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SUSTAINABLE DEVELOPMENT AND ENVIRONMENT PROTECTION

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Environment is a complex branch of biology which is related to almost all the branches of sciences and social studies. To understand all the different aspects of our environment we need to understand biology, Chemistry, Physic, Geography, Resource Management, Economics and population issues. Thus, the scope of environmental studies is extremely wide and covers some aspects of nearly every major discipline.

The study of man's relationship with the environment has been increasingly concerned with explaining why man behaves as he does; why, among other things, he grows one crop rather than another, or chooses particular transport routes, or builds factories in specific places. Environmental behavior is dependent on the ways in which the environment is perceived, and one of the major developments in geography since the mid-1960s has been the study of this environmental perception to explain behavior.

Man's relationship with the environment is indirect in that environmental behavior depends on the image of the world that each person carries inside his head. This image is therefore as important as the objective environment or 'real world' that geographers have traditionally studied and many geographers are now studying the subjective environment, or the environment as perceived by man, to better understand the man-environment relationship. This study of images, values, decisions and behavior has produced a new emphasis in human geography. It is no longer the objects of human activity-farms, roads, factories that are the focus of study, but man himself-how and why he behaves as he does. Human geography has become more human.

Before environmental behavior can be explained, two basic questions have to be answered by the geographer. First, how does man perceive elements of space, such as distance, direction or physical space? Secondly, how does man perceive the features of the environment, such as resources, hazards or cities? The question of what is meant by environmental perception will therefore be examined.

Environmental Perception

The term environmental perception is used in two senses. First, it is the process by which an individual gains knowledge of the world by receiving stimuli from the environment through his senses. This stimulus/response is not a simple process since the individual receives eighteen separate visual images alone each second, and these are then filtered through his reason and emotions, which are themselves affected by past learning and motivation. As a result, different people respond to the same stimuli in different ways. Secondly, it is the image of the environment that each individual carries inside his head.

This mental model is very important because it is the frame of reference within which man behaves, and is of considerable interest to the geographer.

The process of perception and its consequent mental model are affected by two basic considerations: the individual's personal view of the environment, and the influence of culture on this view. Each individual has his own view of the world and his own personal sense of space that is produced by his own inner feelings and drives. This personal space can be seen in Fig. 2.1, but of much more importance to the geographer is the influence of culture on the individual's view of the world, and the ways in which perceptions of the environment vary between cultures are a major focus of interest.

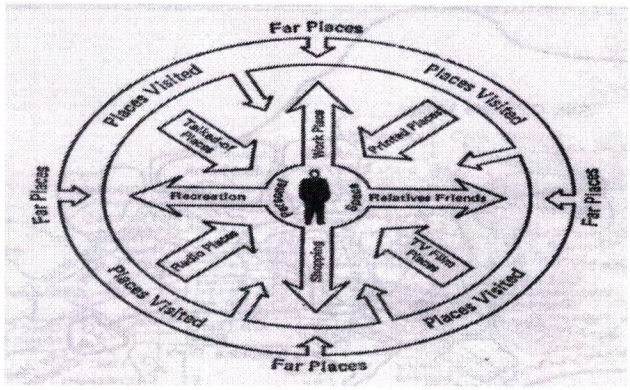

Fig 2.1 A Simplified mental map
(From B. Goodey, perception of the environment, center for urban Regional Studies, 1971)

Because the real world presents the individual with so many images, choices and problems, a process of selection has to take place, and it is culture which enables him to choose certain stimuli and to arrange them into patterns which have meaning. As a result, reality is only perceived through a selective cultural filter which consists of philosophical considerations, social traditions, and economic aims and so on. This cultural filter is learned, so that it is possible to identify cultural responses to the environment which are shared by all its individual members, and patterns of activity which are culturally recognizable, such as cultural landscapes, are produced.

Culture is the primary factor affecting the way in which man responds to the environment and since there is a wide variety of a culture, there is a wide variety of cultural responses, even to the same environment. For example, in the Fijian Islands of the Pacific, two distinct cultures can be identified, each with a different relationship with the environment. On the one hand there is the old Melanesian culture whose members utilize the environment to grow a small range of subsistence crops and whose wants are very limited. In contrast, there are the new Melanesians, largely Indian immigrants, who have a much more Westernized view of the environment, growing cash crops such as sugarcane for export. Similar contrasts can be found throughout the world, between Chinese and Malay in Malaysia, African and European in Kenya, and Indian and Ladino in Mexico.

In the previous chapter it was indicated that the interaction of man and environment can be considered as a system, but it is now clear that between man and

environment there exists a subjective environment of images which affects the way that man behaves.

Man
↑
Subjective environment (Images) ↔ Behaviour
↓
Objective environment (Real world)

The relationships between man, these environments and his behavior are shown above and it is clear that there are two areas to be examined. First, the relationship between man and the real world must be studied to understand how the images of the subjective environment are created, and this involves identifying the process of perception, both personal and cultural. Secondly, the relationship between the subjective environment and behavior must be studied, and this involves identifying how behavior is affected by the individual's mental model. Most geographical work has been concerned with the second of these relationships and this chapter will concentrate on the ways in which behavior is produced, but it must be remembered that both these relationships are part of the same process.

Each person therefore has an image of the environment inside his head. This image is produced by his own needs and desires, but much more important are the cultural influences affecting it. It is on this image that man's preferences, evaluations, decisions and ultimate behavior depend, and the ways that these operate are considered next.

Evaluating the Environment

Before the environment can be used, it has to be evaluated or assessed so that decisions about its use can be made. However, the environment is not always used rationally, because if it was San Francisco would not have been built in an earthquake zone or Brisbane in a flood area. The use of an environment depends on how it is perceived, and to understand patterns of land use or of spatial interaction, these perceptions must be understood.

It can be argued that the features of the physical environment do not have an objective reality for man because they are only significant in a cultural context. This is an interesting philosophical point that cannot be pursued here, but as an illustration, snow can be seen as a hazard, causing damage and disruption, or as a resource, providing water storage and recreation. Similarly, the same amount of snowfall can have quite different consequences for human activity in different places. A foot of snow is barely noticed in Sweden, but brings chaos to southern England.

One such study has been concerned with the ways in which the farmers of the Great Plains perceive the drought hazard they have constantly to face. This is an interesting area because the creation of the Dust Bowl was a classic case of the misinterpretation of the environment. An area whose major characteristics are uncertainty and variability was used for intensive cultivation rather than the extensive stock farming for which it is more suited. Research has shown that, despite past experience, farmers still tend to be optimistic about drought because, when asked, they overestimate the number

of good years they have had and underestimate the number of bad years, so that even today their understanding of objective reality is distorted by their hopes. On the other hand, perception of the hazard increases with frequency and experience, but against this has to be set the fact that among older farmers, a fatalistic attitude develops and their awareness of the hazard becomes less acute.

Other studies have been concerned with the ways in which flood hazards are seen. On the whole, similar results have been found, and the dangers of flooding tend to be ignored unless damage is regular and recurrent, when adjustments such as flood control schemes, land zoning or payments for insurance cover are made. This point was well illustrated in the Brisbane floods of 1974, when 50,000 homes were affected and £100 million of damage was caused. Most of the damaged homes were in flood-plain areas which had suffered three similar floods in the nineteenth century. The area was known to be hazardous but the city council only prevented building in areas which had been affected by a smaller flood in 1931. Since the 1931 flood was the only serious hazard this century, the planners' perception of the flood hazard had been reduced, but this lack of caution has now to be paid for.

It might be argued that one disaster every century is an acceptable risk, but it emphasizes the point that man has to take chances with the environment, that there is always a range of choices to be taken and that there is a constant degree of uncertainty to be faced. It is against this background that man makes the decisions that directly affect his behavior, and the ways that these decisions are made are examined next.

Decision-Making and Behavior

The study of environmental behavior has two aspects, the study of behavior itself, and the study of the consequences of behavior. In the past, emphasis has been placed on the second of these, but this emphasis is now changing, and process rather than form is the focus of study. The decision-making process is the link between the ways that man perceives the environment and the ways that he behaves in it, and it is therefore necessary to understand how individual and group perceptions affect decision-making.

This then is the direction in which many geographers are moving, trying to explain behavior by examining the influences and processes that produce it, Early attempts to explain behavior resulted in determinism, but current behavioral studies emphasize the complexity of perception and behavior, and the futility of seeking single-feature explanations such as determinism. Some have argued that the complexity is so great and human behavior so is possible, but research has shown that generalizations about human behavior erratic and unpredictable, that no general theory of environmental behavior can be made so long as they are framed in probabilistic rather than deterministic terms. Unique factors and unexpected actions certainly abound but there is an overall pattern to human behavior. If conditions a and b apply, then there is no certainty that condition e will result, but in many circumstances there will be a 90 per cent probability.

The value of perception studies in understanding and predicting behavior is likely to be of considerable value, and their application to planning problems is considered next.

Perception and Planning

In advanced countries there has been a growing concern for the quality of the environment, and planners have sought to maintain or improve this quality by controlling nuisance and promoting improvement. However, nuisance and improvement are not perceived alike by everyone. Some people enjoy living near motorways, while others dislike award-winning improvement schemes, but for planners to operate effectively, they must understand how the environment is perceived by the majority of the people and plan accordingly. Two areas are examined, urban planning and regional policy, where an understanding of perception processes would be of considerable value.

It is generally accepted that the redevelopment of many city centers has produced monuments to architecture and money rather than attractive urban environments, and there is now a call for building on a more human scale. Stress and even serious mental illness can be produced among people living in the glass and concrete deserts where high-rise buildings and elevated motor-ways dominate the townscape. It is being realized that for urban planning to be effective, there must be some understanding of the relationship between man and the urban environment, and the way that this understanding can be achieved is to study how the city is perceived by individuals and groups. The basic aim is to identify those features of the urban environment which people consider important or attractive, the landmarks with which people can identify, and to include such features in redevelopment schemes, while excluding as far as possible those features which are considered unattractive. Of course this presents difficulties because perceptions of the day vary from person son to person according to age, sex, social class, education and so on, but there are many features that are considered significant by most people.

In developing countries, similar problems appear because officials are often reluctant to serve in difficult or unattractive areas. Since skilled manpower is at such a premium, it has been suggested that the mental maps of the country held by such officials should be drawn and analyzed, to identify perceptual highs and lows, and higher salaries should be paid to officials prepared to work in areas considered unattractive. A scheme already exists in Sweden where salaries in the public sector are higher in the Arctic region than in the south of the country.

Conclusion

It is clear that the interaction of man and the environment is not a simple relationship between two elements, but is affected by an intervening image. This image is formed by the ways in which man perceives and stores information, and his preferences, evaluations, decisions and consequent behavior depend on it.

It follows that the geographer must understand how the environment is perceived before he can understand behavior, and there are two major areas of perception which are his concern. First, the way in which the features of the environment, such as resources, are perceived and utilized is a major consideration in the study of the ecological system. Secondly, the way in which space is perceived is a major consideration in the study of the spatial system. The ecological system was discussed in Chapter One, the structure and operations of the spatial system are examined in the next chapter.

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