will be gradual. Any development scheme which is connected with land and tree of the Bondos should be handled with care and with their consent. One should avoid any act that will make the Bondos offended or irritated. There should be proper code of conduct for tourists and casual visitors to the Bondo area, so that the cultural ethos of the Bondo are not affected. One should not confront and point out or revive in course of discussion regarding the past misdeeds, misconduct and untoward behaviours of the Bondo which may lead to fatal results. The development practitioners should not be dishonest, idle, biased, selfish and ill-tempered as the Bondos hate such persons. The development practitioners should discourage giving free gifts and prevent exploitation of any sort. Some delicate problems, like pernicious practice of shifting cultivation, illegal distillation of liquor, clan feuds, prevalence of Goti system, exploitation of Bondos of low economic status by their well-to-do counterparts need be handled with care.

Thus, with the consistent and persistent efforts and cultural empathy the developers would soon suitably empeople be development intervention and achieve the goal with participatory and sustainable development approach.

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