

Pilot Project for Integrated Management of the Coastal Zone of Bahía de Navidad, Jalisco, Mexico

Alfredo T. Ortega Ojeda

*Biól., Departamento de Estudios para el Desarrollo Sustentable de Zonas Costeras,
Universidad de Guadalajara. Gómez Farías 82, San Patricio Melaque, Jalisco, México CP 48980
Tel. 315-3556330 or 3556331 email: aortega@costera.melaque.udg.mx*

Abstract

A pilot experience on integrated management for the coastal zone of Bahía de Navidad, state of Jalisco, Mexico, was started on 1999, establishing three phases or generations; the first one concern to restoration and conservation of Laguna del Tule as a natural protected area and proper management of waste waters on the bay area, second phase considers a master plan for management of Laguna Barra de Navidad, and third phase include proper urban development. Essential to this process is the integration of the Consultative Council for the bay, with the participation of all the social actors in a community based planning strategy. University of Guadalajara Departamento de Zonas Costeras and municipality of Cihuatlan, Jalisco are the leaders of this complex process, building up capacities is essential to this objectives. Social, political and economical problems interfered with the project operation, but after two years of operation there are clear results.

1. INTRODUCTION

Located on an important tourist and economical zone Bahía de Navidad is a medium size bay (ca 4 km coastline from Graham Point to Melaque Point) at the Central Pacific Coast of Mexico. It covers an important portion of the coastline of Cihuatlan Municipality at Jalisco state, and a small portion of Manzanillo Municipality in the state of Colima. Main ecosystems in the bay are rocky shorelines, sand beaches, two coastal lagoons and inland low flatlands with intense agriculture use. Weather is warm subhumid (25 C year average, 800-1200 mm/year). The ocean portion of the bay is a complex and dynamic system, affected by Nortecuatorial and Baja California oceanic currents which produce high marine diversity and non abundant fishing populations.

Four watersheds feed bay hydrology; Marabasco river and Arroyo Seco feed into the Laguna Barra de Navidad, small Jaluco creek feeds all year round the Laguna del Tule and Arroyo El Pedregal which gets off right into the north portion of the bay. Four communities inhabit the bay area; Barra de Navidad (2,965 inhab.), San Patricio Melaque-Villa Obregón (6,263 inhab.), Jaluco (2,076 inhab.) and Emiliano Zapata (1,340 inhab.) accounting for a total population of 12,644 (INEGI, 1995).

In the last 30 years the main economical activity passed from agriculture livestock and fisheries to tourist services and commerce (47% of economically active population in 1995), enforcing a strong urbanization process which has important environmental effects.

At Laguna del Tule (100 ha) main ecological problems are strong organic pollution from surrounding populations waste waters, plus filling up of basin for urban development and wild flora and fauna depredation.

Laguna Barra de Navidad (600 ha) main environmental problem is the accumulation of silt, along with pollution and reduction of the contours and basin of the lagoon by urban and tourist development. Social problems include land property conflicts, poverty, health problems, strong economical differences, political conflicts, strongly unintegrated communities and a lack of proper urbanization and economical development policies.

A specific definition does not exist of what the Bahía de Navidad is, therefore the physical space that composes it can be delineated in different ways according to the application of the following criteria: oceanographic, hydrological, biological, ecological, as well as social, demographic, urban, rural, political and cultural. The bay is a complex environmental and social system, the definition of which should be undertaken with an integrated, interdisciplinary focus, such as is proposed here.

2. METHODS

To be able to cover all the complex geographical, environmental and social systems of Bahía de Navidad, the methodology of "Integrated Coastal Zone Management" has been selected, as it was developed by the group of experts in coastal development convened by UNESCO in 1996, called GESAMP (Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection).

The strategy consists of a gradual study of the coastal system, by means of a series of specific projects that undertake some private areas at first, and grow in size and complexity in subsequent phases of the project.

Integrated Management of Coastal Zone is basically a dynamic process of decisions taking about social development and natural resources use in the marine and coastal areas under sustainable development philosophy (Cicin-Sain & Knecht 1998).

A national policy for the coastal zones of Mexico should include conservation of natural ecosystems and sustainable social and economical development (I.N.E. 2000) Basic ideas on this methodology considers that no proper management decisions can be achieved without a solid scientific research, and because of that strong interaction between science and decision taking is necessary (GESAMP 1996).

Such a process requires participation of governments and communities, as well as scientific institutions on the analyses and planning process for ecological and social systems. The main goal is to improve life quality for human communities which depend on natural resources of coastal zones assuring preservation of biological diversity and productivity of ecosystems (GESAMP 1996).

Community participation on decision taking and conflicts solution between stakeholders and social actors is essential to this process. Interdisciplinary scientific approaches tending to a socioecological systems point of view should be enforced. This accomplish for a gradual process of responsible research and decisions taking, for which a number of following stages should be set, this includes a careful and methodic planning process in which building up capacities and experience feedback are necessary.

As it was set ahead a gradual methodology is to be applied here, establishing several stages or generations of the project starting with specific low scale problems, basic approaches and short term goals. Main strategies to be developed include; scientific research on natural resources and ecosystems; environmental, ecological and biological studies, geohydrological and topographic studies and setting up a Geographic Integrated System; as well as on social, economical and cultural systems; basic demography, analyses of economical systems, urbanization and cultural models, social organization, analyses of economical and environmental values, integration of multidisciplinary work groups is essential to this goals. Interdisciplinary research based on an integrated and systemic social/environmental systems approach is the long term scientific challenge.

Building up capacities has been a basic issue since the beginning of the project, according to that International Diploma Course on Integrated Management of Coastal Zone is offered once a year by Departamento de Estudios para el Desarrollo Sustentable de Zonas Costeras (University of Guadalajara). Identification of social actors and groups, and stakeholders on the bay and a proper understanding of their economical and political interests are essential in order to set up pertinent management plans. But the principal component of this methodology is to start up a community based planning and social negotiation process, which include not only social groups but also government agencies, federal, state and municipal as well.

In agreement with basic concepts of Sustainable Development, the Pilot Project for Integrated Management of the Coastal Zone of Bahia de Navidad seeks to establish a dynamic, ongoing decision-making process for the economic and social development of the Bahia de Navidad region and for the use and conservation of its natural resources, terrestrial ecosystems, the coastal lagoons and basins, and the marine systems. It seeks to harmonize the development of tourism, fisheries, urban growth and agriculture for the benefit of the population, with the maintenance of essential ecological processes and conservation of the valuable natural wealth of the region, including the beauty of its landscape. It is important to identify the users of the coastal zone, including all the sectors and social groups, and analyze their needs and expectations, to solve the diverse conflicts of these uses and the impact of the distinct social and human activities on the environment of the bay.

General objective: To contribute to improving the welfare of the inhabitants of the Bahia de Navidad.

Specific objectives:

- 1) To achieve ordered development of the Bahia de Navidad, in environmental, urban, economic, social and tourism matters.
- 2) To be the instrument so that the residents of the Bahia de Navidad and its visitors enjoy an ecologically appropriate, clean, and healthy environment, in which it is possible to harmonize the urban and tourism growth with the conservation of the natural resources and the beauty of the landscape.
- 3) To promote the participation of all groups and social sectors that compose the community in the planning decisions that affect them.
- 4) To establish the norms, agreements and other planning instruments and safeguards that guarantee the fulfilment of the goals of integrated management of the Bahia de Navidad, under the basic premise of seeking common good.

The mechanism to start up the participatory planning and social coordination is to create a Consultative Council of the Bahía de Navidad, integrated with representatives of all the different social groups on the bay area and ruled by the Cihuatlan Municipal President. The legal and technical base for the project is the Ecological Ordinance of the Coast of Jalisco, which was effected for the National Institute of Ecology and approved by H. Cabildo of the Municipality of Cihuatlan. In it are established the general outlines for the use of the continental territory and the coastal lagoons of El Tule and the Albufera Barra de Navidad. The future rural, urban and tourism development of the region should follow from this ordinance.

In this particular case, the first phase of the project is based on the fresh water of the bay, including the rescue and management of the Laguna del Tule and looks at municipal public works for the drainage system of the villages of the bay. It includes improvement of the municipal drainage network and the construction of a modern wastewater treatment plant with sufficient capacity for the future needs of the villages of Jalisco, Villa Obregon and San Patricio Melaque, which will resolve a great health concern.

In this first phase of planning, accompanying the clean-up of the lagoon is the decree converting the lagoon to a Natural Protected Area, for the conservation of flora and fauna, just as is indicated in the Ecological Ordinance of the Coast of Jalisco. This ecological reserve to be named "Parque Ecologico Municipal Laguna del Tule", will allow protection of the lagoon against the pressure of the urban growth, and opens the possibility for the future use of ecological tourism activities, which will generate additional income for the population, converting what is, at present, an environmental and sanitary problem, to a benefit for all. This first phase covers the first three years of the general project.

The second phase of the project relates to the ecological restoration of the Laguna Barra de Navidad, whose main environmental problem is the accumulation of silt, along with the pollution and reduction of the contours of the lagoon. Being a larger and more complex body of water, and with greater social problems, as well as being on the borders of the states of Jalisco and Colima, the Laguna Barra de Navidad requires more complete and integral ecological and socioeconomic studies, in order to seek the best alternatives for its environmental management, guaranteeing that advantageous economic use of it be harmonious with its conservation, and that it can maintain itself for the long term. Before a problem of such magnitude, no one institution would have the capacity to undertake this study, therefore the participation of a greater number of institutes and research groups is indispensable, and in the particular case of the Laguna Barra de

Navidad, the work with other academic institutions as well as N.G.O.'s are emphasized. The main product of this phase of the general project will be the Plan of Management and Advantageous Use of the Laguna Barra de Navidad, which is planned to run from the fourth to sixth year of the project.

In the third phase, the project will undertake the general problem of the Bahía de Navidad, which should include the two lagoons already mentioned and their rural and urban zones, in addition to the marine portion of the bay. This third phase expects to count on a master plan for the economic, social, and tourism development of the bay, which includes rational use of the natural resources and a healthy environment for all, and is considered to start at the seventh year of the general project, ending up around the 15th year. The final result of this phase should be the Integrated Management Plan for the Bahía de Navidad in the states of Jalisco and Colima.

3. RESULTS AND DISCUSSION

On November of 1999 during the 2nd. International Diploma Course on Integrated Management of Coastal Zone, Departamento de Estudios para el Desarrollo Sustentable de Zonas Costeras from University of Guadalajara and the Municipality of Cihuatlan, state of Jalisco, decided to work together to start an integrated management project for the Laguna del Tule and Bahía de Navidad, having support from federal agencies.

On June 16th of 2000 it is presented to representatives of all the social groups and sectors of the bay the document called "Pilot Project for Integrated Management of the Coastal Zone of Bahía de Navidad", in which it is proposed a mechanism for community participatory planning and social coordination named "Consultative Council of the Bahía de Navidad", which is to be ruled by the President of the Cihuatlan Municipality and is legally supported by the Municipality Cabildo act of June 30th.

The Consultative Council is formally integrated on July 26th with a total of 71 members which represent hotels, restaurants, fisher cooperatives, ejidos (communal land property), general commerce, universities and research centers, federal, state and municipal government agencies, and N.G.O.'s, being the first time in the history of the bay that all the social actors get together to look for common solutions for their common problems. In a short time, October 10th, two work groups were integrated within the Consultative Council, one to work in the first phase of the project, the Laguna del Tule rescue and conservation, and other responding to a social pressure to start with the second phase of the general project, Laguna Barra de Navidad.

Scientific work on the first phase of the project started since 1999 with an estimation of the volume of waste waters that were flowing to the Laguna del Tule basin from the surrounding villages, and the first biological and ecological studies. An interesting technical team was integrated with professors of several departments from Centro Universitario de la Costa Sur (University of Guadalajara) campus at Autlan, Jalisco, to which Department of Coastal Zones belong, engineers, economists, lawyers, tourism and business experts, worked joint together in the Technical Document for the Proposal of Decree for the Natural Protected Area named "Parque Ecologico Municipal Laguna del Tule", which was presented to the Municipality of Cihuatlan on march of 2001. Based on that technical document the municipal government of Cihuatlan started the administrative negotiations with two federal agencies in order to have the control of the lagoon's basin which is necessary to present the proposal of decree to create the "Parque Ecologico Municipal Laguna del Tule" at the State of Jalisco Congress. With a delay in time, this negotiations started on February of 2002.

Very important to the project objectives was the construction of a new water treatment plant for the villages of the bay region, negotiated by the Municipal government and funded by the State government, this modern plant is a long term solution for the waste waters historical problem, and a safeguard for the Laguna del Tule recovery. Treatment plant is under construction and at the same time Municipality is fixing up the sewage systems of the villages on the bay, once they start to work out, this public works will permit that the Bahia de Navidad will turn to be a healthy place for its inhabitants and numerous visitors. A social concern about the Laguna del Tule conservation is rising up, which includes students works and research projects at secondary and high school levels and a campaign of Environmental Education with the participation of municipality, different schools and N.G.O.'s.

A strong social pressure inside the Consultative Council pushed the Departamento de Estudios para el Desarrollo Sustentable de Zonas Costeras to start actions on the second phase of the project, related to the Laguna Barra de Navidad. Between 22th and 24th of march 2001 a Technical Workshop to Analyze Environmental Problems of the Laguna Barra de Navidad was held at Cabo Blanco hotel at Barra de Navidad village. A total of six research institutions participate on it, developing a strategy for a systematic scientific research of the lagoon, and producing a technical proposal for short term measures to reduce the environmental impacts over the lagoon's basin.

International Diploma Course on Integrated Management is the main training tool, people from the municipality and from the Consultative Council participate as students in the last two years.

Being such a big operation, the Pilot Project of Bahia de Navidad has affronted several problems and obstacles, the most relevant of them are: Coordination problems between University of Guadalajara and the Municipality of Cihuatlan; a lack of expertise in environmental and specially on socioeconomic studies; financial support for scientific research is still a non solved problem; historically non integrated communities of the bay villages is a strong obstacle for organization of community based planning strategies; strong political problems at the municipality of Cihuatlan delay negotiations and agreements; changes at the federal government in Mexico on 2001 year affected the support for the project; urbanization and tourism development in the bay area is taking strong pressure on both lagoons basins and there is not enough control by municipal or other authorities; public works and specially the treatment plant have not significant advances; social pressure pushed to start the second phase of the project before it was originally planned and there was not enough technical capacity and expertise to manage properly this stage, and it is necessary a negotiation with the principal economic actors around the lagoon, particularly with tourism developers; the complex process that involved the Bahia de Navidad project has not been properly documented and there is no exchange with similar experiences in other places.

Nevertheless, the Pilot Project of Integrated Management for the Bahia de Navidad is alive after two years since its beginning and stepping forward, and there is a good amount of experiences and lessons from which we can learn how to improve our strategies for the next stages of the project.

4. CONCLUSIONS

This strategy, with short, medium and long term goals, is considered at an international level as the most responsible for resolving the problems of development in coastal zones. For it does not suffice to have solid scientific work on the environment and natural resources, or deep socioeconomic studies: the fundamental tool of Integrated Management of Coastal Zones is social coordination, and resolution of the conflicts derived from the use of natural resources. The most solid contribution of this project is the creation of a means for analyzing the problems of the development in the Bahia de Navidad, in which all sectors and social groups participate, with the planning based in the local community, which permits achieving mutually beneficial agreements where, historically, confrontations existed. Integrated Management is a solid, tested tool for creation of the common good.

The application of this methodology in the case of Bahía de Navidad is giving its first fruits, there is a formal proposal to decree the “Parque Ecológico Municipal Laguna del Tule” and public works under construction, like the modern treatment plant for waste waters and the sewage network for the villages of the bay area, so there is a good chance that in the next years communities in the bay will have a cleaner and healthier environment, which will benefit tourism the main local economical activity. Laguna Barra de Navidad will need a more solid and organized effort, and requires participation of the municipality of Manzanillo and the government of the state of Colima. Perhaps the most important result is the existence of the Consultative Council and its participation in the decisions taking about the sustainable development of the bay.

REFERENCES

- Cicin-Sain, B. & R.W. Knecht 1998. Integrated Coastal and Ocean Management, Island Press, Washington D.C. ISBN 1-55963-604-1
- GESAMP(IMO/FAO/UNESCO/IOC/WMO/WHO/IA-EA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection) 1996. The contributions of science to coastal zone management, Rep. Stud. GESAMP, (61), 66 p. ISBN 92-5-103 856-2
- Instituto Nacional de Ecología/SEMARNAP 2000. Estrategia Ambiental para la gestión integrada de la zona costera de México, SEMARNAP, México, D.F. 40 pp.