

# **Human Ecology: Concept, Methods and Development**

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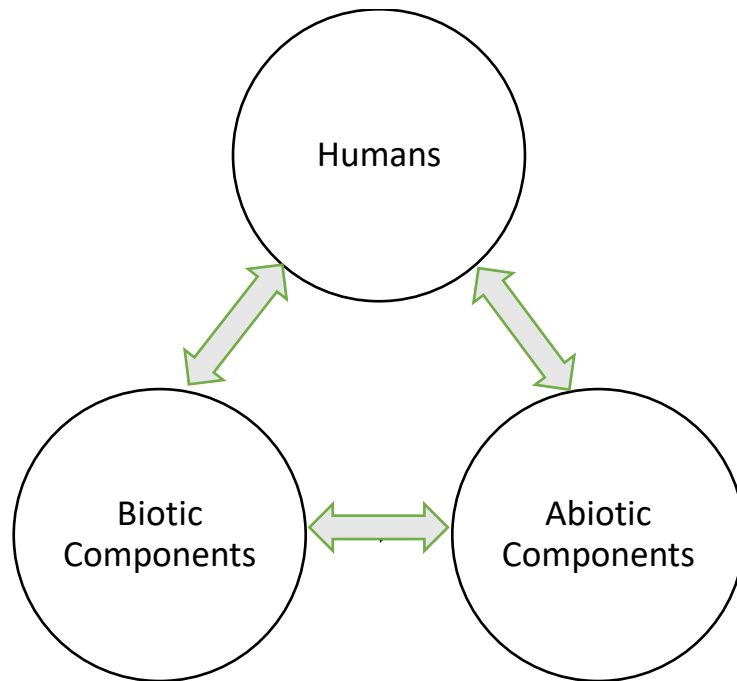
## **Concept and Development of Human Ecology**

Human ecology is the systematic application of ecological concepts, principles, theory, and research methods to study human populations and communities. Human ecology examines the way human-resource relationships affect human adaptation to diverse types of the ecosystem such as desert, aquatic, forest, and others (Abruzzi, 2003). It also scrutinizes the role that resource requirement needed to withstand a population play in shaping local differences in behavior, residential distribution, household composition and structure, community, social and political organizations, inter-population relationships, and other social behaviour. Human ecology also examines contemporary ecological concerns that result from population growth and industrial development.

It has been known for a long time that human survivability is determined by the environment. Several attempts made to understand the responses of the organism to the critical environment can be traced back to antiquity. But the idea of contemporary human ecology has been expressed since the 18th century by Adam Smith, Malthus, Darwin, and Hoppes. It is believed that the term Human Ecology was first used in geography by Huntington (1916) and later it was adopted in Sociology (1921). The history of human ecology in sociology is complex. In fact concepts of human ecology in sociology evolved from the classical concepts of competition. The social area analysis focused on the population structure (organization) in relation to the total environment. In other words, it is the ecological analysis of the social organization. Since human ecology deals with the role of the environment in the origin and existence of man, it has engrossed many other disciplines including anthropology and medicine.

Thus, the concept of 'human ecology' was put forwarded by the American geographers who had a belief in Social Darwinism. It was H. H. Barrows, who in his presidential address to the Association of American Geographers in 1923 declared that "human geography is human ecology". The followers of this school tried to establish an interactive relationship between man and his biotic and abiotic elements of the environment. They opined that a struggle for existence

must take place; it followed that those who survived were better fitted to the environment than their competitors. Relatively superior adaptations increase; relatively inferior ones are eliminated. The central idea of human ecology is that man, like plants and animals have to struggle in his physical environment, and in this process of struggle, the weaker gets eliminated.



**Fig: Human interaction with ecological components**

The advocates of human ecology also believed that the ecological principles, e.g. the food chain, the web model, etc. are applicable to all aspects of biology, from plants to animals to people. The discipline of human geography as human ecology was further strengthened by the works of Lamarckian who emphasized that organisms could consciously adapt themselves to their surroundings and pass on acquired characteristics to offsprings. The Ratzel's Organismic conception of the state, the Davisian geomorphology, the environmental determinism of Semple, Huntington and Taylor, the regional geography of Herbertson, the landscape ecology of Sauer, and the anthropological human geography of Fleure-all proved to some or greater extent that human geography is human ecology.

It was based on Malthus's concept that Darwin thought of a 'struggle for existence which results in the balance between the environmental state and social activity of humans. It emphasizes the importance of an exchange system among individuals, populations, and species. Theoretically, succession corresponds to an accumulative increase in the human population. Practically the problem of limited natural resources is the real connecting link. This would lead to minimize consumption by consumers and maximize the benefits by producers. It may lead to a state of balance through mutual succession. However, it has been shown that neglecting ecological and economical laws along with a lack of coordination of activities, results in the destruction of the natural environment and deterioration of living conditions for humans. All these ideas are typical of the initial stage of human ecology which dominated for about half-century.

Human ecology, in the beginning, had a monodisciplinary approach. A review of the trends in human ecology defines the scope of ecological concepts which includes basic processes like the kind of interaction between living organisms, levels of integration, and functional relationship. Human ecology distinctly focuses on the interactions because organisms cannot live in isolation. Such interactions have its own dynamic structural and functional dimensions. It determines the role of Homo sapiens with his own and other species. Thus the subject matter of human ecology includes systems of interactions among individuals and interrelations with the environment, niche, habitat, and the ecosystem. The environment may act at three levels of biological organization: individual, population, and community. Population refers to a group of individuals of the same species living in a given territory and is integrated by a common culture. In other words, human ecology deals with the matrix of nature in which each object has its own place and function.

### **Methods of Studying Human Ecology**

Human ecology utilizes various methods acquired from other classical disciplines that it synthesizes and incorporates. However, the methodology of human ecology is neither exclusively an analysis of individual objects nor a synthesis of the problems.

The basic methods are the observation and recording of the state of nature and society which instinctively recognizes the interrelationships between organisms and their environment. Monitoring is carried out at the level of the organisms, populations, and environment. For instance, the inferences in epidemiology when implicit as a part of human ecology are based on healthy people rather than unhealthy people, and on populations rather than individuals. The

characterization of an event in the context of the environmental conditions provides an opportunity for estimating what is the average, normal and regular.

In Geography, monitoring consists of recording individual responses to similar environmental conditions and intra-population differences. Thus the specific response of different races or ethnic groups remains in the field of classical anthropology and the old approaches have been modernized in the light of the concepts of major genes or complex linked genes or populations. The monitoring of the state of the environment is extremely complex, as the number of environmental factors affecting humans is almost unlimited. The physical factors include climate, nutrition, and pollution of air, water, food, and noise. In addition, social and economic factors indicating living conditions are also considered.

### **Basic Difference between Ecology and Human Ecology**

In ecology, emphasis is not much given on humans however, in human ecology humans are considered as the most influencing and determining factor that can change or modify the nature and intensity of interaction between the biotic and abiotic components of the environment. Humans have been playing the most dominant role in changing the nature or natural landscape. Because of the differences in caste and culture, religion and tradition and ethnicity, the interaction of human beings towards other biotic and abiotic elements is not same. The nature and intensity of interaction of humans with the environment are influenced by different social and natural processes. Humans play the role as consumers and producers, conserver and destroyer and modifier and developer. Thus, human ecology studies human behaviour towards the environment.

### **Criticism of the Concept**

The approach of taking human geography as human ecology has, however, been criticized on several grounds. This definition puts man at par with plants and animals who is also supposed to struggle in his env for survival. But, man is a tool-making, tool-using, and culture-making animal. Man, through his knowledge, scientific advancement, and innovations, transforms the habitats and ecosystems drastically to fulfill his material needs. For his food, he is not dependent on his environment; at the time of droughts and inadequacies of food, he may import cereals and other commodities from the distant regions which may save his species. Moreover, he possesses the power, skill, and technology to grow tropical crops (rice, sugarcane, rubber, spices, etc.) in the

temperate and frigid regions under artificial conditions and vice-versa. Thus, human life is exclusively controlled by his habitat and natural environment. Contrary to this, he himself is a great agent of transformation in his physical surroundings. The principles of ecology do not apply on human societies with the same magnitude as they apply on plants and animals. Human geography, therefore, cannot and should not be taken as human ecology.

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