Environmental Assessment and Sustainability: A Paradigm Approach for Natural Resource Management

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Abstract: **The most objective and potentially measurable criterion for sustainable development is the preservation of the productivity and the functioning of the natural resource base. The natural resource to be sustained for use by future generation are broadly defined to include everything on land, the oceans and the atmosphere that support and gives meaning and enjoyment to human life. To reveal the sustainability criterion in environmental assessment is to measure the impact of any developmental activities on the natural resources base and to include the negative impacts in the social costs and positive impacts in the social benefits. The present article emphasize on three categories of natural resources to analyze the environmental impact assessment and their sustainability to ensure the inter generational equity and provide future generation with natural resource capital for producing goods and services with the same life support and amenity services provided by natural environment. To find out the impact on natural resources environmental assessment and accounting requires maintaining the values of natural resource for future generation (Calm, 1991).**

I. INTRODUCTION

In nature the natural areas are ecoregions of particular importance for sustainable development due to their intensive land use systems with their economic productivity and increasing natural resource degradation. The opportunities for sustainable development exist, if there is way to overcome natural resource degradation. Ironically there is tug of war between biological and geological resources in the natural areas accompanied with peoples who are engaged anthropogenic activities like in subsistence agriculture with gathering, shifting cultivation, nomadic pastoralism and mining are major challenges for natural resource base so in support of sustainable development needs to focus on trans disciplinary approaches in order to develop appropriate technologies, improve natural resource management. Existing economic and ecological problems with growing human pressure on natural resources of region have need to framework for conservation and development. Natural regions in the world represent ecosystems, traditional and existing pattern of land use, administrative structure and land ownership regime in vicinity. This article emphasize on development and sustainability of these reserves (resource base) from standpoint of conservation, community relation, administrative spatial structure logistical function and local development in integration with regional development and planning. Sustainable management of natural resources encompasses both social and ecological dimension and is dependent on economic (tangible and intangible) rules and processes as a third dimension of sustainability (Underwood, R.J1989). The physiographic determinism of natural region reflects, from the transformation due to several anthropogenic activities. To maintain the integrity of the natural region land use pattern and judicious utilization of natural resources in order to meet the economic as well as ecological need of local people and to achieve nature and natural conservation goal tied to the management of economically marginal areas.

II. MANAGING AN ECOLOGICAL ECONOMIC SYSTEM

There are strong inter-dependencies between natural resources land use pattern and socio-economic conditions. Conservation goals of natural resources can only be reached insofar as these relationships are addressed by MAB programme (Deutches MAB-Nationalkomitee, 1991).This model depicts a regional man-environment system consisting of (i) A natural system of biotic and abiotic resources; (ii) A socio-economic system comprising the business, political-administrative, socio-demographic and socio-cultural system and (iii) A land use system created where the socio-economic system overlays the natural system and spatially reflecting the activities of man in his environment.(Figure 1-3).

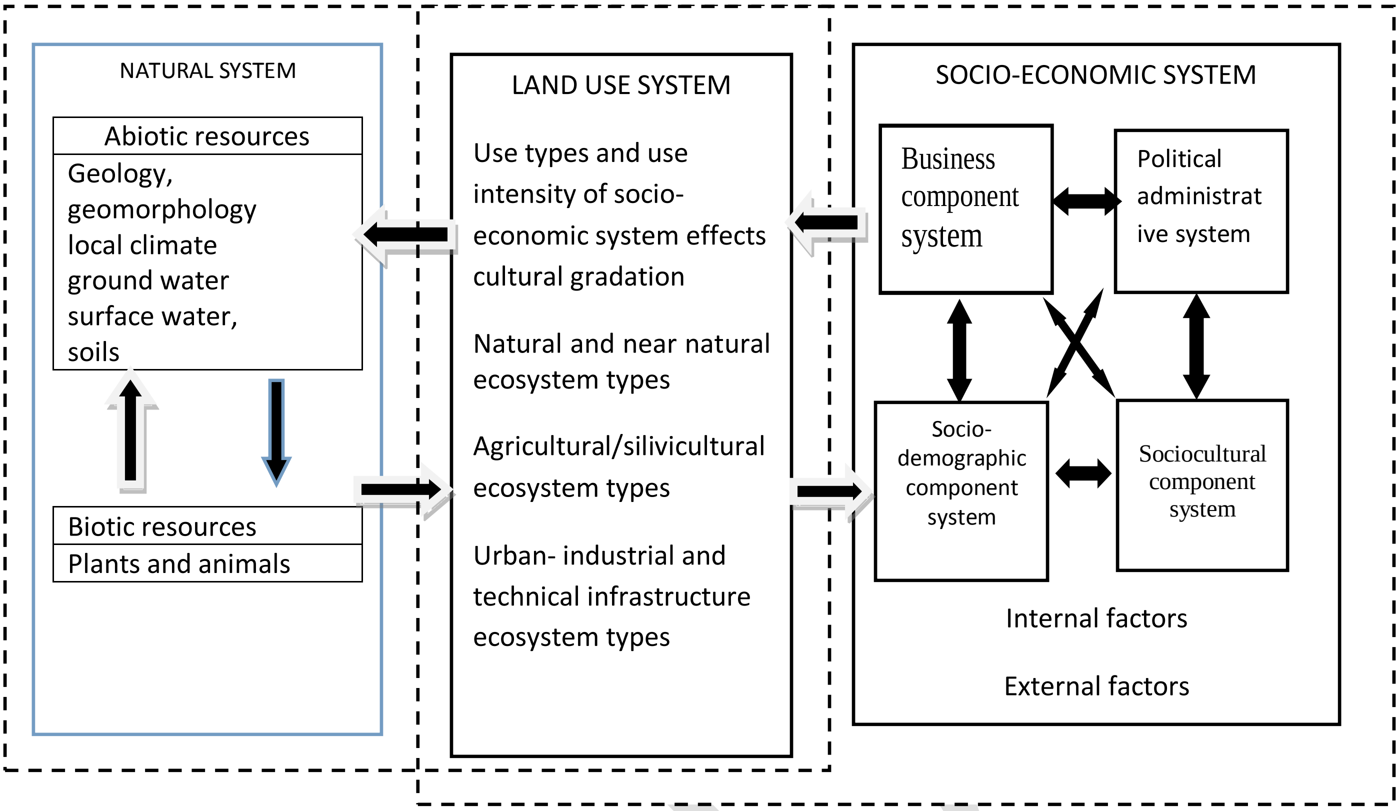

Figure1. Showing ecological-economics model system for natural resource management.* Outer dotted lines shows external ecological and socio-economic influences.

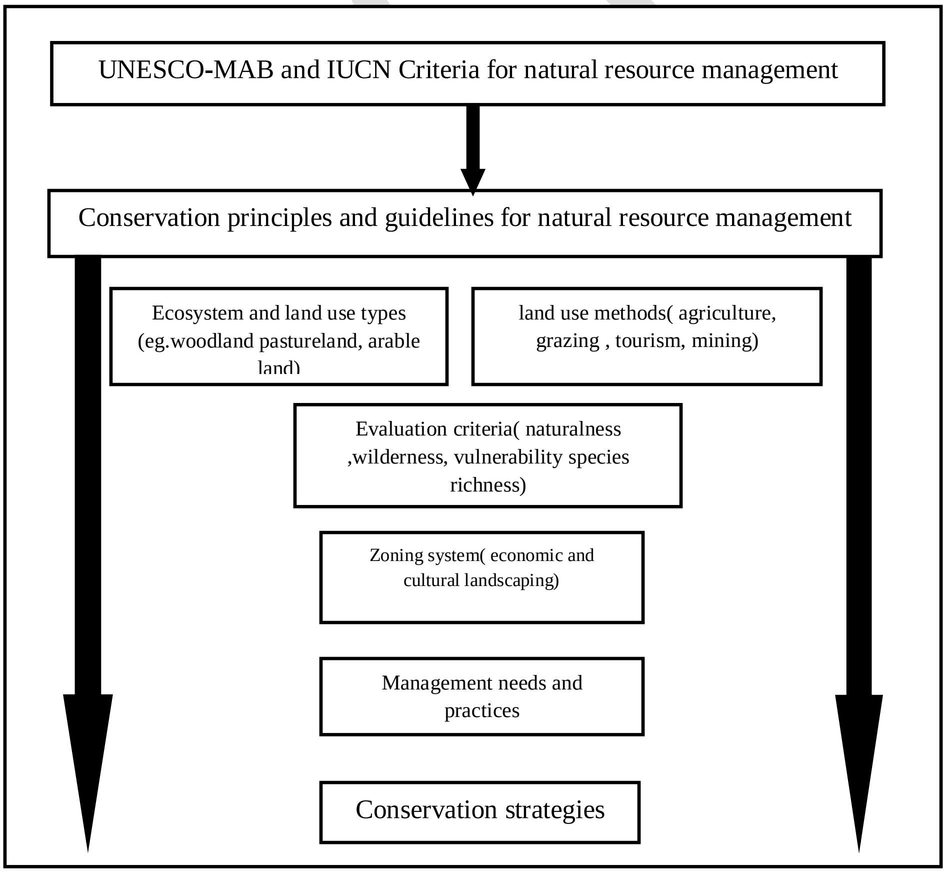

Figure 2. Management plan for sustainable use of natural resource base.

Conservation	Community relations	Legal and administrative aspects	Logistics	Local development
1. Jurisdiction 2. Zoning 3. Modification of natural areas and assessment 4. Environmental and socio environmental impact assessment 5. Anthropogenic factors 6.Economic valuation of natural resources 7. Recovery of wilderness and natural area 8. Baseline studies on provincial and region basis.	,1.Demographic pattern 2.Role of local communities 3.Integration of local peoples in planning and decision making 4.Research on local practices 5.Environmental education 6.Organizational structure 7.Survillence activities 8.Distribution of stakes and profit sharing	1.Legal framework 2.Administrative body 3.Management and working plans 4.Monitoring enforcements and penal provisions 5. International and national safety protocols 6. Intellectual property rights 7. Right for pious environment	1.Use as an open laboratory 2.Cooperation between institute and scientists ,3.Multidiciplinary and interdisciplinary approaches 4.Training 5.Database of resource and inventories 6.Technical and financial assistance	1. Improvement in living conditions (health,education,housing services etc) 2.Inclusion of territorial planning 3.Avoidance of biotic pressure 4. Analysis of alternative or integrated uses of natural resources. 5.Experimental use of appropriate technologies 6. Reversion to traditional management techniques. 7.Community participation for productivity 8.Articulation of public and private govt or non govt interests 9.Developmemt of recreational and tourism activities

Figure 3.Paradigms for sustainability of natural resource management

III. CONCLUSION

The environmental assessment and sustainability framework approach for the natural resource management are the essential tools to design and implementation of international and national policies provides alternative solution in the face of increasing pressure placed on country's natural resources by economic and ecological crisis. The urgency of satisfying basic needs of large sectors of population and the importance of preserving the natural heritage is the great concern in present scenario.

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