Strategy of Natural Resources Environmental Management design, case study: Bhugaon Lake

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A B S T R A C T

Background: This article attempts to ground that plan in a rational theoretical base of understanding both at the local and national level. Justification for the commitment of Extension System resources to Natural Resources and Environmental Management Education is predicated on recognition of the environment as a base for all living systems. Objective: The present investigation was based on following objectives, to study the natural attraction of ecotourism potential and the impact of human exploitation on natural resources of ecotourism sites, to evolve long term environmental strategic management for development planning of ecotourism potentials. This description presents the vision, the beliefs, the values, the areas of emphasis, and the trends that influence the scope of the plan. Environmental Impact Assessment of human development mainly deals relationship between Environmental parameters, Frequency and attendance alternations, Location and distance parameters. Results: In this study it is interesting to compare between six sites based on two explained factors. Key factors for successful sustainable environment have been presented in this research. Kruskal-Wallis test was determined that there is significant difference among six sites on factor one such that Bhugaon Lake had the highest Rank as a compare other Impacts. Key factors for successful sustainable environment are: forging strong inter-ministerial cooperation between the ministries of planning and investment, science technology and environment, tourism, education and training, agriculture and rural development, and being committed to management that facilitates and ensures input from all stakeholders: tour operators, protected area managers, government, NGOs, local communities etc. Conclusion: To develop ecotourism potential of Bhugaon lakes some ecotourism activities are recommended. The points raised and questions asked during the formulation of this design philosophy. Such community-based initiatives must be supported at a broader scale, to avoid possible outsourcing of governmental responsibility or the relegation of sustainable design to the sole realm of the wealthy.

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Introduction

Key strategies for design of Natural Resources:

Design of environmental projects and components should be based on an Environmental Screening and Scoping (ESS) exercise, which can be funded from PDFF resources. President’s Bulletin 94/03 and its attached Operating Statements should be followed; Environmental Screening and Scoping Notes (ESSNs) should follow IFAD’s Administrative Procedures for Environmental Assessment, Doc 4-1. Design and review teams will need to:

- Demonstrate the links between poverty and environmental degradation and show that the proposed investments will address these links.
- Develop and agree with natural resource users, other stakeholders and the borrower sustainable and practical solutions to solve or avoid conflicts over land use and resource access. Solutions are likely to feature initiatives for co-management or user-based resource management that are development-oriented, people-centered, and which reflect traditional/indigenous approaches and include an understanding of those factors that facilitate successful collective action and deliver environmental benefits and services.
- Identify any legal or regulatory constraints to the application of the above initiatives; propose remedial actions to the borrower and agree how, by whom and by when resolution will be achieved.
- Focus the attention of environmental support services on capacity building to reduce disparities in the environmental protection/management capacities of target groups.
- Promote conservation measures or NRM technology that can combine environmental benefits with improved economic growth and security for the target group - or at least not undermine them.

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- Give close attention to design & operation of environmental monitoring and evaluation systems, including risk assessment. Include site-specific, impact-oriented and easily verifiable environmental indicators in Key Files.
- Ensure that project budgets include all costs associated with the environmental mitigation measures and supporting actions that are proposed (KSF5. 2008).

**Goal of Natural Resources and Environmental Management Strategy (NREM):**

NREM educational goals are to help:
1. People understand their relationship to the environment.
2. Individuals and communities practice a stewardship ethic.
3. People make informed decisions about NREM issues.
4. People know about practices that sustain natural resources.
5. Learners recognize the importance of meeting human needs without compromising production capability for future generations.
6. Individuals understand and appreciate biodiversity and the significance of all species (ES-USDA, 1994, p.11).

**NREM Beliefs:**

NREM educators believe that education is vital to sustain the long-term health and productivity of our natural resources and that education helps people to:
1. Apply the results of research to natural resource management.
2. Explore, develop, strengthen, and enhance their personal stewardship ethics.
3. Advocate and practice the efficient use of all resources.
4. Seek a balance between rights and responsibilities on both private and public lands.
5. Become informed consumers of natural resource products.
6. Imagine and consider alternatives, make decisions, and create desirable futures.
(ES-USDA, 1994, p. 7)

**NREM Values:**

NREM educators value:
1. The use of both social and natural sciences in their approach to issues and problems.
2. An emphasis on stewardship and multiple resource values and uses in their educational approach.
3. The meeting of local needs, while remembering that humans are part of a larger world.
4. Honesty and professionalism.
5. Useful and relevant processes and information.
6. The wisdom of seeking a balance between diverse viewpoints.
7. Respect for the dignity of each individual and for the human right to fair treatment.
8. The formation of partnerships whenever more can be accomplished together than alone.
(ES-USDA, 1994, p. 8)

**Areas of Emphasis:**

The strength of the land grant system can best be brought to bear on natural resource issues and environmental problems through an interdisciplinary approach. Collaboration in and of itself reveals the subtleties of the challenge to current populations of protecting the environment for future generations. New techniques to accomplish this goal come not only out of the universities but also from partners in the private and regulatory sectors. The challenges of maintaining environmental health while protecting economic viability are not insurmountable, but this work does require coordinating effort and knowledge about a variety of issues. To begin this dialogue, the Extension system must acknowledge those areas that are critical and clearly state a commitment to working with the relevant stakeholders. In the NREM strategic plan the areas of emphasis are:
1. Air, land, and water quality.
2. Citizen understanding and responsibility for public policy and environmental justice.
3. Conflict management and other social-process skills.
4. Ecologically sensitive approaches to land use.
5. Ecosystem management, biodiversity, and threatened and endangered species protection.
7. Environmental hazards, risks, and liability minimization.
8. Human interaction with natural resources and its impact on ecosystems.
9. Integrated resource management.
10. Pollution prevention and clean up.
11. Solid, hazardous, and animal waste management.
Sustainable production and efficient use of goods and services from natural resources. (ES-USDA, 1994, p. 9)

Identifying areas of emphasis and problems is often the easy part of natural resource programming. The clear statement of desired results is more difficult to accomplish. Not only is it necessary to identify desirable outcomes but it is also necessary to gain consensus that these outcomes are goals for the communities involved. Examples of model programs and desired outcomes for NREM efforts might be:

1. **Adding Value Through Lumber Drying** - Lumber producers increase the value of marketable crops and also reduce drying losses and energy consumption.
2. **Farm*A*Syst** - Farmers assess their land and facilities for environmental hazards and take corrective action to minimize risks.
3. **Habitat Evaluation** - Youth demonstrate an understanding of wildlife habitat concepts.
4. **Integrated Pest Management** - People adopt practices to reduce dependence on chemical pest control.
5. **Logger Education to Advance Professionalism (LEAP)** - Loggers use improved practices to harvest and regenerate forest stands.
6. **Master Composter** - Trained volunteers teach others to reduce waste through the controlled decay of organic matter.
7. **Personal Energy Audits** - People assess their levels of energy use, improve the energy efficiency of their built structures, and adopt energy-conserving practices in their home and work settings.
8. **Totals Ranch Management** - Ranchers implement technologies to use ranch resources more effectively.
9. **Water Riches** - Young people learn about the science and management of water and begin to understand the complex issues of water use and protection. (ES-USDA, 1994, p. 12)

Desired NREM program outcomes are wider in scope than individual educational goals and draw upon a comprehensive interdisciplinary curriculum extending far beyond traditional Extension education programs (e.g., teaching people to select among alternative management options). NREM programs provide learners with new knowledge, skills, and attitudes resulting in behaviors that collectively promote wise stewardship of natural resources and the environment (ES-USDA, 1994).

**Trends:**

- Extension is acknowledging a changing world. Politically, socially, and technologically the customer base is shifting. These changes are not seen as problems or losses, but as opportunities to expand the influence of the national Extension system and to focus our considerable expertise on our natural resource base.
- Some of the identified conditions and trends that will affect NREM programming in the future are outlined below and are only the beginning of necessary exploration as this important area is expanded in each state.

**Conditions and Trends Affecting NREM**

- **Political and Legislative** - Proliferation and changing national and state laws and regulations and local ordinances (e.g., Clean Air Act, Clean Water Act, Endangered Species Act, Resource Conservation and Recovery Act, Coastal Zone Management Act, National Environmental Policy Act, Federal Land Policy and Management Act); political and administration focus on environment and education (e.g., National Environmental Education Act, America 2000); reliance on regulatory versus educational approaches; increased administration and congressional support for the Renewable Resources Extension Act; challenges to private property rights and responsibilities; and increasing citizen interest in government decision making.
- **Social and Economic** - Depletion of landfill space; NIMBY Syndrome (“not in my back yard”); distrust of government; increasing concern for environmental issues; demographic shifts (e.g., geographic, cultural, ethnic, age); limited-resource communities; increasing conflicts over allocation of natural resources; economic restructuring, businesses and communities; increasing regional and off-shore job migration; and growing world population pressures.
- **Scientific and Technological** - Atmospheric changes (e.g., ozone, CO2); global climate change; increasing impacts of natural occurrences and disasters on the human environment; ecosystem management and landscape biology; information explosion and access overload; increasing complexity of issues; biotechnological developments; communications technologies; micro sensitivity of chemical and biological assays; and the availability of geographic information systems.

**Future Questions:**

An understanding of the future is necessary if Extension is to project the use of institutional resources and equip staff with the necessary knowledge and understanding to carry out NREM programming. Some of the questions that emerge as Extension explores its role as a committed educator in the natural resources and environmental management area are:

1. What is our capacity?
2. Who are our collaborators?
3. Where are the potential resources?
4. What are our constraints?
5. How should we proceed?

Building a bridge to tomorrow means mobilizing fiscal, human, and knowledge resources. Building a bridge to tomorrow also means building a system-wide commitment on a foundation of diversity and excellence as Extension takes its place as a premier provider of natural resources and environmental management education (ES-USDA, 1994).

This part of research deals with global situation of Ecotourism, Different Definition, and essentially phenomenon of Sustainable development, functions and beneficial uses of Ecotourism Potential, the general Impacts and objectives of study. Tourism or ecotourism is inherent desire of human beings, which developed with the progress of human civilization. Every man on this planet earth is very fond of tourism, hence always attracted towards nature. The mountains, hills, valleys, oceans, rivers, lakes, islands, waterfalls, forests, wild animals, birds, butterflies etc. have become important attractions for the ecotourists. The attraction towards nature is increasing day by day due to ever increasing urbanization, environmental pollution, deforestation, loss of biodiversity and natural sites.

This Research has three original aims, which consist of:
1. Original study of natural Attraction in Ecotourism Potential of Pune District.
2. Study of impacts of human Exploitation on Natural situation.
3. Produce of long-time Environmental Strategic management for development of Environment ecotourism potentials in Pune.

Methodology:

Environmental Impact Assessment of human development mainly deals relationship between Environmental parameters, Frequency and attendance alternations and Location and distance parameters. In this chapter seven Impacts and seventeen present potential for eight sites were analyzed.

The multifactor correlation Matrix between seven parameters of ecotourism potential analyzed showed five scores, strongly negative, slightly negative, Ambivalent, Slightly positive and Strongly positive.

Investigation of Impacts on natural attraction of ecotourism potential showed two effects: Constructive Effects, such as Development of Environmental Ecotourism Potential, and Development of Native Socio-Economic and Negative Effects such as: Compression on Places, Frequency or attendance Alternation and Dispose of Solid wastes.

This part of research deals with materials and method. It gives the method of Collection, Data Analysis and implementing different Techniques. This chapter also deal the selection of sampling stations that are very Important for development and management of Ecotourism potential. Basic information about present situation was used by surveying in eight ecotourism potential of Pune district.

In this study, 6 Ecotourism sites were surveyed around the Pune District, which there were mostly in two geographical locations. 1-West 2- South of Pune city. The first location consists of Mulshi Lake, Bhugaon Lake, Bhushi Lake and Valvan Lake. The second location including: Katraj Lake, Khadakwasala Lake.

In this study it is interesting to compare between six sites based on two explained factors. Kruskal-Wallis test was determined that there is significant difference among six sites on factor one such that Bhugaon Lake had the highest Rank as a compare other Impacts.

The points raised and questions asked during the formulation of this design philosophy
1. How can the site degenerating historic value be reinstated in the public mind?
2. Can the site be treated as a PUBLIC PLACE of today, wherein the atmosphere for any and all the visitors will be conducive for their sharing a common attitude of admiring and respecting the spirit of the place?
3. Can the balance be achieved in making this place an interesting destination for varied visitor types while keeping off the danger of its made-up and manicured look?

The Design Philosophy for Restoring Bhugaon Lake is written for
- Protecting
- Preserving
- Conserving
- Restoring
- Improving the site place
- Inviting local, statewide and nationwide tourism for varied visitor types.

The place will be of interest to families, young children, students, historians, academicians, researchers and casual tourists. The new places and spots will be designed for active and passive recreation and for an allocation teaching and learning experience. Development will be in the fields of Architecture, Landscapes Architecture and learning experience. Development will be in the fields of Architecture, Landscapes Architecture and Environment for creating the lacking visual interest and to encourage individual exploration of the nature of region.
Results:

Key factors for successful sustainable environment contains of: (Buckley, R)

a. forging strong inter-ministerial co-operation between the ministries of planning and investment, science technology and environment, tourism, education and training, agriculture and rural development, and

b. being committed to management that facilitates and ensures input from all stakeholders: tour operators, protected area managers, government, NGOs, local communities etc.;

- Establish a national Sustainable (Eco) Tourism Task force to develop a National Ecotourism or Nature Tourism Strategy;
- Create an environment conducive to the establishment of a private sector Ecotourism Association, independent Ecotourism Commission and Community Ecotourism Association;
- Intervene in the market e.g.: fees to protected areas, limits on numbers, regulations and Codes of Conduct for the industry (developed with the industry);
- Consider each natural area individually (eco and envy impacts of tourism, what the area has to offer, local community needs and interaction with the environment, local infrastructure etc);
- Focus on the local and regional level - it is easier for nature tourism/ecotourism to be developed successfully at these levels;
- Start small and go slow;
- Believe that small is beautiful and quality is paramount;
- Invest in awareness raising, education and training for tourists, tour operators, local guides, protected area managers, local communities, local authorities;
- Aim to maximize local benefits for conservation and economic development;
- Aim to maximize local participation and involvement at all levels;
- Aim to maximize use of local products, materials;
- Aim to focus on recycling, waste management, alternative technologies and fuels. Manuals have been produced that provide practical information on such topics, we have a few and will be getting more;
- Constantly monitor and evaluate and develop a feedback mechanism for modifying growth and minimising impacts and setting limits.

Discussion:

Following suggestion can help us for sustainable ecotourism

(a) Enhance international cooperation, foreign direct investment and partnerships with both private and public sectors, at all levels;
(b) Develop programmes, including education and training programmes, that encourage people to participate in eco-tourism, enable indigenous and local communities to develop and benefit from eco-tourism, and enhance stakeholder cooperation in tourism development and heritage preservation, in order to improve the protection of the environment, natural resources and cultural heritage;
(c) Provide technical assistance to developing countries and countries with economies in transition to support sustainable tourism business development and investment and tourism awareness programmes, to improve domestic tourism, and to stimulate entrepreneurial development;
(d) Assist host communities in managing visits to their tourism attractions for their maximum benefit, while ensuring the least negative impacts on and risks for their traditions, culture and environment, with the support of the World Tourism Organization and other relevant organizations;
(e) Promote the diversification of economic activities, including through the facilitation of access to markets and commercial information, and participation of emerging local enterprises, especially small and medium-sized enterprises.

Support efforts to attain sustainable tourism that contributes to social, economic and infrastructure development through the following measures:

(a) Implementing projects at the local, national and sub regional levels, with specific emphasis on marketing tourism products, such as adventure tourism, eco-tourism and cultural tourism;
(b) Establishing and supporting national and cross-border conservation areas to promote ecosystem conservation according to the ecosystem approach, and to promote sustainable tourism;
(c) Respecting local traditions and cultures and promoting the use of indigenous knowledge in natural resource management and eco-tourism;
(d) Assisting host communities in managing their tourism projects for maximum benefit, while limiting negative impact on their traditions, culture and environment;
(e) Support the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, in accordance with commitments that countries have under biodiversity-related agreements to which they are parties, including such
agreements as the Convention on Biological Diversity and the Convention on International Trade in Endangered Species of Wild Fauna and Flora, as well as regional biodiversity agreements.

**Conclusion:**

Total idea for Ecotourism designing in field of Human and Nature for case study consist of:

Expansion Recreational and promenade are presented according to natural capabilities of projects suitable with land potential (Mirsanjari, M. M., 2012), such as:

1) Establishment of Green Space Planning, Walking road on hill and Jogging Track
Water Park
2) Placement of Ecotourists camp and service centers and Ecotourism Facilities.

3) Establishment of restaurant and residence accepting tourists were mentioned.

The Long term environmental strategic management in this research consists of increasing recreational places for ecotourists, increasing the environmental viewpoints and amazing areas, planning of environmental long term strategies with attention towards occupation of local people, and increasing their life standards.

For development of ecotourism in Pune district following main recommendations are given: protection and conservation of native flora preparation of jogging tracks, children parks, yoga and meditation centre, cultural and traditional centers, amusement parks (Mirsanjari, M.M., 2012).

To develop ecotourism potential of Bhugaon lakes following ecotourism activities are recommended:

- Children and young promenade,
- Management of ecotourism area, proper disposal and reduction of wastes,
- Hosting –serving –cultural and coastal establishment,
- Green space and natural exhibition,
- Concentrated promenade-ecotourism projects,
- Estimation of expenditure promenade projects and ecotourism developments,

Similarly following main plans and models are suggested to develop ecotourism activities at Bhugaon lake.

- Creation of forest parks and zoos,
- Protection of native plant species,
- Conservation of natural sites,
- Management of environmental activities,
- Water park and boating,
- Jogging track and walking roads on hills at south east of Bhugaon lake,
- Yoga and meditation centre,
- Children parks,
- Amusement and children ecopark,
- Water park,
- Ecotourists camp, service centers and ecotourism facilities,
- Establishment of restaurants and residences for ecotourists.

**References**


Mirsanjari, M., M. Naghizadeh, N. Farzamfar, H. Baghi, V. Gharabagh, A. Sultani, 2013. Assessment of Scientific and Additional Values of Sustainable Ecotourism for Desert Areas by Using Pralong Method (Case Study: Khor and Biabanak, Iran, Advances in Environmental Biology.