



**Full Length Review Article**

**ECOLOGY, HEALTH BEHAVIOUR AND DEVELOPMENT OF THE SMALL COMMUNITIES: AN ANTHROPOLOGICAL ANALYSIS**

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**ABSTRACT**

The very existence of a viable, functioning society proves its adaptation to its environment, though the quality of adaptation can vary greatly. The bio-medical functions like increased height, earlier maturation and high haemoglobin level are directly linked to fertility, mortality, morbidity and other aspects of health and survival. The knowledge on health related behaviour of a community/tribe depends upon the variables like how 'man' and 'ecology' has been defined, nature of man-environment relationship and changing nature of the human ecosystem. This paper is an attempt to find out the critical links between the environment and the Primitive Tribal Groups (PTGs) which are small and declining population groups in India. These groups are geographically, culturally and genetically isolated from the other communities/populations. In addition, their habitations are prone to deforestation, industrialization and heavy mining. This paper tries to link the environmental factors and the decline in population of the PTGs and consequently for the development policy for these people.

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**INTRODUCTION**

Ecology denotes the relationship of man and his environment. It has two major connotations; adaptation to the environment and determination of health status of different communities, i.e. a small community like the Primitive Tribal Groups (PTGs) in the forest ecosystem to the larger ones the city dwellers in the urban environment. The widely accepted definition of health given by the World Health Organization says that "health is a state of complete physical, mental and social well being and not merely an absence of disease or infirmity and ability to lead a socially and economically productive life". When the measurement of health, particularly of a community or population is concerned, this ideal definition seems to be more idealistic and reduce to registered disease and available health resources. There is no existing definition, which contains criteria for health measurement because of its subjective nature. Therefore, the measurement of health status of a population requires one holistic approach. In a positive and contemporary holistic sense, Bhasin (1994) has maintained that health is not a component but an expression of development, where health is defined as a combination of physiological development associated with

reduced mortality-morbidity trends, and the capacity of both mentally and physically creative work. Health is a function, not only of medical care but also of overall integrated development of society-cultural, economic, educational, social and political. In India, all the tribal communities are not on the same footage of development, and a large number of them are continued to be extremely backward and some of them were still in the primitive food-gatherer stage. Therefore, during the 8<sup>th</sup> Five Year plan period, 74 tribal groups were identified as Primitive Tribal Groups (PTGs). The main criteria adopted for identification of such tribes are- (1) pre-agricultural level of technology, (2) very low level of literacy and (3) stagnant or declining population (Verma, 1995). They are geographically, culturally and genetically isolated from the other communities/populations. As they are mostly forest dwellers, their health behaviour is determined according to their micro and macro level interaction with the forest ecosystem.

**Literature in Anthropology**

There is the lack of written records on the relationship between habitat-food habits-health behaviour of the small primitive communities in India, due to lack of biomedical knowledge of the ethnographers and cultural anthropologists. However, several ethnographic data collected by them are directly or indirectly related to these aspects within a confined

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ecosystem. Initially, health behaviour among the tribal groups has been studied up to the levels of physical health by the ethnographers. Later on (after 2<sup>nd</sup> world war), the culture and personality school of anthropologist studied the perceptions and attitudes on health of the small communities. Study by Mead (1979) in several Oceanic groups is an example of health behaviour research from the psycho-cultural point. However, the kinds of behaviour recorded by this school are cognitive, economic, religious, legal, and linguistic and family oriented based on kinship, child rearing practices and the like. Standardized ways of assessing behaviour have been made in trans-cultural psychiatry (studied by Leighton, A.H., Leighton D.C., Lin, T.Y. etc.) in the later period. These data on primitive peoples' health behaviour are purely anecdotal or impressionistic (as stated by the CIBA Foundation of symposium on trans-cultural psychiatry and A. Damon's Human Relations Area File).

In the HRAF it was found that ethnographers had paid attention to the physical and man-made environments but had made few or no objective, qualitative assessments of health and behaviour. Ethnographers defined their populations residentially, enumerate and specify them demographically, characterized their environment in detail, recorded and their behaviour in standardized ways with regard to signs and symptoms of stress and to disorder of mood thought and feeling and obtain daily round of life from representative persons. Biological anthropologists have initiated health behaviour studies among the primitive communities in collaboration with other fields; studies in the Amazon basin (Neil *et al.* and Neel), in Peru (Chagnon Buck *et al.*, Lee and De Vove) and in South African Bushman. Studies by physicians, acting as social anthropologists are also numerous; Dunn in Malaya, Sinnet in New Guinea.

### Aspects of human Behaviour and Adaptations

Human populations are socio-culturally organised, which is unique for a particular population. The different populations have the ongoing contact with and impact upon the land, climate, plants and animal species and also with other humans in their environments and these in-turns have reciprocal impacts. A particular population purposely and unintentionally shapes its environment and environment shapes its cultural traits; food habits and its social, economic and other aspects of life. Habitat is the smallest unit of the broad term environment, which is distinct in very population. Every population is particular orientated and adaptive to the wider environment and institutionalized in the culture; technology, knowledge of plants and animals, weather, tools, techniques and shelter. They are also influenced by other populations groups; through acculturation, culture contact and other forms of culture change. Hence, the context of ecology can be very briefly defined in terms of culture, system, environment, energy, economic evolution and adaptation. Human beings create their own cultural settings and simultaneously they do interact with the natural environment.

The cultural traits are usually borrowed through the process of acculturation. So the cultural patterns are being formed with the aggregation of cultural traits, these may be indigenous or borrowed. As every culture trait has a specific role, it is very

much important to look at the functional existence of a trait and its role in the formation of specific behaviour or institution. Different institutions are formed as and when the society needs it for adaptation. So, any aspect of the human behaviour is directly or indirectly related to features of the natural or social environment. When the system approach of ecology is concerned, it is the aspect of relationships. All relationships can be regarded as the transactions and exchange of energy, matter or information. System constitutes their structure, functions, maintenance and alterations. For living organisms such exchanges take place on various levels; within the cells, organs, whole organism, local population and community of different species.

The basic unit of ecology is 'ecosystem', which is a set of interrelated species of organisms and their physical environment. Here, all the organisms and factors are interacting to each other and with materials and organisms from outside. Hence, no real ecosystem is closed. The natural environment directly affects the psychology and work habits of people, and thus determines the nature and complexity of their culture pattern. If the people's behaviour is determined by others with their own perceptions and attitudes, it becomes ethnocentric. Peoples are just reactors to the behaviour according to the ecological set up and the available resources. So there is the ecological determinism of behaviour of a community. On the other hand, cultural traits like rituals, settlements and economic institutions of the community of people as a whole do not affect this natural environment. So, both cultural and natural phenomenon interacts and mutually affects each other.

Julian Steward in 1955 coined the term 'cultural ecology' in which he broke down the environment and culture into specific features to examine their interrelationship and viewed the environment not simply as vague limits but rather as intimately related to aspects of culture. Aspects of culture are more directly related to the natural environment. So a hierarchy of descending influence of the natural environment is formed by the different cultural factors. According to this view, the technology and economy of a society are most directly related to environment. Hunters and farmers both interact most with the environment when getting food is concerned. These activities set limits on the size and distribution of population and on how people regulate this distribution. Environment has a great influence on their community structure.

For instance, though the different communities in Melanesia and New Guinea are agricultural ones, their village size differs; 10-20 person among the Balgo and Kwaio of Malati in Melanesia and 1500-2000 persons in parts of New Guinea (Human Relation Area File by Albert Damonin L.E. Hinkle p.249). P.C. Salzman (1996) is of the view that not only ecology determines the existence of cultural traits rather it is vice versa. Only the complexity of relationship between ecology and culture is important. Any of the cultural trait, it may be political, social and economic like farming and food may be related directly to some features of the environment. Energy is the common dimension/scale used to understand the interaction between ecological components and human behaviour. Food is being measured in terms of calories, energy

contents, energy flow, energetic costs and benefits from the ecological resources, the physical labour of the people, the foods they are taking and after all their behaviour towards the institutions and organizations.

Energy has been related to cultural context when the cultural traits in the micro level are concerned and it is also free from the cultural concepts when the biological/physiological activities are concerned. The energetic relationship of a group of people are seen through biological needs which vary with sex, health and activity, potential and actual energy sources, technologies and techniques of exploiting these resources in terms of costs of materials and personnel, other energy expenditures; procuring nutrients, raw materials and other objects. The economic as an aspect in between Ecology and behaviour of a group of people is seen through various nutrients and raw materials, land, time and specialized knowledge with each budget in investigation of how these substances are produced, distributed and consumed. The allocation of all these resources involves decision from food getting to all activities for survival of a group. It depends on the constraints of the choices, technological capabilities, institutionalized demands, sanctioned options and activities of other individual constraints of crops, climate, market situations, family size, use of land etc. All these factors have the responsibility in joining ecology to behaviour from the economic point of the society.

The evolution aspect of ecology and human behaviour relates to their adaptation and fitness. Behaviour of an organism is based upon an end to achieve. Anthropological meaning of this 'End' is adaptation to the environment with socio-cultural and genetic capabilities of the group and socially transmitting these capabilities of adaptation to the next generation. Whereas psychological literatures direct it's meaning to mental fitness through attitudes and perceptions. Both anthropological and psychological ideas are related to behaviour. Adaptation has many dimensions; biological is related to genes, socio-cultural to institutions, ecological to habitat and psychological to the mental fitness. However, traits created to adapt to a specific ecology changes by the changing ecology. Peoples' perception towards the problem and its meaning also alter through communication and experiences, the available means may change through accidents, invention, contact and the goals may change through education and coercion. Ecological adaptation dominates others, as it determines behaviour and adaptation of the group. For example the nomadic of many hunting and gathering and pastoral people is an adaptation to the variables availability of basic resources, such as the animal species hunted, the plant species gathered and the pasture and water for heard livestock. Technologies of production and consumption are closely tied to this adaptation.

Nomadic pursuit of resources require flexible composition of local group, which often fragments in the smaller units and then reunite, with individuals and families moving in and out of the group. Demographic behaviour is also linked with the adaptation of a group. The practice of female infanticide (as cited by Phillip, C.S. 1998) among some Arctic Inuit groups are in response to the high death of male hunter's, aim to provide a balance of adult females and males in an ecosystem

when hunters/non hunters imbalance means starvation. Some other studies have focused the link of food habits-adaptation-behaviour of a group. Study by Lee (1993) observed that some hunting groups like Inuit struggled hard for bare survival, Ju/Hoansi of Kalahari desert in Botswana once supported themselves comfortably by gathering and hunting only 2.4 days each week an average, and foragers of north-west coast of north America were able to draw so much from their rich environment that they lived in large stable settlements and development elaborate ritual systems and chieftainship. Also, the pastorals all over the world show very ranging adaptations to their ecology. The tribal pastoralist adaptation measures of all these groups are different. To adapt within the ecosystem desert pastoralist follow ever changing migration patterns in response to unpredictable rain fall and pasture.

Mountain pastoralists are densely concentrated migrating along lineal route between low land winter and high land summer in response to more predictable seasonal changes. All these adaptations and behaviour of the primitive tribal groups as well as other communities have the roots in food production, distribution and consumption or its survival. Every community has the different technology for getting food, different laws and regulations are formed for its distribution and consumption. Food is the most important component which can be taken alone to understand the behaviour particularly health related behaviour of a tribe/community according to its ecological habitat. Food is a bio-chemical process and product which sustains life. It is functionally bio-chemical in nature but the production and consumption by the different members is socio-culturally determined. Culture helps a person to determine his choice of food articles and hence it supplies the nutrition. Food has both the qualitative and quantitative aspects. Both are the attributes in the ecological habitat where it is grown/consumed and culturally practiced. Both the both the qualitative and quantitative aspects are more relevance of the very existence of a group in relationship to its biotic and abiotic environment.

A change in the ecosystem also brings changes in the food habits. Deforestation and soil erosion in Indian ecosystem has tremendously affected the cropping system and the availability of fuel wood. There may be food difference between various communities in the same ecological zones in food production, distribution and avoidance. Due to the changing ecosystem like construction of dams, occurrence of famines and severity, cropping pattern change, quantum of availability of certain food items etc. change the food habits. Hence, if there is the change in the equilibrium of ecosystem there is surely a change in food habits. Food habits are affected by population composition. Natural environment like topography, soil, flora and fauna and social environment like land tenure, food production relations, marketing, purchasing power and pattern of culture. Forest ecosystem has the significant impact on the food habits and nutritional status of the tribal groups living inside the forests.

The various roots and tubers available in the forest and small animals they can supply a balanced nutrition to them. When the health status and food habits of the tribals are concerned, certain diseases may be common in certain areas but they are controlled because of certain food habits based on vegetation

available and socially transmitted through tradition. The development plans like construction of dams, industries, factories, etc. cause deforestation as well as health hazards for the tribal people. This distribution has the direct and indirect link to the malnutrition problems as well as by exploiting the self sufficient economy and spread of different communicable diseases due to contact with the outsiders. The construction of the relationship of "Food habits-Health status-Health behaviour" is influenced by the availability of ethno-botany, exploiting level of the natural resources and the changing life pattern of the tribals in their respective ecosystems. The traditional health care systems of treatment are based on their environment. Also, they derive the medicinal value of different plants in observance to other animals. Some of the plants which may use regularly for different purposes are having high medicinal value.

Choudhuri (1986), Choudhuri, *et al.* (1989), reported the plants which are being used by the tribals for population control. Ethno-zoology which seeks to know the medicinal application of animal and aims to study the interrelationship between man and animals has the specialty in understanding food habits and health status of the tribal community. For example, the study by Joseph (1989, Zoological Survey of India) in M.P. indicated a vast number of animals used by the tribals as food, medicines for family planning, age stabilisers, mechanical and industrial use etc. This study also indicated 894 medicinal applications of various animals. Cure from different types of diseases are mainly influenced by the traditional tribal medicines and through indigenous methods of treatment. Forest happens to be the main source of getting these medicines. After independence, different forest Acts and the developmental plans and programmes in the forests have thrown out the tribals from the forest and caused malnutrition and health hazards. Since the time of colonial capital into the third world, a systematic campaign has been made against the slash and burn cultivation by the tribals and has been described as vandalism of the primitive, though through this practice they survive and will be surviving.

Tribal land and forests came from constant assault and invasion from 'development' projects like irrigation dams, hydroelectric projects, mines, road and railways and also forced them to stay with the alien capitalist culture. Only in Orissa, the Balimela hydroelectric project, Upper Indravati, Mandira, Kolab and Rengali dam displaced over 1000 tribal families (Pathy, 1992). The lands which they are getting in rehabilitation are infertile for cultivation. So, the tribals are being kept outside the forest which provide them starting from food, habitation, to socio-cultural adaptability. Pathy also maintains that the shifting cultivation lands are un-surveyed and land above 10° C slopes is recorded in a single entry as state land. These types of activities are bringing unsure in their land rights. Hence, several Bondo, Kutia Kondhs, Hill Bhuinyas, Juangs, Dongria Kondhs tribals in Orissa, not more than 5 percent of cultivated lands could be settled with the tribals. All these factors have the ongoing impact on the tribals' food habits, health status, besides socio-cultural security.

## Conclusion

Several ethnographic data in anthropology proves that health behaviour of the small communities is socio-culturally organised within a specific ecological set up. A particular population purposely and unintentionally shapes its environment and environment shapes its cultural traits; food habits and its social, economic and other aspects of life. It has been documented in the fields of cultural ecology, economic and evolution. The PTGs in India are usually inhabited in the forest ecosystem, which are having significant impact on the food habits and nutritional status. Their food habits-health status-health behaviour is influenced by the availability of ethno-botany, exploiting level of the natural resources and the changing life pattern of the tribals in their respective ecosystems. Thus, any sort of development measures of these communities must take into consideration their ecosystem and the natural resources which shapes their livelihood and health status.

## REFERENCES

- Buck, A.A. and T.T. Sasaki, Health and disease in four Peruvian villages. In L.E. Hinkle.
- Choudhuri, B. 1986. Tribal Health: Socio-cultural dimensions. New Delhi: Inter-India Publishers.
- Dunn, F.L., Epidemiological factors: health and disease in hunter gatherers. In L.E. Hinkle.
- Hinkle, L.E. The effects of man-made environment on health and behaviour.
- Joseph, A.N.T. 1989. Ethno-Zoology of reptiles in relation to healthcare among the tribals in Madhya Pradesh. Social Action. 39(4).
- Lee, R.B. 1993. Ecological Anthropology. Cited by C.P. Philip. the Doe Jul/Hoansi, New York.
- Leighton, A.H. Leighton, A.H., Some observations on the prevalence of mental illness in contrasting communities, in L.E. Hinkle.
- Leighton, D.C., Measuring stress levels in school children as a programme monitoring device. In L.E. Hinkle.
- Lin, T.Y., A study of the incidence of mental disorder in Chinese and other communities. In L.E. Hinkle.
- Mead, M. 1979. Adult roles in transcultural psychiatry, cited by Damon, A. in L.E. Hinkles (ed) The effects of man-made environment on health and behaviour, p. 248.
- Neel, J.V. and F.M. Salzarwa 1967. Studies on the Xavante Indians of the Bratilanmato gross, American Journal of Human Genetics, 16: 52-140.
- Neel, J.V. and N.A. Chagnon, The demography of two tribes or relatively unacculturated American Indians. In L.E. Hinkle.
- Pathy, J. 1992. Shifting cultivators of India: bearing the brunt of development. In Forest resources: crisis and management (ed.) by Vandana Shiva. Dehradun: Natraj Publishers.
- Salzman, P.C. 1996. "Ecological Anthropology". Pp. 169-172 in Encyclopedia of Social and Cultural Anthropology.
- Verma, R.C. 1995. Indian Tribes Through the Ages. New Delhi: National Book Trust. 1995.

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