

## Concept of Cultural Ecology of Megalithic

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**ABSTRACT** The potential Prehistoric cultural evidence and structures of Megalithic period are the indicators of the collective support of the environment, substantial subsistence and religion. The degree of adaptation and the Socio-economic existence of the Megalithic people based upon their interrelationship with the above factors. The concept of cultural ecology attributes the entire frame work of the above traits.

The differences in the evidence of megalithic monuments are certainly sceptical about their homogeneity. The variation in the same geographical region poses certain concepts of struggle for existence, survival of the fittest, principles of competition and accommodation and so on. On the other hand it arrives with the co-existence of common population. A coherent analysis is answerable only by the net work of ecological balance which is the concept of cultural ecology. Thus this ecological aspect is interpreted in the Megalithic monuments particularly of South India where the potential evidence has been reported.

In recent past, ecological studies in archaeology gained much importance. According to the common Greek root, economics (discourse on the household) and ecology (management of the household) are thought to be very similar sciences (Bates, 1961) since the term 'ecology' at first has been interchanged with that for the older study 'economy'. Bates (1960) subtitled one of his books 'A look at the economy of nature and the ecology of man'.

Vayda (1973) explained that the ecological studies are concerned with relations between living organisms and their environment. Their environment comprises not only land, water and other components of the physical environment but also the biotic environment, that is other living organisms. Anthropological statement on ecological process has generally been formulated in terms of the relations among cultures and their environments. Anthropological understanding of ecology is cultural behaviour than human behaviour (Jochim, 1985). Sanders and Price's (1968:71) ecosystem of the total net work of rela-

tionships between subsystems includes culture, biota and physical environment. Kroeber's (1923: 182) phenomenon of 'historical or cultural influences (on contact), Wissler's (1926: 214) compromising theory of one class of traits, either human or environmental, affected the other' and Forde's (1934:463) theory of cultural pattern' (adaptation to the environment) approaches are not able to formulate the exact methodology of cultural ecology.

Steward (1955:40) has given three fundamental procedures of cultural ecology, (1) the relation between environment and exploitative or productive technology, (ii) the 'behaviour patterns involved in the exploitation of a particular area by means of a particular technology' and (iii) the extent to which the behaviour patterns imposed in exploiting the environment affect on the aspect of culture.

Environment is a source for resource which in turn become an ecological niche (Meggers, 1954). While rejecting the general statement of "environment is an important conditioner of

culture", he emphasised that the areas that seem similar geographically may differ culturally. It has also been commented by Dumond (1961), that the civilization has not been developed where intensive agriculture did not exist. Benderly et al. (1977: 81) say that every population of organism lives in a dynamic relationship with its environment.

Man's ecological niche is physiologically narrow, but ecologically vast. Changes in the relationship between technology and environment ultimately affect social organisation. Pastoralists, for example, as a result of their method of food production, share some of the characteristics of both horticulturists and agriculturists. They generally exploit marginal environments such as deserts and mountain areas which are not suitable for agriculture or horticulture. This is one way supporting the general economy of the region.

Sanders (1962) means the cultural ecology as the study of the interaction of cultural processes with the physical environment. He says that all cultures change but in civilizations change is more rapid. Certain conditions added with technological, economic and labour investment cause in the utilization of the environment for the development. The Nile Valley in Egypt, the Tigris, Euphrates Valleys in Iraq, the Indus Valley in India and the Hwango Ho Valley in China which are associated with major river valleys are the four small, compact, densely populated areas. In these areas Pre-Iron age civilizations are highly developed.

While explaining human population ecology Anderson (1973) gave two major characteristic points. (1) Man's complex of socio-cultural behaviour enables him to collapse the time span required for biological adaptations and has permitted an unparallel explosive adaptive radiation into virtually all the earth's biomes. (2) Of critical importance in the study of ecosystems that include human population is the study of man's role in energy flow. Man drastically alters energy flow, simplifying ecosystems for his own use. His capability as highly efficient capturer, converter, utilizer and especially transporter of energy is

closely interrelated with his symbolic behaviour of tool-manufacturing ability. The flexibility and adaptability of his technology and mode of life encouraged him to survive in a great range of settings (Keesing and Keesing, 1932: 31). Therefore an ecological setting is directly related to the settlement pattern.

Settlement pattern in archaeology defined by Willey (1953) as the way in which man disposed himself over the landscape on which he lived. The ecological approach of the settlement pattern by Hole and Heizer (1977: 287) deals with the distribution of sites and relationship between sites, subsistence, technology and environment. The definition of settlement archaeology as 'the study of social relationships, by use of archaeological data' given by Trigger (1967) is striking. Improving this theme, Chang (1972) regards it as, the study of social relationships is to give the concept of culture a subordinate role, while that of it as, the study of archaeological data in the light of social relationships is to study culture within the frame work of social relationships. As the settlement patterns are inferred to be directly related to ecological factors and particularly accessible to hierarchical classification (Chang, 1972), the new archaeologists since the last decade concentrate on cultural ecology. The geographic and ethnographic models of constructing the cultural ecology are advised. In the geographic models, Haggett (1965) pointed out that the settlements are a concrete expression of human occupation of the earth's surface'.

Chang (1972) explains that the ethnography provides at least two models for interrelating settlement units in terms of cultural ecology. The first provides a typology of settlement units in term of their spatial distribution during a meaningful time period for the purpose of environmental exploitation. Barth's (1956) work in Pakistan is noteworthy to illustrate the second ecological model according to which the different ethnic groups (rather than settlement types within a single ethnic unit) separately exploit diversified ecological niches within the same region. Barth's (1969) work on contemporary diverse

cultures in a given period of time in the same ecological zone.

A plenty of evidence of megalithic structures of various types spread over in South India in general and Andhra Pradesh in particular, can be seen to be divided into two major components of conceptual classification. It may be correlated with the Chang's (1977) expression of ethnographic models of cultural ecology of the Pre-historic settlement pattern. The superordinate and subordinate analogies of South Indian megalithic by Moorti (1990) can be fit in these models. Such huge megalithic structures constructed by those folk communities concentrated particularly in South India are the replica of the staunch religious expression of the period indeed. Different ethnic groups formed out of the remote common stock must have been wide spread in the geographic zone and adapted to the local environments with varied techno-economic strategies. This resulted in the formation of different forms of social organisations. Each group with its own form of social organisation possesses an independent belief system different from its neighbourhood. A group that practise its own system of mortuary custom followed by an arrangement of stone structures is distinguished by another group and its mortuary procedure. Thus the existence of different megalithic constructions are an indication of different grades of socio economic status of the people. It further imperates environmental exploitation and accommodation through varied technological capacities. Accommodation for different ethnic groups in a given geographical region possible only when they undertake the extraction of different niche productivities from the local micro-environments with the aid of the different technological strategies suitable to it. Thus the existence of such huge commemorative structures which are different in form from one group of structures to the another is one aspect of the ecological balance which finally strike us the behaviour of the humans at the out set than their culture. In this case the hilly terrain, the raw material and the perennial water resource must have provided the megalithic people in the entire

South India including southern half of the Andhra Pradesh, a bitter change prone to be adaptable and sustained in the frame work of environment versus culture and vice versa.

Another aspect of this culture is the religion which can be considered as an indirect indicator of the carrying capacity of the region. To instal a huge menhir or a dolmen or even stone boulders in a stone circle it is not an easy task to carry out. It requires lot of energy whether individual group or collective groups. The disposal of the energies stored in the human body at the expense of religion-binded megalithic constructions can be possible, when it gains the substantial energies through the exploitation of the environment. But an environmental niche productivity needs vigilance from being over exploited in order to facilitate the longevity of the storage of energy. Thus the subsidiary subsistence survivals as small economic units at times act as buffer in order to serve the reduction in the shortage of the niche hive. That is why perhaps, the primitivity attributed in the hunting-gathering activity besides a standard resource subsistence pattern among many a present day tribal folk community that still practice megalithism is appeared to be an act of buffer to maintain an ecological balance for a long time.

In South Indian megaliths, two types are indicated, one, different sites with different individual megalithic structures and two, one or more types in a single site. The concentration of different stone monuments in a single site can be comparatively considered as a potential area for subsistence and on the other hand the principle of competition lead to accommodation resulting in the harnessing of a new food productivity from the common environmental region which is also unable to subside the population pressure and demand. Thus the distribution size of the megalithic structures indicates the settlement pattern which further reflects the economic viability of the ecological niche. The less the size in the distribution is an imperative of the exhaustion of the niche produce leading to short span of settlement and finally group migration. It is of course

also enhances a path to expand the ecological exploitation. Lack of technological advancement in contemplation with the suitability for the exploitation of the environment in space and time can also be one of the factors for migration. Unless the raw material and technology supplement an advantage, local subsistence sufficiency at a higher degree cannot be reached in an area to establish settlements. Conversely the settlements of ranked societies for example, shall be located in areas which assure a high degree of local subsistence sufficiency (Peebles and Kus, 1977)

As the basic of ecological terminology centres around subsistence which is the principal of social change (Rao, 1991) the megalithic constructions are so built up of strong force known as religion. The belief system in the mortuary custom resulted in a strong tradition and thus expressed through such huge constructions. However such venturesome constructions cannot be possible by mere religious perception and individual effort only, but on cooperation of group organisation. While stressing the importance of socio-political system for the benefit of construction of massive memorials, Fairservis (1962) stated that a society which channels so much of its energies into the religious and aesthetic domain of its culture may be doing so at the expense of a greater development of its socio-political system comparable to a kind of state society (Kaplan, 1963) of a highly centralised, coercive one (Millon, 1960).

The survivals of the megalithism are still seen in the various parts of India. Various tribal communities still practise mortuary ceremonies along with the installations of stone monuments. Different communities arrange different cultural symbols. Even in North eastern Andhra Pradesh menhirs, dolmens and stone circles are erected by *Savara, Gadaba and Valmiki* tribal communities respectively (Rao, 1987). Through ethnographic studies of these customs the cultural ecology can be understood and compared.

As a whole the holocene ecology would have been considered to be more favourable to the

sustenance of megalithic people. The environment and its reciprocity to the survivalship of biotic community can be understood through the Physical and Chemical analyses undertaken in the concerned regions. The estimation of organic carbon, nitrogen and phosphorous is much helpful in the calculation of the intensity of population (Deo and Jamkhedkar, 1982). Although carbon and nitrogen occur in large quantities, they are depleted quite rapidly. It has been observed that the soil of the area where intensive human activity had taken place contains 50 times more phosphate than in the ordinary soil and is therefore a good indicator of human activity (Dhavalikar, 1988). Fluorine analysis and Pollen analysis are also useful in the inference of Palaeontological, Palynological evidence. Thus different aspects of such inferences multitude environmental background with which Prehistoric Populations adapted with the aid of different suitable technologies introduced. Hence the habitat in a prescribed environment, techno-economy and biome are interrelated in any sustained ecological frame work, resulting in a specific culture.

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