TITLE:

SPATIAL PLANNING CONCEPTS FOR THE SUSTAINABLE DEVELOPMENT OF HILL STATIONS

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Abstract:

Most of our hill stations are characterised by dynamic ecosystems. The attraction for tourists that the hill stations present can become a source of stress that needs to be carefully regulated and managed. The complex inter-relationship between tourism, local economic activities and the resultant footprint of human actions on the eco sensitive zones requires to be analysed in its entirety and then effectively regulated for the sustainable development of these regions.The paper is based on the extensive research conducted for the preparation of an Environment-Management Plan for the Matheran Hill Station. The research project was funded by the MMR Environment Improvement Society.

The spatial dimension of tourism related to hill stations

Tourism is today one of the world's largest industries and fastest–growing economic sectors. For many countries, both developed and developing, tourism is a very important source of foreign currency earnings and employment. The expected growth in the tourism sector highlights the need to pay special attention to the relationship between environmental conservation and protection and sustainable tourism.(UN 2001).The quality of the environment both natural and manmade is essential to tourism and this activity heavily depends on the destinations resources. The detrimental impacts of tourism development can gradually destroy the environmental resources on which it depends. The natural beauty and environmental quality of hilly regions makes them very attractive to tourists. However these are sensitive areas and uncontrolled expansion and mismanagement can have irreversible damage to the resources on which the tourism is based. The importance of the 'hilly regions', as areas of study and research, have emerged in recent times. This increasing significance is due to the complex activities that are present in those regions. This complexity involves complex processes of population dynamics, in terms of population growth, demographic stress, rapid and intense migrations etc, and complex land-use and land-cover dynamics. These dynamics are shaped by different factors, which allow us to see the importance of physical drivers and social drivers. The complex nature of tourism and its effects make it difficult to gain complete knowledge of this phenomenon. Thus, different scientific research domains contemplate this complexity.

An integrated scientific approach in planning can be a means of increasing awareness of environmental values and serve as a tool to finance the protection of natural areas Since the 1970s there has been a growing awareness of the need to bring environmental values to the development of land and the management of natural resources. Ian McHarg, Lewis and other eloquent exponents of the Environmental planning movement have brought into focus the evolving philosophy that ecological processes provide the indispensable basis for planning and design. Though, this view has been accepted by many, its potential and applicability still remains unexplored at local planning levels. This paper attempts to develop an integrated concept for spatial planning based on ecological principles which can be used as a tool to establish the intrinsic suitability of land for various land uses for the sustainable development of hill stations.

Matheran region and its ecological significance;

Matheran hill station is situated in the Mumbai Metropolitan planning region of Maharashtra and is located about 64 km from Mumbai and at an altitude of about 700m above sea level. This hill station used to be surrounded by dense forests and hills thereby making it the most favored destination of tourists from Pune and Mumbai.The hill of Matheran is a part of a range that stretches upto Malangad in Thane district. This tract of land is large reserve forest. The Matheran- Malang Gad region has been recently declared as an Ecosensitive Zone under the Environment Protection Act(EPA) – 1986. The fact that the region comes under the ESZ regulations, itself suggests that the region has unique forests and it is a biogeographic island which is home to a number of rare species of birds and trees.

The Matheran Malangad ridge running along north –South direction is the catchment of many perennial rivers.This areas receives rainfall upto 2500-3000mm every year. The rivers originating on Western slopes drain into the Arabian sea through the Panvel creek and are a major source of water supply to all the farm lands, small and large settlements as well as to the urban centres of MMR. The eastern slope forms the catchment of the Ulhas river. This river finally joins the Arabian sea .The southern portion forms the catchment of the Dhavri river across which the Morbe dam has been recently built. Patal ganga river which is the boundary of MMR and a source of water supply majorly to Navi Mumbai. Thus any change in the vegetation and overall forest cover of the watershed will drastically affect the water supply of the growing urban areas around the region. The plateau water shed is equally interesting because of the unique landform. The plateau has a great variety of terrain in a short span of 12.5 km giving the plateau a unique undulating character as well as rendering every edge point a character of its own and hence making it all the more interesting for tourists. Stream networks over the plateau form small basins. Two of these are significantly large viz. Simpson Tank and Charlette Lake basin.

Present environmental status

Matheran hill station is under tremendous stress and the delicate ecology of the region is under threat due to the growing developmental pressures in the area owing to the increasing tourist population and in the absence of proper management plans for the area. The principal character of the town of Matheran lies in its indigenous and unique forest. Historically the developments in the area were planned and designed to be a part of the

forest zone and the forests were maintained in their natural form as far as possible. However with the changing trends of recreational areas, landscaped gardens, pavings, etc. and insensitive use of forested areas, they are highly vulnerable to degradation and destruction. Matheran receives an average rainfall of 37200 million liters per year. Ironically an area which receives such large amount of rainfall annually is facing problems of insufficient water supply and water needs to be pumped from the Ulhas river every day. The recent heavy downpour in this region has also resulted in huge environmental damage to the already degrading ecosystems of the plateau.

Setting the Objectives and Strategies

The ecological processes are extremely dynamic through various associations between the landform, geology, hydrology, vegetation and other factors; not only on the plateau or the areas of maximum tourist activity but also with the surrounding region. Physiographic determinism was employed as a tool to evaluate the extent of the negative impact on the environment, by superimposing the various physiographic features on the land use plans and simultaneously extracting and de-layering to establish the intrinsic suitability of land for various land uses. The study deals with various issues of ecology on one hand and developmental issues on the other. Extensive use of a Geographical Information System (GIS) was made for the analysis and information envisioning like producing an ecological base map of the area. The focus of the GIS in this particular case was used to identify the natural processes and their role in imparting a character to the place. The entire spatial analysis of the areas on the plateau was done only with respect to their natural ecosystems and natural resources. **This strategy and preference is in keeping with the prime objective of this study which is to assure that the protection and preservation of ecological infrastructure become the primary consideration in all the local land use planning activities for the region.**
Several complex issues related to the planning and development versus the environmental factors were resolved resulting in the proposal for separate Ecological zoning for the plateau and effective Institutional mechanisms for the development and enhancement of all the natural resources of the region.

Conclusion

The focus of ecology can be global and generalised or local and very specific, but in either case the common unit of study is called an ecosystem. Whether large scale or small, ecosystems all have common characteristics that are of critical importance to local planners. There must be a greater reliance on preservation of complete ecosystems and less reliance on attempts to mitigate the damage we have done to them.
There is an urgent need for an alternative basis for land use planning and urban form that is in tune with the natural processes of the region in order to ensure sustainable development
In addition to this the participation of all legitimate stake holders in a more participatory model of development would move us towards more sustainable development for the hill stations and its surrounding regions.