

*CHAPTER XIII*

*Human Response*

CONTROL OF PHYSICAL ENVIRONMENT ON HUMAN OCCUPANCE

(HUMAN RESPONSE)

A casual observation of the topographical map of the Mayurbhanj Upland reveals the following features :

- (i) Not more than five per cent of the total land is under cultivation, and the rest of the land is covered by forest ;
- (ii) The villages are few and far between, and are located either at the foot of the Upland or are found as isolated clusters of houses in the interior ;
- (iii) Communication is very poor. No metal roads are found in the area. Only a few cart-tracks and foot-tracks link the interior villages (Fig. 13.1).

The poor human response in the area is obviously due to some geographical control or controls: in this chapter an attempt is made to analyse those controlling factors.

- (a) Availability of Flat Land : The Dasymetric Map of Average Slope (Fig. 6.24) has been chosen as a base map to study slope distribution in the region because only this map delimits average slope zones from direct measurement of density of contours, whereas the other maps of average slope prepared after Wentworth (Fig. 6.23) and Robinson (Fig. 6.22) depict average slope per unit area ; and, in a dissected terrain as this, the actual slopes are too much

generalised.

The Dasymetric Map of average slope reveals that about 10 per cent of the total land surface is under 5 per cent slope value, and the distribution of this slope zone is greater at the peripheral fringes of the Upland and sometimes only patches occur in the interior. A superimposition of the Landuse map on the slope map reveals that all cultivated lands are located within this 0-5 per cent slope zone ; the rest of the area being occupied by steeper slopes, are a limiting factor for extension of the cultivated lands. Thus it is concluded that limited availability of flat lands for agriculture, the mainstay of the inhabitants, is a controlling factor for the patchy distribution of the cultivated lands.

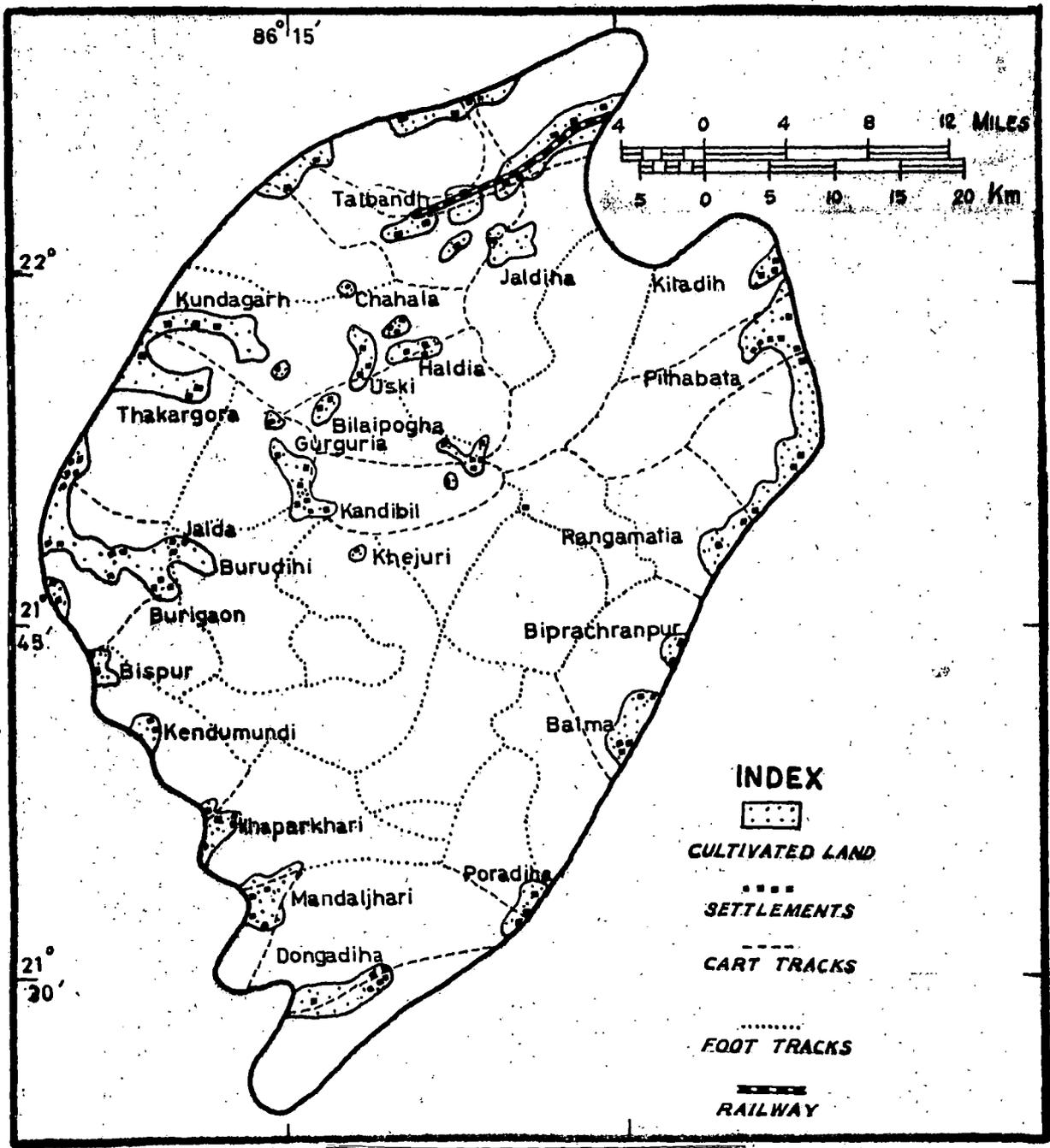
(b) Access to the Interior : The imposing scarp edges of the Upland form a serious barrier to all access to the interior. Hence, to study the communication pattern of the area, the Drainage Map was taken as a base and a plan of the cart-tracks and foot-tracks of the region was superimposed on it (Fig. 13.2). A close coincidence was noted between the river valleys and the tracks of communication, which enter the Upland via one river valley and pass over to another across the divide. In certain cases these tracks follow the divide between two rivers. The inhabitants of the area have ingeniously followed the nature-made

paths, which are the only means of access in a rugged terrain like this.

(c) Location of the Villages : The villages are all associated with the cultivated tracts. In order to identify the controlling factor behind the location of these habited areas, the Drainage Map was used as a base, and the plan of the villages was superimposed on it. In the peripheral regions it is found that the villages are not necessarily located on the river valleys because of the obvious reason that they are attached to flat lands. However, in the interior of the Upland, the villages are invariably located in the river valleys. This is apparently due to the fact that the valleys are the only access to the region, and also because the riverine tracts contain most of the flat lands of the area. The riverine tracts also contain fertile alluvial soils which yield better crops than do the laterite tracts of the area. Because of the above mentioned facts, the valley tracts act as a dominating control in the distribution of villages in the heart of the Mayurbhanj Upland.

#### Biotic Environment and Conservation of Nature :

Biotic Environment : The climatic environment in the Upland with high temperature and humidity are ideal for dense growth of vegetation with a wide variety of fauna. Moreover, microbial flora and fauna in the forest litter are unique in character.

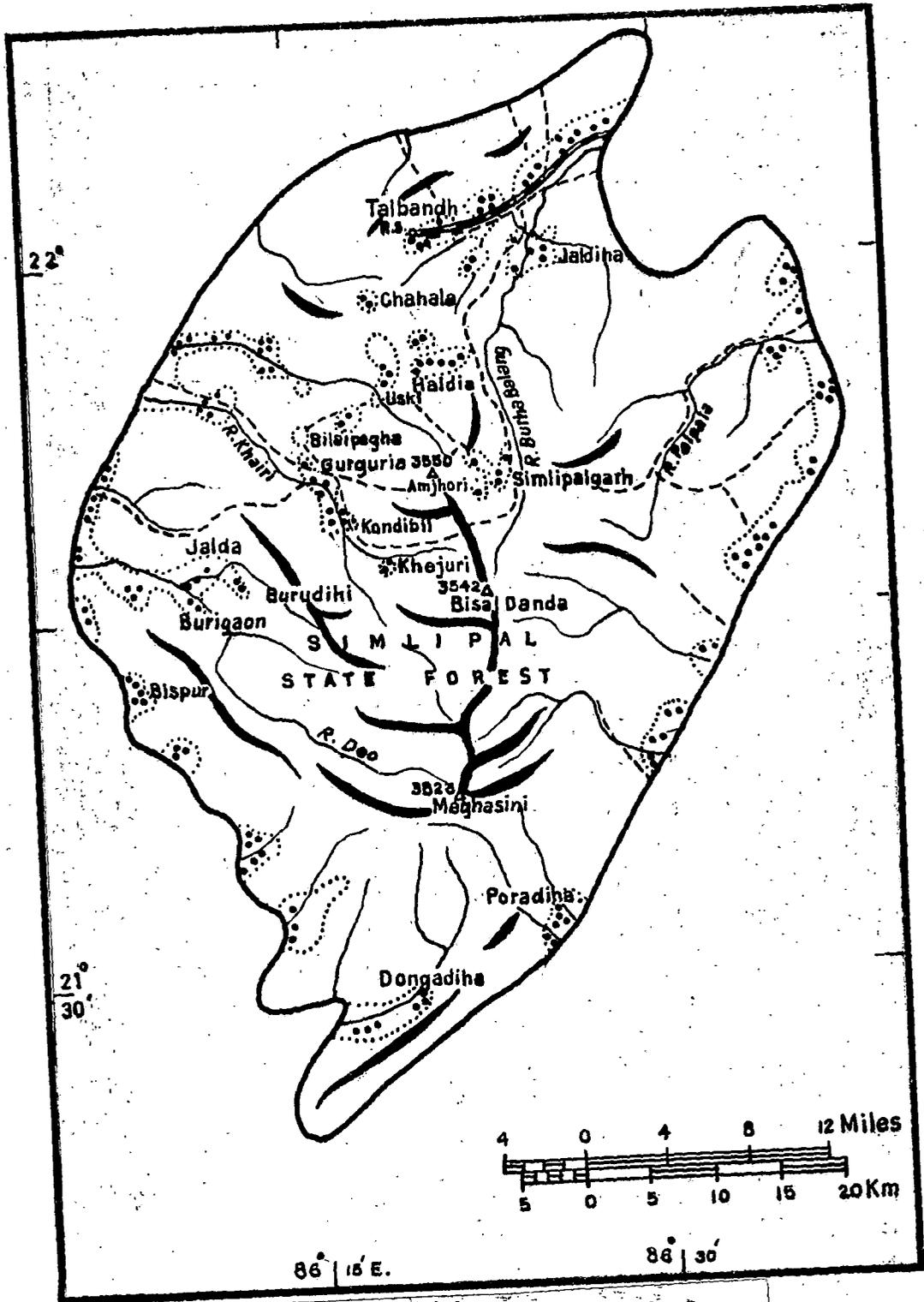


Settlement and Agriculture

Abundance of soil bacteria, actinomycetes fungi, protozoa and other soil anthropods contribute to top soil layer and provide required nutrients to nutrient pool. In addition to the large quantity of timber producing forest, the area is also important for other minor forest products like fuel wood, mohua, medicinal plants, gums etc.

The area is one of the richest nature reserve of flora and fauna in the country. The forest is dense and the canopy is more or less closed. Extensive grasslands and thick forest canopy favour the growth of various types of herbivores, carnivores, birds, insects, reptiles etc., the assemblage of which is one of the richest in our country. Because of the rich floral and faunal resources the area has been subjected to drastic exploitation by both local inhabitants as well as by outsiders.

Growth of Settlement : In the later part of the 19th century, human settlements were there only on the frontiers of the central core of the Upland. Most of the local people there belong to the Bathudi, an oriya tribe. Private concerns exploiting forest resources with the permission of the administration started encouraging human settlement even inside the forest during the early part of the present century to serve their own purpose. The Kolhas and other tribes from Bihar started settling in the area since then. The Kolhas form the majority in the Upland



Settlement and Physical Environment

at present.

At present there are 62 revenue villages situated in the Tiger Reserve. Most of these villages are situated on the periphery of the core area and four of them are scattered right inside the core area. These villages are inhabited by 1561 families consisting of 7771 persons (Census by Tiger Project, 1985), Adivasis constitute more than 95 per cent of the total population comprising mostly of Kotha, Santhal, Khadias, Munda, etc. Most of the plains were once habited by wild animals and now they have been converted to agricultural field through encroachment.

In addition to the above population, there are migrant population which regularly visit the area either from the adjoining district of Singhbhum of Bihar or from the adjoining plains of Mayurbhanj for temporary cultivation, timber harvesting, collection of minor forest produce, or even for hunting.

Environmental Degradation : The whole ecosystem in the area is under extreme stress due to various contributing factors including agricultural extension by the tribals, destruction of forests for timber and fuelwood, illegal poaching of animals and illicit wild life trade.

Environmental degradation, a familiar phenomenon in other forest areas of the country, became a serious problem in the Upland

also. In fact, Simul (silk cotton tree) from which the forest area acquired its name Simlipal, were almost totally destroyed. The tree has a life span of over 400 years, but one older than 100 years is now found nowhere in the forest. Thus Simlipal itself has become a misnomer.

Stream Discharge : Previous records indicate that formerly floods were infrequent in the Burhabalang river but of late it has become a regular feature in the area because of serious deforestation and consequent erosion in its catchment area.

The drop of stream discharge during summer months, silting of hill streams, recurrence of flash floods in Burhabalang and other major streams, fall in water table, erosion and gullying along roads on steep gradient and on hill slopes and change in micro-climate inside the Upland after removal of forest cover are some of the visual signs of ecological degradation brought by annual fires and extension of agriculture on marginal lands on the village enclaves within the area under study.

Forest Fire : Forest fire in the area plays a devastating role. The cultivators, hunters, graziers and minor forest produce collectors set fire to the forest to serve their needs. Forest fire created by the tribals after the month of March are very harmful for the forest growth and also for the animals. Its purpose is to drive the animals to their killing sites.

Hunting : The tribals of the Upland and the surrounding areas

do mass hunting on the day following Pana Sankranti (14th April) or the first day of the year. But recently the Govt. has banned such hunting and since then such activities are taking place not on that particular day but throughout a period of three months from the end of February till the end of May each year without any prior intimation to any non-tribal. Such hunt, associated with forest fire, may lead to the extinction of certain species and drastic reduction of the herbivore population which belong to tiger's food chain. As a result, the tiger and other carnivores may change their food habit and switch over to lifting of domestic animals.

In spite of that, cattle lifting by tigers and panthers in the area is not so common. But killing of tigers and panthers by the application of poison to the carcass have been reported.

Exploitation of Tribals : The land hunger is mostly an outcome of the perpetual indebtedness of the tribal on account of his pre-occupation in drinking, polygamy and laziness on the one hand and the unscrupulous practices of the money lenders on the other.

On the whole now there are traders of forest produce and smugglers of ivory, animal skin etc. who operate through a chain. At the apex are big traders and smugglers of Orissa, Bihar and West Bengal who are also politically very influential. Next in the ring are traders of Joshipur and Baripada, followed by

mahants and mukhias of the villages. The last in the chain are the villagers, some of whom are settled there for the very purpose of exploitation of the forest resources.

Environmental Conservation : Environmental Conservation is aimed at protecting life supporting qualities of biosphere and counteracting human interference with Nature. For his own survival, man has to take care of land, water, air and natural resources including flora and fauna.

In many areas even protected forests are converted into working forests because of man's greed. Forest destruction are caused by various factors like demands of the industry, urban development, fuel requirement, dam and barrage construction, shifting cultivation, road construction, agricultural extension etc.. Regeneration of forests takes time and hence they stand little chance of survival if the destruction continues for a long time without proper planning for its regeneration.

National Park : In 1956 the area was declared as a National Park for conservation purposes and for the development of tourism. Meanwhile in 1972 the Wild Life (Protection) Act came into force. In 1973 the northern part of the area was notified as National Park under the provision of the Act with 303 km<sup>2</sup> of Core Area of the Project Tiger. Further, the buffer zone around the core is declared as a Sanctuary under the same Act. Both these legal provisions

empower the Government to take steps to prohibit or regulate human activities in the notified areas. Thus the total notified area (legal status : sanctuary) is about 2750 km<sup>2</sup> of which the core (legal status : National Park) was initially 303 km<sup>2</sup>. Recently (1 May, 1985) the core has been extended to 800 km<sup>2</sup>.

While exploitation of timber over the entire area has been stopped, efforts are continuing to strengthen the protective staff of the Forest Department and provide them with better facilities for enabling them to curb the menace of Akhand Shikar (Mass Hunting) by tribals and forest fires.

A large number of rodents, birds and young animals are killed every year in forest fires - created by the tribals or by natural process. Baby elephants, young sambars, deer and other animals who try to escape from fire sustain injury and often succumb to death.

Fire Protection : Intensive fire protection measures are therefore taken by the project staff to save the forest from fire. The core line and the internal fire lines are regularly cleared before summer and control burnt. Forty trackers and gangs of fire watchers are engaged during fire season to report and extinguish forest fire. However, it is virtually impossible to protect the entire forest from fire. As such, measures have been taken to protect the core area and selected patches in the sanctuary area where animal concentration takes place during the summer.

Poaching : Vehicular poaching in the area is almost nil because the check gates are manned by the project staff round the clock. However, entry on foot following secret paths cannot be checked altogether. Hunters often enter the forest on foot in the disguise of local adivasis. They prepare poison holes in the forest near salt licks and water points where animals visit regularly.

It cannot be denied that the local inhabitants are, to a large extent, responsible for the destruction of forest and wild life. There is a great interaction between the villagers and the habitat of wild life. The villagers often set fire to the forests and kill the wild animals when they visit their agricultural land. Killing of tigers and elephants by the villagers are sometimes reported.

Village Shifting : It is because of these facts, suggestions have been made by environmental experts, for relocation of the villages outside the project area and creation of meadows for the wild animals in the area thus available. An area of 170 hectares has been selected in Nebra and Ambadiha Reserve Forest for the settlement of nine villages having 198 families located inside the forest area, at an estimated cost of Rs.750,000 and Central Government's permission for the de-reservation of the area under the Forest Conservation Act has already been obtained.

Tribal Discontent : It has already been mentioned that rigid restrictions were imposed on annual tribal hunts after the creation of Tiger Reserve in 1973 which created serious discontent amongst the tribals living inside the area as well as in the areas adjacent to it. Further discontent amongst the tribals arose when plans were made to shift the tribal villages for the development of the tiger habitat.

Moreover, the proposed hydro-electric project on the Burnabalang River at Barshipani also will have adverse effect on the ecosystem of the area if proper remedial measures are not taken in time. The proposed project will submerge about 790 hectares of forest land leading to destruction of wild plant species with genetic diversity and will also shrink wild life habitat area.

Goatery Disaster : In recent years with a view to rehabilitating the rural poor, a goatery scheme has been introduced which has led to ecological disaster in the area. It is a common site to see herd of goats entering the forest from the village enclosures. Goats have been a major contributor to the endangerment or extinction of hundreds of endemic plants, insects and birds. It is high time that this fact is recognized by all concerned and the scheme abandoned in the interest of ecology and environment.

Foreign Species : An afforestation wing of the forest department are now actively engaged in the buffer zones. Totally new species

like eucalyptus, sonajhuri (Acacia auriculiformis), Chakunda (cosia) and others, which are quite foreign to the area, are being introduced by them in this area. This has serious implications for the environment.

Tasar Culture : Tasar (Silk) culture is an agro-based cottage industry in the area. A large number of tribals are engaged in rearing the tasar silkworm and many more in the yarn and fabric production. However, unauthorized plucking, collection and transportation of cocoon from the interior pockets by the tribals as well as outsiders is threatening the existence of this industry. Such activities should be banned to check the decline of the population of this serigenous insect.

Fodder Conservation : A number of species of edible (fodder) grasses growing in the Upland go to seed during the rains and ultimately dry up without being utilised excepting a fraction of which is being eaten by the herbivora in the forest. A major part of it catches fire during the dry monsoon period and is a serious hazard to the flora and fauna.

Harvesting the enormous wealth of grass in time (Sept-Oct) by employing the local tribal inhabitants would serve the multiple purpose of storing fodder for local cattle population, saving forest from fire hazard and giving employment to local tribal population.

Forest vs Tribals : It must be realized that the tribals form an important constituent of the forest. It is therefore difficult to think of forest without tribals and tribals without forests. Tribals are part of the ecosystem and therefore proper forest management techniques should be evolved taking tribals as part of forests and then only forests can be improved along with the economic development of the tribals.

Exploitation of tribals by the upper strata of the society should be stopped by any means. They are the money lenders, tribal leaders, village touts, magicians and so called religious teachers, who are exploiting the tribals for their own benefit.

The selection and subsequent development of the area as a sanctuary for wild life has generated certain contradictions in the social life of the region which have far reaching implications both for the population of the area and for the environment. The pursuance of "Project Tiger" in the absence of democratic intervention may lead to serious social tensions.

Conservation Policy : Last of all it may be mentioned here that there is already a lot of thinking, as to whether the Upland shall be a biosphere reserve or a national park or a sanctuary or a tiger reserve. Also there are a lot of debates as to whether the forest resources of the area are to be harvested or to be left along in their own natural forms.

In fact, conservation consciousness took its real shape only after Wildlife Protection Act 1972 was passed. Under the Act there are several categories of provisions by which forest and wildlife can be protected.

Sanctuary : One of them is a sanctuary which provides protection to a forest after its being notified under rule 18. But in this category forestry operations are not disallowed, people holding immovable properties are allowed to continue possession and highways are also allowed to run through them.

National Park : Rule 35 of this act gives us the provision of national park in which no forestry exploitation is allowed, no grazing of cattle is allowed and at the same time no immovable property is allowed to be owned by any citizen. The whole demarcated area of a national park vests with the state government. The core area of the Simlipal Tiger Project (303 km<sup>2</sup>) now comes under this category.

Biosphere Reserve : The most recent concept is the biosphere reserve recommended by the UNESCO (1973) which aims at the conservation of biological diversity including the genetic diversity of cultivated crops and domesticated animals and their wild relatives, bench mark studies on natural ecosystems and comparative studies on man-modified eco-systems, the development of technological restoration and training in these new fields of

human endeavour. This is created out of the modern ecological theory which tells us that the purpose of conservation of biological diversity is best served by the preservation of large compact area with maximal habitat continuity embracing as rich a mosaic of habitat types and successional stages as possible.

The above are the different categories through which a forest can be legally protected.

Recently the environmentalist group has recommended that the area should be declared as a "Biosphere Reserve" with a total ban on all fellings and limit all developmental efforts inside the Upland for forest, wildlife and tourism only.

It should however be remembered that all environmental problems have two main components : natural resource protection and human welfare. As such, a single-thrust solution to guard against depletion of forest resources and wild life may not bring satisfactory result. Total ban on fellings may help resource protection but will surely create many other problems in future. It will go against the policy of economic development with social justice. Total stoppage of all fellings for protecting the environment in complete disregard for the human need for timber and fuel wood cannot do justice to the local inhabitants who constitute the vital component of the environment. Environmental protection will have no meaning to them unless they are in a position to provide for themselves and their families adequate food and shelter by profitably engaging themselves in forest work.