Chapter 6
6. SUMMARY AND CONCLUSION

The present work is based on systematic field works in the area of Madhya Pradesh and West Bengal, with emphasis on twenty two villages inhabited by two different tribal communities. The comparative study, of the Bharias of Madhya Pradesh and the Koras of Birbhum, endeavours to assess the influence of their present environments on their respective cultures and the degree of adaptation using certain known parameters.

The Bharias have migrated from Bundelkhand some 200-300 years ago to settle in Patalkot. The Patalkot is a deep crater situated on the Satpura Plateau of the Chhindwara district of Madhya Pradesh. This crater is bowl shaped and is surrounded on three sides by hilly ridges which rise like vertical walls. The Bharias live at different depths down from the crater rim. The climate inside the crater is temperate. Because of this unique environmental setting where the Bharias are living in isolation for hundreds of years, they are different in every aspect of adaptation and behavioural pattern from the other tribes of the surrounding region.

The Koras are also a migratory tribe living on an extension of the Chhotanagpur plateau. Initially they had migrated as unskilled labourers to Birbhum district. Presently they are engaged mainly as agricultural labourers. Following are the reasons for conducting this research work among the Bharias. Firstly, the peculiar ecological set-up in which they are living for centuries is very uncommon. Their life activities help to understand adaptation in a particular niche. Secondly, there is very little informations about the Bharias of Patalkot.
The Koras, the other migratory tribe are taken into consideration because of their different environmental and economic set-up. In this context this second tribe has been considered not only for further knowledge about the adaptation mechanism but also as a comparative parameter to the Bharias. For this reason the author made her attempt to investigate certain specific phenomena which experienced a distinctly divergent ecological niche. Originating from the Western part of India a section of the Bharias have taken shelter in a deep crater out of fear from external attack, where as, the Koras of Birbhum migrated from North-Western part of India and settled in different parts of Bihar and West Bengal for better living.

A review has been made of the allied work which includes a good number of works of scholars both from India and abroad. Their works help in formulating the guidelines of the present work.

In the present study the conventional methods of social cultural Anthropology has been built up in accordance with the problem on the one hand, and with the data on the other hand. To make an assessment in comparative forms between the two communities, the technical aspects have been highlighted. At the very onset, rapport was made with the tribal communities which the author was able to do with ease because of her stay within the Patalkot crater and again in a place close to the Koras. Multiple and Cross interviews were taken which were repeatedly tested again by direct observations. Body measurements with instruments were taken for data on nutritional status of the Kora population and the study of the Bharias was based on a model recommended by the Indian Council of Medical Research (ICMR). From daily average intake of different nutrients Kcal-needs were calculated using food composition chart of the ICMR and FAO. For accuracy of the study, elementary mathematics of statistics have been used for drawing the influences.
on land utilisation, carrying capacity, working capacity, nutritional and economic status.

The author extensively covered the remote Patalkot area of Madhyapradesh and different areas of Birbhum district of West Bengal. The Patalkot is situated between $22^\circ - 24'$ and $22^\circ - 29'$ NL and between $78^\circ - 24'$ and $78^\circ - 50'$ EL and the Birbhum is situated between $23^\circ 40'$ and $25^\circ 18'$ NL and between $86^\circ 28'$ and $87^\circ 57'$ EL. Physiographically, the former area is a crater on the Satpura Plateau, towards the north of Chhindwara district and the later is on the fringe area of the Chhotanagpur plateau. The average contour of the Birbhum is about 120 metre from the sea-level. The climate and vegetation are mostly tropical type. Diversities prevail in both the land and cultural tradition. Twenty two villages are selected. 12 villages have been considered from the Patalkot area and 10 villages are from Birbhum. Each village is situated with its environment, resources for livelihood, markets, population composition and finally with modern facilities like communication, education and health care. For collecting information about the Koras, concentrated mainly in areas around Ahmadpur, Sainthiya and Suri. Most of the Kora villages are mainly nucleated villages and are surrounded by paddy fields. The landscape is undulating country-side sparsely covered with tropical trees. The soil is red and mixed with laterities. On the other hand the 79 sq. km. area inside Patalkot is very much steep, rugged, undulating and forest covered. The villages within the crater are situated at different depths and it is very difficult to travel from one village to the other through these ravines. The villages are communicated with each other only by narrow, tortuous footpaths which are almost inaccessible. Villages are inhabited mainly by the Bharias. They have established themselves in this ecological set up which is important for the study of adaptation. To understand the diversity in terms of people, the
population composition in different villages have been studied. Study begins with the family, age, sex, educational qualification and occupational pattern. Size of the villages vary with the number of hamlets. Family size varies with single units to multiple units with a good number of members. Both the tribes are endogamous. The Koras retain their endogamous status. But at present a few intertribal marriages have been taken place, where the couple had been penalised.

Marriage pattern reflects somekind of villagewise preference. Brides are selected from vicinity area, usually within a reasonable distance.

On the other hand, the Bharias are also a strictly endogamous tribe. The upland Bharias are very much eager to send their daughters as brides inside the Patalkot because of its forest resource. The Bharias are aware of their totemic clans. They trace their relationships by tracing these clans, and marital relation is not allowed between the persons having same clans.

Both the tribes are patrilineal where the family types vary from nuclear type to joint extended one. Because, these tribal groups do not want the fragmentation of their land which they possess.

Educational qualifications of both the tribal groups show that literacy is very low among the Bharias and in case of the Koras the situation is better to some extent. Analysis of data on educational qualification of the Koras reveal that they are keen on getting formal education so that they may take up a stable and more paying jobs.

However, Population size is regulated by physical, social, cultural and biological processes that operate independently of how large or dense the population is. Population study can be understood
as the product of birth, death and migration. The rates are very difficult to measure in these small, nonliterate tribal societies because small populations are subject to random fluctuations in birth and death rates (i.e., unreported infant death, still birth or unrecorded death). However, members of some age and sex groups were absent at the time of taking census, because of outside wage work or other activities. So, some method of corrections are made to give an approximation in results.

The present scheme of study includes the way these tribal communities adapted with their environment adopting certain measures. Economic activities and nutrition i.e., the nature of procuring food has been studied here. The analysis on economic activities has been extended to all the 12 villages of Patalkot and 10 villages in Birbhum. But in case of Patalkot, the whole village has been considered instead of using individual families for data analyses. When individual land requirement and individual land consumption are stated it means the requirements and consumptions are for the village and then calculated for an individual. The similar methods have been obtained for the Koras also. But in case of Koras of Birbhum, the individual families have been considered. Furthermore, relevant anthropometric measurements have been conjuncted with the status of nutrition for the Koras. She also focused on some aspects of economic study, energy input and the nutritional status. Land carrying capacity of the said tribes and working capacity of the Koras have been studied and analysed in details.

Regarding nutrition, it may be stated that the diets of these people generally lack the requirements of a well balanced diet, partly due to their ignorance of the dietetic principles and partly due to their poor economic conditions. The problem of diet has now become
a national issue everywhere in the world. The knowledge about the science of nutrition has undoubtedly advanced by leaps and bounds during recent years, but the practical application of the advanced knowledge on a mass scale is yet far from realisation. Whatever the means of adaptation, a beneficial response to an environmental problem always exists through the activities of human groups. Religion, one of social institutions of human groups playing such a role in collecting, interpreting, and passing on information so that appropriate responses to the environment can be made. Tribal rituals involve a temporary grouping of their own people which always include dancing, singing, courting and praying for abundance of resources. Within the bounds of present investigation it has been observed that most of the rituals are held after the harvest when sufficient food is available to feed a large gathering. It was a mechanism of social integration, strengthening kinship among these tribal groups who are residing in dispersed villages. Members of the same tribal groups frequently visited with each other and exchanged views about local environmental conditions, population size, and so forth.

They are having different settings, one in a crater and the other on a plateau but both the tribes are migratory in nature. Both the tribes have been Hinduised in course of their adaptation, at the same time retaining tribal identity. The impact of Hindu Gods and Goddesses on the Bharias of Patalkot has been cast due to the interaction with the upland Bharias and other Hindu communities they used to meet in the market day. However, it was a long process and the frequent visits of the Government Officials (who are mostly Hindus) might have played a major role in so far as their inclination towards different aspects of Hindu rituals are concerned.

However, there are considerable departures from different Hindu
rituals in their day to day work as evidenced from their rites and rituals of Pagan elements, thereby depicting their own tribal identity.

Similarly, the Koras of Birbhum have been Hinduised quite easily because of easy interactions with the common Hindu people of that locality. Moreover, their proximity to urban places has hastened the effect of Hinduism. As evidenced from their rites and rituals, the Koras have some deviation from the truest form of Hindu religion. Thus the Koras are more akin to Hinduism than the Bharias of Patalkot.

Both the tribes have converted themselves from hunting-gathering stage to finally a settled farming. But in the intermediate stage the Bharias practiced shifting-hill cultivation along with hunting gathering, whereas the Koras subsisted as earth digger in the interim period earth-digger. Ultimately the Bharias of Patalkot became settled farmers in a restricted plot of land and the Koras in affordable plots of land along with wage earning from day labour.

As forest inhabitants the Bharias of Patalkot depended on hunting and gathering for ages before agriculture was thrust on them. Even these days the Bharias are well adapted to the forest. A part of their calories come from forests. The forest, though it appears lush, does not have the density and abundance of edible resources to sustain human foragers over long periods.

Prior to the introduction of agriculture in the Patalkot area, the Bharias' ancestors probably exploited more productive areas in and around the jungles. The horticulturists' method of shifting their gardens created a patchwork of secondary and mature forests that early hunter-gatherer would have encountered.

In keeping their way of life more or less intact even as forces
of modernization advances, the Bharias show a remarkable, even puzzling resilience. Pressure from the Government, not to exploit forest (in which they were accustomed earlier) has compelled them to live as cultivators on restricted pieces of land. It seems inevitable that their current way of life is in a state of transition and jeopardy.

In some parts of the world, tribal people had undergone rapid transformation from very primitive conditions. In her study of the Manus of New Guinea Margaret Mead has shown that how a community modernised itself on the western patterns from the pristine stone age stage by the influence of American forces stationed in the area during World War II.

In India, the transformation by the christian missionaries of the ways of life of tribes like Khasis, Garos and Nagas did not take long.

In 1960 while studying the !Kung, Population, Richard B.Lee, found that the !Kung, who at the time were among the few groups in the world still obtaining most of their food by foraging, did not live on the brink of starvation, even though they inhabited the harsh Kalahari Desert. Indeed, they spent only several hours each day seeking food.

Whatever the reason might be, one major catalyst of change appears to have been a sudden easy access to goods. Now-a-days the Young Kora boys no longer learn to hunt. Government efforts endeavours played a part in the changes of economic life of the Bharias. The Government began to encourage the keeping of livestock and the development of agriculture. But the livestock and fields, the new clothes etc. reflect a weakness. Why had the men and women, who had long been successful as hunter gatherers forced to take on the burdens of herds and crops and thus accept their
mobility to be compromised? While the Bharias are being partially financed by various Government agencies to assist them in achieving financial independence, in the case of the Koras that agencies are practically absent.

In the lives of the Kora - particularly during the lean period of summer, they obtain credit from the village money lender at exorbitant compound interest rates which becomes impossible for them to repay at one instalment and this accumulate and continues to multiply beyond their ability to repay ever, thus making them virtually life long creditor. In many cases this goes on for generations.

The excessive dependence of Bharias and Koras on alcohol - not only during festivals and celebration but also in their day to day life is detrimental to their general health and wellbeing.

The absence of suitable and effective soil and water conservation technique and viable and relevant farming method - particularly applicable in the case of Koras (Birbhum being a draught prone area, irrigation at an optimum level is a must) - are causing gradual decrease in marginal returns in farming. Thereby, perpetuating economic hardship and general misery. The author therefore feels that to improve the present situation, the problems have to be taken care-of.

Bharias, principally hunters & gatherers, are distinctively different in every aspects of adaptations and behavioural pattern from the Kora tribe who have mixed economy, some are landowners, some day-labourers/service-holders and some have both the sources. The Koras have different ecological settings due to their proximity to Birbhum towns which influenced them and made them a modern tribe although both the tribes are migratory in nature.
It would be unwise to conclude that higher crater-depth would invariably give lesser population as depicted in TABLE 3.6.

All the Bharia villages are malnourished because of under-utilisation of land for cultivation. Not a single village has land carrying capacity higher than its population size. However, Land requirement for an individual (N) has been assumed to be constant (0.618 acre/person/year). In all the cases land consumed by an individual is far below than this "N". Out of the 12 Bharia villages only Jad Mandal Harrakachhar" (Whose crater depth is quite high, 3200') gives a better result. Next better is Ghana Saldhana Kondia (2250') and the next is Palani Galldubba (3050'). But none has reached the status by which they can be termed 'Nutritioned'.

A factor "N" i.e, land requirement of an individual, has been introduced in order to assess the land carrying capacity (= A/NK).

Status of nutrition has been found from 6 different directions:-

1) If "N" (i.e, land requirement) \(\geq\) land consumed, "malnutrition" results.

2) If land carrying capacity \(\geq\) population size, "nutrition" results.

3) Kcal-requirement \(\geq\) Kcal-obtained from food, labour, service etc., the "malnutrition" results.

4) Income required to support the family/individual \(\geq\) average usable income, "Malnutrition" results.

But all the above four items are interrelated.

v) Basal Metabolism and
vi) Weight/Height index and average skinfold over tricep.

Thus, an integration of data on agricultural produce, occupational status (i.e., labour, service etc.), nutrition (i.e., Kcal) and the economic condition have been attempted. Special emphasis has been given on the overall integration and correlation of analysis among the agricultural nutrition, the economy, body measurements and basal metabolism etc. as a whole.

Certain assumptions have been made while performing the analysis on Kcal-intake andrupee-value of agricultural produce -some 30% loss of food stuff etc. in order to get a factor "Kcal/Re." for each of the sample villages. This factor will be useful to make economic study of the concerned villages and to integrate nutrition with economy.

Using proper instruments, body measurements of the grown-up males and females have been collected to correlate economic and nutritional data with the body measurements. It has been observed that most of the body measurements commensurate with the economic and nutritional data.

From the raw data of landless and landowners, % malnutritioned and % nutritioned have been calculated.

In order to assess working capacity the % distribution of service holder/day labour/other occupationer among the landless and the landowner have been computed. By this analysis, it has been found that there are some cases where only land could not give sufficient nutrition to a landowner family unless it was supplemented either by day labour/service or by some other occupation.
Although, for a same amount of land-use, Kurumsha's Kcal was maximum (thereby indicating its positional advantage over others) but it does not mean that its economy is more sound than the others. It only reveals the fertility of the land and production of some high yielding variety of food grains.

The flattened curve of Carrying Capacity vs. Land-use indicates the lesser fertility of Bharla land in comparison with that of Kora land.

Some misleading inferences appear on the above aspects because of grand averaging, thus making some paradoxical outcome of results.

Basal metabolism calculated for all the villages are well below the Kcal-obtained from their usable income. Thus the persons of the Kora villages are consuming reasonable food-calories to meet the normal basal need. But, Patalkot villages are a marginal case which consumes 500 Kcal, just sufficient for the basal need.

From the weight/height index and average skinfold over tricep (these can be considered as a nutritional measure) it can be inferred that Udhadanga village is almost normal, Sundipur is a threatened case and Kurumshah is pre-cachetic/cachetic, in so far as nutritional status is concerned. The similar statements can be extended based on food consumption of individuals at varying seasons (Table 3.15).

Finally, attacking from all the above six directions it has been observed that, within the bounds of the present investigation and analysis, Udhadanga is economically, agriculturally, nutritionally and physically in a better state than Sundipur, Kurumshah is worst in these respects. Although the Bharias of Patalkot are in a very bad shape in all the above mentioned aspects.
In this connection a model representing a paradigm of human (or cultural) ecology, emphasising the out-put function i.e, energy and goods is placed. In the model a conceptual human ecology biased towards social phenomenon together with biological aspects is explained.

Based on the observations and the foregoing analysis the following measures can be taken as feasible remedies.

1. The resources available for the Bharias of Patalkot and the Koras of Birbhum are not sufficient enough to give proper nutrition to every individual of the concerned villages, as reflected from the various tables presented. The absence of high-tech innovations and pressure of excessive human intervention is unable to produce that requisite yield to supplement the calorie deficiency.

Therefore, to increase usable income human exploitation is to be minimized on one hand and on the other better tools, implements and advanced eco-friendly agricultural method has to be evolved to increase the yield of agricultural produces.

2. Unless steps are taken to improve the financial condition of these communities along with awareness of health food, however extensive and varied it might be, can help in improving the dietaries. As there is a cry of hunger practically among the underdeveloped countries all over the world, the only course left open to these tribal communities is to increase production by intensive and extensive farming.

3. Multi-crop agricultural estates can be made by introducing cash crops, and commercial crops farming.
4. These tribal people suffer because of exploitation by middle-men, lack of capital, and lack of knowledge of modern ways of increasing output. They have neither credit nor marketing organisations. The middlemen advance credit and buy or rather capture the produce at prices fixed by them. Hence it is essential that plans for modernised agricultural development, i.e., agriculture as an industry should be considered for the tribal areas.

5. Broadly based economic growth to generate efficient income-earning opportunities for the poor needs special attention.

6. The observation reveals that these tribal people have not enough food to eat, so malnutrition has come to be a permanent feature. So, what is immediately required is a sustained drive under a planned economy, increasing not only the all round production of food stuff but the supply of 'Optimum Diet' through 'protective foods' like dairy products, poultry, eggs, meat.

7. Social forestry (Acacia, Bamboo, and Cashew Plantation) can be introduced as it has become very popular with the farmers in many states of India. Especially Eucalyptus farming is introduced in Gujrat. Returns from the sale of timber would be many times more than that from the conventional cash crops.

However, naturalists and environmentalists have raised some doubts through newspapers that this species draws sub soil water at an alarming rate depleting the water resources underground, affect food grains production and it improverishes soil. But various researches carried at Soil Conservation Research Centre near Dehradun have shown
the facts to be otherwise. According to their opinion, it consumes less water than many agricultural crops and also a number of tree crops. Crop production can be increased by raising eucalyptus along field boundaries. These trees would then reduce wind speed, transpiration rates and temperature. Proper planting techniques would enhance crop production together with wood production, and production of oil, perfumes etc, and ultimately would be a boon to the farmers and farming wherever it grows well.

8. A social safety-net for these poorest segments of the society is to be incorporated. In recent years, the World Bank has carried out poverty assessments in all borrower countries. These have involved the development of poverty profiles: a review of Government policies related to poverty; an analysis of relevant public expenditures, institutions and safety-nets.

9. The above mentioned problems have to be taken care-of for improving the present situation without affecting tribal identity of the Bharlas and the Koras. It would be better the sooner they adopted to the present situation - encompasses all aspects from family planning to contour farming and development and sale of village handicrafts.