THE EFFECT OF POPULATION EXPLOSION ON THE STATE OF INDIA'S ENVIRONMENT

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Environmental conservation was thought an obstacle to economic development of the country. The experience gained during the past few decades has clearly established the fact that there can not be any rational economic development without proper regard to environmental considerations. The degradation caused by overall environmental deterioration results in tremendous social and economic cost to the community at large. Therefore, it would be right to say that conservation of our natural and man made resources is not a luxury which only affluent countries can afford, but it is a vital investment in our own future. Everything around us we perceive is environment and environment is a complex entity comprising of biophysical components.

For a balanced and healthy environment there exists a mutual relationship between nature and man made elements. The understanding of this cruical balance between man and nature is therefore of utmost importance for evaluating and understanding environment. To determine the natural components of environment it is essential that the natural processes which are responsible for creating a particular landscape should be understood.

The most important discipline of all, the science of ecology established the relationship of all these processes along with the environment. Man made components of environment such as towns, industries, individual structures, transportation corridors, social and economic constraints are all part of the environment. In fact, environment is a sum total of both natural and man made elements. Although this fact is well known but still the very planning processes which have developed sophisticated methodology for taking into account the man made components of environment have either shown near disregard or have not integrated into a meaningful way the components of natural environment into planning methodology, which has consequently resulted in degradation of the environment. Any type of development involves the disturbance of natural systems and ultimately leads to the change in environment. If not handled in terms of ecological conceptual planning, environment is flexible to an extent and can regenerate itself provided the man induced changes are such that the tolerance capacity of environment does not exceed its limiting capacity. If this limiting capacity of affected environment is predetermined and known, then it is possible to induce man made changes in the tolerent zone without altering the overall environment of the place.

The population in India is growing at an alarming rate. By the end of the century the population would expectedly touch almost a billion. This means annual production of at least 230 to 240 million tons of food grain as against 130 million tons now. The production figures are alarming and to me the demand for this growing population means proper management of resources. It has been ascertained by experts that with proper management of our soil and water resources we can produce enough to meet the demands of growing population, but still the results are not in sight. Problem of topsoil loss due to wind, rain, snow, erosion is enormous. Every six months the quantity of topsoil which gets washed away in India is enough to build bricks for all the brick houses across the country. The land area which is prone to floods has doubled from 20 million hectares to about 40 million in the last 10 years. Most of the land remains under-utilized, unirrigated, single cropped and low yielding because of the improper management of our soil.

Out of a total cultivated area of about 140 million hectares nearly 60% requires soil conservation measures to save it from further deterioration. India has more unharnessed water resources than most countries in the third world, but in the absence of good water management Indian paddy yields remain very low as compared to China.

The average national paddy yields in China now are well over 3 tons per hectare while yields in India have only just touched 1.6 tons. The total available water for use in India is estimated at 1,900 billion cu. m. per year. About 86% of this comes from runoff in rivers, streams, lakes and ponds. According to a study conducted by National Environmental Engineering Research Institute of India 70% of all available water in India is polluted. The water pollution is posing serious health hazard. According to one estimate, 2/3 of illness in India are related to water pond diseases such as typhoid, infectious hepatitis, cholera, diarrhoea, dysentry, etc.

Many of these diseases at times assume epidemic proportion costing the nation loss of 73 million work days. Water pollution has also touched coastal waters. India has a coastline of about 6,000 km. 14 major, 44 medium and 162 minor rivers of the country discharge water into the coastal areas of the country. The coastal area is rich fishing and spawning ground and it contributes a significant amount to the present annual fish catch. The coastal area also faces the impact of 170 million people who's livelihood is directly or indirectly dependent on the sea and its resources. These coastlines are being polluted by the domestic sewage, industrial effluent, by the use of fertilizers, pesticides, detergents, etc. The ecosystem of the coastline is changing fast and therefore threatening the livelihood of people who depend on it for their survival.

Environmental diversity has produced conditions which sustain tremendous amounts of diverse life forms. There are about 15,000 species of plants found in India out of the known world total of 250,000. Out of the total 1.5 million animal species, 75,000 are found in India. It has been estimated that on 2% of world's land mass India possess around 5% of known living organisms on earth. With over 1,200 species and 900 subspecies of birds the diversity of bird life is unmatched except by Latin America.

Nature and man have been inseparable in Indian thought and tradition. In India man has taught himself to be interdependent on environment and believes himself as a part and parcel of this greater whole. This traditional way of logical thinking has taken deep roots in the Indian culture and day-to-day life. But with the passage of time and so called modernization these traditional values have been eroded away and there is evidence of mass destruction of wildlife everywhere. Most of the animal and plant species are threatened by the pressure of human activity of urbanisation and deforestation. About 10% of India's flora faces extinction, many species may be lost before their proper value is known to society. To preserve the diversity of flora and fauna India has launched a major conservation drive by creating various belts of reserves, national parks and special projects like the tiger project to save endangered species. Some of these projects have been quite successful and are being appreciated by the people. There is probably no other area of India's environment that has been more viciously attacked and destroyed in the last century than the countries forests. The current rate of deforestation is over a million hectares every year with the result that only 12% of countries total land area is under adequate tree cover. Although the national forest policy had set up a national target of bringing at least 1/3 of India's land under forest cover, efforts have not been concentrated to achieve this target.

The problem of cattle grazing is acute in India. About 15% of all the world's cattle was estimated in 1975 to be present in India. Grazing intensity is high in most of the forested areas of India. Cattle grazing also is responsible for hardening the soil thereby affecting forest regeneration. The deforestation of western Himalayas is happening at an unprecedented rate. The Himalayas which at present represent a quarter of India's forest preserve would soon become treeless by the first half of the next century if adequate measures are not taken.

While the air pollution problem in some of the major cities of the world is coming down, levels of sulphur dioxide and particulate matter pollution in several Indian cities has already exceeded permissible limits set by the World Health Organisation.

It is estimated that in Calcutta 60% of residents suffer from respiratory diseases because of air pollution. The main culprits of air pollution in India are uncontrolled industries and badly maintained automobiles.

The urban population in India has more than doubled in the past 20 years, from 77 million in 1961 to 156 million in 1981. The increase is attributed to rural urban migration. Large sums of money have been invested into urban development but millions of urban dwellers still continue to live in substandard housing, with insufficient water supply for sanitation, inadequate transportation. By the year 2000, greater Bombay will have a population of 17.1 million inhabitants, Calcutta 16.7 million and New Delhi 12.9 million. Housing problems in the cities is acute everywhere. Compared to an annual need of eight new dwellings per 1,000 population only 1,8 are being built. This urban housing backlog has grown from 2.9 million to 4.8 million in the last 10 years. Housing shortage has forced the poor people in the cities to live in scattered settlements of substandard housing. The construction boom in the cities has taken up all the available open spaces in the city leaving the slum dwellers to live further away from their work places. Unsanitary conditions in the cities are becoming a major health hazard and the overall environment is degrading. The question arises, what's going to be the state of the environment in these cities given when at present growth rate the condition of cities is appalling. Many cities in India are working towards this end by conserving and improving the natural resources in the villages and towns so that the bulk of population is not forced to migrate to cities for their livelihood and thereby easing pressure on city infrastructure.

Varous governmental environment agencies and research organisations in the country are working on various alternative building techniques and building materials to meet the growing demand of housing, but efforts are not showing many positive results because of backlogged targets which are not achieved in time and insufficient funds to meet the growing demand of housing.

PUBLIC RECREATION PROVISION IN THE CITY AREA OF HONG KONG

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The Chairman has already mentioned the population density of Hong Kong. Two of our districts, further divided into 11 districts in the Urban area, have densities of over 160.000 per sq. km. And that doesn't tell the full story, because the two districts concerned are in the flight path to Kai Tak Airport where building heigths have to be restricted, and the density at ground level is almost beyond belief, "virtually unequalled anywhere else in the world". These changes have often had a negative effect on the quality of life and in some instances an alarming effect on the urban landscape. If the "human explosion" is not enough the territory also has to contend with natural phenomenon, particularly typhoons. Last September Typhoon Ellen passed close to the south shores of Hong Kong island and subjected the island to a continuous sustained wind force of 175 km per hour for eight consecutive hours, with wind peak gust speeds of over 210 km per hour. In that short period almost 6.000 trees, mostly mature specimens were lost and 20.000 others were severely damaged in the city area alone. Given these grievous losses and followed by the dryest winter on record, I trust that visitors here today will appreciate why the surrounds are not as green as we would like you to have seen. Certainly as far as the administration of public facilities in this field is concerned, these blows are mind-sapping at times, and you just have to recover as the vegetation itself recovers, and rely on time healing, with help, the damage which has been done. However, on the credit side, the man made and natural disasters serve to make Hong Kong a fertile ground for landscape architects as the gathering here today witnesses. The emergence of professinals in recent years has been very marked, although this does have it's limitations in a society where land is so scarce and the willingness to listen,

and to appreciate, the problems facing others is a very important attribute. Certainly rigid attidudes and endeavours to import regulations from overseas without proper consideration of their relevance to Hong Kong is a danger which is not always appreciated until after the damage is done. Of course, this is also true in the field of recreation, where the keen and energetic professional almost invariably seeks to promote the creation of active recreation facilities, often at the expense of "nonproductive" areas that is, areas of passive use. The need to question such attidudes is borne out by opinion surveys which consistently show that despite more than 50% of the population being below the age of 30, the predominate need is for unstructured leisure facilities. A pattern echoed in many other parts of the world, and in fact this lead to the rise of the Green movement in Germany, a reaction to an already highly organised society. However, such calls for unstructured play are often played down by those who have a vested interest in the building and managing of such facilities.

Curiously while the shortage of space prevents us from achieving ideal levels of provision it has had the beneficial effect of avoiding stereotyping. Everything is piecemeal. There is virtually no planning and the land provided for recreational landscapes is that which the government cannot sell or develop in any other way, in most instances. So we in turn have to improvise a great deal in our planning methods, and ironically it can result in quite a pleasant effect when it's well aplied.

The overall territory of Hong Kong is over 400 sq. miles. The city area run by the Urban Council is just Hong Kong Island, and the Kowloon peninsula. Kowloon itself is relatively flat whereas Hong Kong has very mountainous areas, giving them both a very different character.
The tip of the Kowloon peninsula has a very heavy density of building, interlaced with the main highways, and small green areas which are very valuable both public and private in this instance. Ten years ago the waterfront was further back, all the area at the frontage is reclaimed land.

Directly across the Harbour is Central. where reclamation took place in the 1920's, and then in the 1970's. Here we have, our national athletic stadium, Wanchai Stadium. Our largest park, Victoria Park, which in fact was a typhoon shelter at the turn of the century, was reclaimed after the war. There are 11 rugby and football pitches on this area, which again is a typical of the "joint-use" attitude in Hong Kong.
Extending a little further around the island, a typhoon dockyard has now been reclaimed for housing. The Eastern island corridor road has been driven out to sea, a hill (Cornhill) is going to be removed and used to fill in the water right the way along the rest of the north of the island.

On the south of the island the atmosphere generally is very different with very much open countryside and only two conurbations of any size. By far the biggest one, Aberdeen, houses the largest junk and fishing population in Hong Kong. Again, the old harbour is gradually being eroded. The old naval dockyard has now been taken up by a massive residential and commercial development. The front of the harbour has been reclaimed. A new marina has just been built. Floating restaurants, which all the tourist brochures tell you about, are here.

The street scene in Hong Kong is tremendously crowded and this poses problems in providing provision for landscape, recreation, or anything else. The planning provisions which are layed down would be considered inadequate for any other country in the world. This is the standard which they follow; a situation where you have one football pitch per 100.000 people; that would be unacceptable in most cities in the western world. In fact our average football pitch has 30 matches per week played on it. Sustaining grass in that situation is extremely difficult. The standard laid down is 15 hectares of open space per 100.000 people which really is very minimal in world terms.