

SUMMER SCHOOL

ON

Environmental Impact Assessment and Management of Coastal Zone: An Integrated Approach

7 - 27 August, 2001

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Date of Publication : **7 August, 2001**

SOCIO-ECONOMIC PARAMETERS FOR IMPACT ASSESSMENT STUDIES

Shyam S. Salim and S. N. Ojha

Introduction

Sorenson and McCreary defined coastal zone as the interface or transition zone where part of the land is affected by its proximity to the sea and where part of the ocean is affected by its proximity to the land in an area in which the processes depending on the interaction between land and sea are more intense. The coastal zone comprises a narrow strip of coastal low land and vast areas of coastal waters. It constitutes 10 percent of the oceans but more than 50 percent of the oceans biological productivity.

Alarming issues on coastal zones aroused due to its low altitudinal level, its vulnerability to changes brought by man and nature. This had reached its peak in recent times due to rapid growth of population and urbanization complied with expansion of economic activities and increase resource use. Again further aggravated by the threat of climatic changes and accelerated sea level rise in the coming years.

Integrated Coastal Zone Management is a system of controlling development and other human activities that are affecting the condition of economic resources and quality of environment in the coastal zones which are necessary to the weak terrestrial type of planning and meagre resource management programme.

The salient objectives of Integrated Coastal Zone Management includes

- (i) to provide for sustainable use of coastal resources
- (ii) to conserve coastal biodiversity and maintain sustainability
- (iii) to facilitate the interaction and intervention of different coastal economic sector (eg. shipping, agriculture, fisheries, tourism, industries, etc.)

Economic sectors under the coastal zone management includes

(A) Sectors often coastal or ocean specific

- i. Navy and other defense operations
- ii. Port and harbour development (including shipping channels)
- iii. Shipping and navigation
- iv. Recreational boating and harbours
- v. Commercial and recreational fishing
- vi. Mariculture
- vii. Tourism
- viii. Marine and coastal research
- ix. Shoreline erosion control

(B) Sectors rarely coastal specific but with impacts

- i. Agriculture
- ii. Forestry
- iii. Fish and wild life management
- iv. Parks and recreation
- v. Education
- vi. Public health
- vii. Housing
- viii. Water pollution
- ix. Water supply
- x. Transportation
- xi. Flood control
- xii. Oil and gas development
- xiii. Mining
- xiv. Industrial development
- xv. Energy generation

Social impact assessment (SIA)

It explain the social consequences of environmental change. It is a way trying to figure out what can and what does happen to people, their organization and there commercialization as a result of particular environment change. It involves the use of social science techniques to make predictions and to monitor results and evaluate outcomes.

- aimed at fair dealing the various people affected
- anticipatory endeavor in its predictive role
- evaluative endeavor in its monitoring role

Its primary goal is to facilitate decision making by predicting the full range of social costs and benefits of proposed development projects.

Secondary objective of SIA explains that the social sciences complements natural sciences in the participation of the people and also impact of environmental changes on people live and the latter effects on the natural systems.

Socioeconomic impacts holds good in the following areas of life

- Economic (eg. Employment)
- Environment habitat relation
- Commercial price changes
- Transportation accessibility
- Social changing roles
- Biological health
- Psychological stress

Social impact dimensions

- Probability

How likely is the outcome

- Primacy

Is the outcome a direct result of the development or is it an indirect are, part of the clean predictable events flow up from the development

- Onset

At what point will the outcome occur, immediately or later on ?

- Duration

Is this a temporary effect or permanent one ?

- Magnitude

How extension is the outcome ?

- Distribution

Who will be affected ?

- Scope

What will be the geographic limits ?

Procedural frame work

- *Profiling* – Identifying existing condition, providing a base line
- *Projecting* – Predicting likely changes and their effect (eg. By using results from similar areas, extrapolating of trends or creation of scenario
- *Assessing* - Determining the importance of the effects and ways of avoiding or mitigating them
- *Evaluation* - Considering the acceptability of the impact of the project and its alternatives.

The methods used include

- Collection and assessment of existing information (Census, data vital statistics, previous studies)
- Survey methods
(sample surveys, opinion leader or Delphi panel surveys)
- Participant observation
long or short term community studies
- Unobtrusive techniques
(monitoring media such as newspaper editorials or call radio shows, observing behaviour in public places.

Steps in social impact assessment

Step – I

- Identify the main group affected – both inside and outside – special attention to rural poor of cover.

- Number of households should be attributed rich and poor
- Multidimensional
- Study with and without project

Step – II

- Describe the economics of the livelihoods in terms of subsistence production and cash income.
- Quantitative estimates should be made of incomes and any common property resources.

Step – III

- Estimate the environmental changes caused by the project on the livelihood
- Quantitative estimate on the changing scenario on the stakeholders
- Prepare an import rating for all groups (perhaps on a numerical scale)

Step – IV

- Estimate the overall environmental import of the project an income distribution in the project area preparation of the overall income going to be different classes and make clear any limitations of analysis

Step – V

- Assess likely change in the general quality of life of men, women and children in the area affected by the project.
- Indicators of quality of life
- Human Development Index
- Security of life and livelihood of different groups
- Extent of social conflict
- Health, nutrition case of communication and safety

Step – VI

- Estimate the initial and recurrent costs of any environmental mitigation measures including compensation needed to offset effects the subject project (costs of reselling and retraining fisherman house or those whose land is acquired.

Method of Socio-economic impact assessment

Rapid Rural Appraisal(RRA)

- Process of gathering and analyzing from and about rural communities in a brief time period (weeks)
- Formal survey and totally non-structured interviewing
- Reveals information on values, opinions, objectives and local knowledge as well as “hard” data on social, economic, agricultural and ecological parameters
- Quality depends largely on the teams, skill and judgment.

Participatory rural appraisal (PRA)

- PRA is a type of RRA
- Involvement of the people in the subject area is essential
- Cost effective in terms of money, time, materials and manpower
- Interdisciplinary and can include decision makers as well as researchers
- Non sampling errors are reduced
- Allows close discussion with locals so that the research and interviewers can see things from a shared perspective.
- Rapid and comparatively inexpensive
- eclectic – using a variety of survey and interview technique as the need arises
- Holistic – multidisciplinary picture of the situation
- Interactive – generating dialogue between researcher and subjects.

Tools and Strategies

- Interview and question design techniques for individual household, and key informant techniques.
- Group interview techniques including focus group techniques
- Interactive data gathering
- Cross checking
- Use of pre-existing and secondary data sources
- Methods of obtained quantitative data on a short time.

Specific applications

- Participatory mapping
 - i. Social mapping – Village mapping, infrastructure population, households, chronic health cases, family planning, size of planning.
 - ii. Primary resources mapping and modeling land, water, tree resources, land uses, land soil types, cropping pattern, land and water management, productivity watersheds, degraded land, treatment points.
- Transects
- Observational walk to study natural resources, indigenous technology, soil and vegetation, wild life farm practices, problems and opportunities. which are cross tallied with the resource mapping and modeling.
- Historical transects – Pictorial graphic representation of the area of different points in time to give evolutionary trends in land use, vegetation, erosion, population, etc.

Time line

Time and events, historical evolution of a village, agricultural practices, health care practices, etc.

- Seasonality diagramming
For obtaining seasonal patterns of rainfall, employment income and expenditure.
- Ranking
Matrix ranking, preference ranking, Scoring ranking, wealth ranking
- Diagrams
Venn diagram, Consequences diagrams

Conclusion

Environmental impacts and their social and economic ramifications are especially important aspects of planning for economic development. EIA and SIA can be done in a programmatic mode based exclusively on the development proposals and the environmental vulnerabilities of coastal ecosystem. Coastal zone management will play a pertinent role in maintaining the sustainability and biodiversity of the natural resources. The methodologies to evaluate the coastal zone would for sure lead to an environment friendly, economically viable, ecologically sound, technologically appropriate, socially acceptable and culturally compatible ecosystem. Therefore, concerted efforts are to be formulated, initiated implemented, monitored and evaluated for the sustenance for the future.