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CASE STUDY OF THE INTEGRATED COASTAL FISHERIES MANAGEMENT PROJECT: A PILOT PROJECT FOR THE GULF OF PARIA, TRINIDAD

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Credits

This case study is one of the products of a research project entitled "Synthesizing the Caribbean experience in stakeholder analysis for participatory natural resource management". The project consisted of three major activities:

- the preparation of six case studies from Barbados, the Dominican Republic, Jamaica, St. Lucia and Trinidad and Tobago, and their preliminary analysis by leading actors in each case;
- the convening, in collaboration with the Jamaica Conservation and Development Trust, in April 2000, of a four-day seminar to present and analyse the cases, to identify common themes and concepts related to stakeholder approaches in the Caribbean, and to develop selected principles and skills relevant to the Caribbean context;
- the preparation of a publication presenting the results of the analysis in the form of guidelines for Caribbean practitioners, the six case studies, and an annotated bibliography.

The preparation and editing of the six case studies were supported by the University of the West Indies Centre for Environment and Development, as part of its project entitled Caribbean Capacity-Building for Environmental Management, and by the International Development Research Centre of Canada, under the framework of the project entitled Community-Based Coastal Resources Management in the Caribbean.

Case Study of the Integrated Coastal Fisheries Management Project: A Pilot Project for the Gulf of Paria, Trinidad

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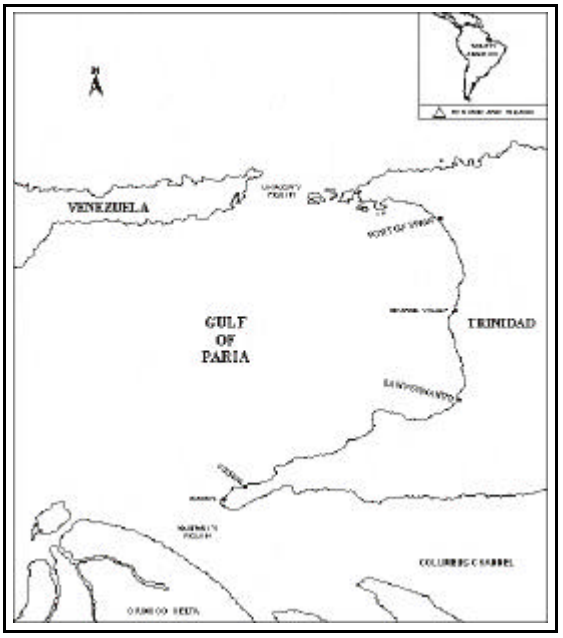
1. Background

The Gulf of Paria Integrated Coastal Fisheries Management Project was a pilot project under the United Nations Development Programme (UNDP) Integrated Coastal Fisheries Management Project - INT/91/007 funded by the UNDP Division for Global and Interregional Programmes and executed by the Food and Agriculture Organisation. Under INT/91/007 the Gulf of Paria was selected as one of three sites for implementation of the project. The other two sites were in The Gambia and the Philippines. Criteria for site selection included the importance of coastal fisheries to the country; management issues to be addressed; government policy; institutional framework; and the existence of programmes to complement project activities both nationally and regionally. In Trinidad and Tobago the project was implemented in March 1994 for a period of 12 months.

The Gulf of Paria is a shallow semi-enclosed basin bounded by the west coast of Trinidad and the east coast of Venezuela as indicated in Figure 1. To the south, Atlantic Ocean water enters the Gulf via the constricted Serpent's Mouth and exits through the similarly constricted Dragon's Mouth at the North. The average depth is 20 metres. In the Gulf water undergoes a clockwise circulation. Salinity and circulation are influenced by the outflow of rivers such as the Amazon and Orinoco as well as local rivers such as the Caroni and Oropuche. The volume of sediment brought by these rivers gives rise to soft, muddy, sandy substrates while the nutrient-rich waters contribute to the high productivity of the area, supporting rich and diverse fisheries resources. The fringing mangroves and wetlands along the Gulf provide shelter for juvenile fish and support populations of shellfish such as oysters, mussels, conch, crabs and shrimp. In addition the avian fauna of the wetlands is similarly rich and diverse. This has encouraged more than 16,000 ecotourists to visit the Caroni Swamp each year.

More than 2,500 fishers operate from fishing communities and recreational sites along the coast of the Gulf of Paria. In 1991 the estimated landed catch from the Gulf of Paria was 7,800 tonnes at an ex-vessel value of TT$70.5 million. A variety of fishing methods are used in the marine capture fishery, which include gill nets, bottom long lines, fish pots, hand lines, and trawl nets. There are four components of the trawl fleet: two categories of artisanal vessels characterised by manual operations, the semi-industrial trawlers, and double-rigged industrial trawlers with fully mechanised operations.

The Gulf is the most populous and active coast of Trinidad. More than 90 percent of the population inhabit communities along the Gulf coast. The capital city, Port of Spain, as well as other major cities and towns are located along this coast. The watershed and hinterland of the Gulf coast support the majority of the country's agriculture, ranging from small farms to large estates supporting sugar cane, rice and citrus cultivation. Major industries are also located along this coast. These include manufacture of ammonia, methanol and chemical fertilizers. Agro-industries include sugar cane processing and the manufacture of food



products. There is also exploration and extraction of oil and natural gas both offshore and onshore, and many of the major oil refineries are located in the area. This coast is also the centre of shipping and related activities such as ship repair. There are a number of dry-docking facilities available.

2. Project description

In 1992, the Fisheries Division of the Ministry of Agriculture, Land and Marine Resources commissioned a bibliographic survey to review the possible impacts of human activities in the coastal waters of Trinidad on the fisheries resources, with emphasis on the Gulf of Paria (Boodoosingh 1992). The issues raised in this report made it quite clear that fisheries management particularly for the Gulf of Paria required an expansive approach.

The marine resources and in particular the fisheries resources were stressed not only by the fishing activities which contribute to their depletion but also by the range of activities which result in alteration of the habitat and deterioration of environmental quality. The report identified activities such as coastal reclamation and port construction; poor watershed management practices and quarrying contributing increased sediment loads; offshore drilling during oil and gas exploration; improper solid and liquid waste disposal

both domestic and industrial as well as from ships at sea; and widespread use of chemicals in agriculture and industry.

It became obvious that management of the fisheries of the Gulf of Paria involved both the regulation of the activities of fishers as well as greater involvement of the fisheries sector in the decision-making process to regulate development of the coastal zone of the Gulf. The Gulf of Paria coastal zone or management area was therefore defined as the marine areas up to the watershed of the Gulf.

The Fisheries Division demonstrated a keen interest in implementing the Integrated Coastal Fisheries Management (ICFM) Project to demonstrate its value as a strategy for the management of the fisheries resources of the Gulf of Paria. The ICFM approach was at the time receiving global attention. The Global ICFM Project was viewed as an opportunity to secure the necessary support to establish a framework for the integration of the fisheries sector's concerns into coastal area planning. The objectives of the ICFM project were:

- to improve methods and coordinating mechanisms for integrated coastal fisheries management; and
- to develop an enlarged assistance programme for ICFM of the marine fisheries resource of the Gulf of Paria.

Specifically the project sought to strengthen the capability of the Fisheries Division of the Ministry of Agriculture, Land and Marine Resources, to provide the necessary state leadership to have the concerns of the fisheries sector incorporated in the framework of development planning for the coastal zone specific to the Gulf of Paria. The strategies for achieving this involved:

- improving the information base on the fisheries sector and the impact of other sectors on it;
- enhancing general awareness of the socio-economic contribution of the fisheries sector and its role as a natural indicator of environmental quality;
- strengthening representation and associations within fishing and related concerns; and
- promoting the supportive role of the Fisheries Division in matters related to coastal zone management.

In effect the aim was to use this project to identify the prerequisites for successful ICFM of the Gulf of Paria and to initiate a suitable framework in support of this.

3. Issues and conflicts

- Multi-gear, multi-species fisheries

Fisheries resources of the Gulf of Paria are multi-species and are harvested by a heterogenous, multi-gear fleet. Among the fishery groups there is conflict between the trawlers and fishermen using other methods, who blame the trawlers for the marked depletion of fisheries resources and destruction of the habitat. Within the trawl group there is conflict between the artisanal trawler owners and the semi-industrial and industrial trawl fleet. The artisanal trawler owners accuse the "bigger" trawlers, both local and foreign fleets, of contributing most to the problem. The industrial trawlers on the other hand blame the inshore trawlers and foreign fleets, as the number of industrial vessels permitted to fish has been fixed since 1988. Some fishermen however attribute reduction in catches to the industrial development along the gulf coast, which has displaced fish landing sites in some areas.

With regard to the management framework for fisheries resources an "open access" situation exists. This means that any person with a sea-worthy craft can harvest fish. The exception is the industrial shrimp trawl fishery operating largely in the Gulf of Paria and at some times of the year on the north and south coasts.

- Multi-sectoral use of the Gulf of Paria coastal zone and associated watershed

A number of sectors are involved in development and use of the coastal zone, often with conflicting and overlapping jurisdictions. In general, the legally established procedures for development of the coastal zone did not adequately provide for:

  - conflict resolution among users of coastal resources and between resource users and other sectors;
  - networking among sectors to ensure that most of the relevant information was available to decision makers;
  - decision-making based on a consideration of the effects of development on the entire coastal system, considering land/sea continuity; and
  - consistency in decision-making within sectors with regard to coastal development and exploitation of resources.

- Weak consultative process in decision-making with regard to coastal development

Prior to the project there were few avenues for the fisheries sector's involvement in the wider context of coastal area planning. The Fisheries Division is the state agency responsible for the development, management and conservation of fishery resources in the territorial waters, Exclusive Economic Zone and inland waters of Trinidad and Tobago; fisheries policy formulation; administration of fisheries regulations; and the provision of extension services. The associated Caribbean Fisheries Training and Development Institute provides training in fishing gear technology, fish handling and processing, and other maritime fields. In carrying out its responsibilities the Division collaborates with the fishing industry and a number of different agencies on an ad hoc basis.

The Town and Country Planning Division of the Ministry of Planning is the principal state agency legally responsible for review of plans and granting approvals for development. At the time of project implementation there were no formal interministerial arrangements to encourage the participation of the fisheries sector in this process.

- Weak organisation of the fisheries resource users

There were few fishery organisations capable of representing the sector in environmental matters. In general the development of fishery organisations has a chequered history. For the Gulf of Paria, while there are many registered organisations, few are functional. Along the Gulf coast there are 39 fish/shrimp landing sites accounting for 60 percent of the landing sites around Trinidad. The communities associated with these sites are varied. They range from interests dispersed within large cities such as Port of Spain and San Fernando, where no physical community exists, to towns and villages like Cedros, Fullerton and Icacos, where fishing is a major occupation and livelihood alternatives are limited.
There are three fishing cooperatives (Icacos, Cedros and Almoorings) and one fishing association (San Fernando). In 1988 the inshore artisanal fishermen formed the National Organisation of Fishing and Allied Cooperative Societies Limited (NOFACS) to coordinate the activities of its members, represent their interests to Government, promote the development of fishing cooperatives, and seek to revive inactive ones. There are seven cooperatives comprising NOFACS including the three from the Gulf of Paria. The activities of the cooperatives as well as NOFACS continue to be constrained by the independent nature of the individual fisherman, consequently limiting the effectiveness of the group in representing the interests of its members.

There is one fishing interest group, the Trinidad and Tobago Trawler Owners Association, representing the interests of the industrial trawl fleet. As an interest group this association has been very active and effectively represents the concerns of its members. At Orange Valley, the Orange Valley Association has been formed to represent the interests of the semi-industrial trawlers.

- Fisheries versus other sectors.

Within the Ministry of Agriculture, Land and Marine Resources, the Fisheries Division must compete with two highly visible sectors, forestry and agriculture, which contribute more to the gross domestic product than fisheries. In terms of national accounting, the Ministry must compete with other more prominent Ministries such as Energy, Trade and Tourism, and Finance. Heterogeneity in the scale of activities within the sector and across sectors generates an interesting weave of power relationships. Examples include artisanal and industrial fishing concerns, cash crop agriculture, oil exploration and refining, large scale industrial production of ammonia and methanol, and natural gas exploration and packaging. The classical perception of fisheries as the employer of last resort may be a factor in relegating the sector to a comparatively low status.

- Geographic extent of the area under consideration.

As previously mentioned, the boundaries of the management area include the watershed, coastal zone and marine areas of the Gulf of Paria. It was felt that for a programme in integrated coastal fisheries management to be effective it should seek to include all the sectors likely to have an impact on the fisheries resources. This proved to be one of the most challenging aspects of the project.

- Time to implement project activities.

The project was largely donor driven. As a result, it was necessary to implement project activities within a time frame of one year, which was in itself a challenge.

4. Description of stakeholder groups

Organisations with management authority	Organisations representing users and communities	Users and non-organised stakeholders
National Agricultural Marketing and Development Corporation Fisheries Division, Ministry of Agriculture Lands and Marine Resources Ministry of National Security Trinidad & Tobago Coast Guard Institute of Marine Affairs Agricultural Development Bank Caribbean Fisheries Training and Development Institute	Trinidad & Tobago Trawler Owners Association National Organisation of Fishing and Allied Cooperatives Society Ltd. Trinidad & Tobago Game Fishing Association Orange Valley Fishing Association	Fish processors Fishers of the Gulf of Paria Fish vendors Other fishers Yachties and recreational boat owners

5. Stakeholder analysis

To initiate ICFM activities focused on improving the profile of the fisheries sector, through enhancing the capability of the Fisheries Division to establish a framework for ICFM, the primary stakeholders were defined as follows:

- The Fisheries Division of the Ministry of Agriculture, Land and Marine Resources. While there are many agencies involved in various activities related to fisheries development and assessment, this Division is vested with the responsibility for management and policy formulation. In terms of the development of the coastal zone and influencing the approval process for such developments, it was determined that

management issues involving other sectors would require state leadership. It is perhaps only a state agency that can approach other state agencies to obtain relevant data and information to add to traditional intelligence for decision-making.

- The donor agencies (FAO, UNDP), which provided the financial support for project implementation.

- The fishers of the Gulf of Paria (those who fish in the Gulf of Paria and use landing sites along its coast). In general fisheries resources are spatially dispersed, mobile, and exploited by a diversity of resource users in spatially scattered communities. It was felt that fishermen who live, fish and market their catch in communities along the Gulf would have local knowledge of the resource and be more intensely aware of changes in the availability of the resource and the environment. Consequently, they should be more active in conserving the resource for future generations. In addition they should be more alert to any changes locally that may be a consequence of developments by other sectors.

- Other fishermen. As this was a pilot activity to be extended to other coasts, it was felt that if other fishermen were aware of the activity, implementation of ICFM for these coasts would have had a head start.

- The Town and Country Planning Division. The Division was identified as a primary stakeholder. It is necessary to obtain permission for any land development in Trinidad and Tobago. As part of the approval process with respect to certain types of development, Environmental Impact Assessments (EIA) have become a recent requirement. The primary stakeholder involved in this process is the Town and Country Planning Division. In addition the National Physical Development Plan which guides land development has among its objectives "the conservation and management of ... coastal marine resources that fall within the nation's jurisdiction".

The secondary stakeholders were all the other sectors impacting fishing activities and the fisheries resources of the Gulf of Paria including the general public. Important among the secondary stakeholders were the environmental NGOs such as the Council of Presidents for the Environment (a group with national, regional and international recognition whose involvement could provide direction in the management process) and the media.

There were some groups which could not be included in the process because there was no organisation to represent them, and key individuals could not be identified.

- Fish processors. While being dependent on the resource and having the potential to negatively impact the habitat, they were involved in highly competitive business ventures involving competition among themselves for supplies and markets.

- Fish vendors.

- Recreational boat owners and "yachties". As a consequence of the expansive nature of the project, involvement in project activities was limited to established sectoral interests. In analyzing the coastal community structures of the Gulf of Paria it was found that there were recreational zones utilized by a (general public) community comprising both foreign and local participants. While their activities were found to have the potential to negatively impact marine fisheries resources and conflicted with commercial fishing activities, they could not be included in the process because of the diffuse nature of the community. This group could only be reached through appropriate media communication.

6. Strategies employed for stakeholder participation
   - Involvement of all stakeholders in the management process and not just fishing communities
     A final list of stakeholders was prepared as a result of the meeting. Participants supported the compilation of a comprehensive database on the Gulf of Paria and participation in this process at all levels was assured.

   - The need for awareness creation on environmental and resource management issues among all stakeholders (resource users and the general public)
     Awareness-building became a significant component of the project and resulted in the hosting of a number of community meetings to promote community-based and integrated management as well as a range of related, interactive, promotional activities. These included launching of an annual "Clean Coast Day" which is now coordinated by the Solid Waste Management Company and involves coastal communities and the general public; production of a video on integrated coastal fisheries management as a resource management strategy for the Gulf of Paria; an integrated coastal fisheries management alphabet poster and booklet; and ICFM curriculum teaching materials for secondary schools.

   - Identification of critical areas, specific resources and user groups along the Gulf of Paria on which to focus project activities
     Two fishing communities were identified to highlight some of the major management issues and conflicts within the fishing community as well as those associated with human activities in the coastal zone. Three types of surveys were conducted:

     1. A community survey, which was conducted by a local consultant using participatory observation methods (he lived for about six months in one community) collecting data by direct interviews as well as through general interaction with the community. This identified some of the major problems

which could arise in implementing ICFM. More importantly it provided information on community structure to define strategies for ICFM implementation and identified the major problems as the community saw them.

2. A household survey in both communities focusing on the female head of household. This sought to identify gender perspectives related to natural resource management and impact of human activities on natural resources.

3. Secondary data profiles using published, census type information to obtain background demographic, socio-economic and geographic information for each area in order to provide a general understanding of lifestyles and standard of living of both the fishing and interrelated non-fishing communities which must be considered in ICFM.

In addition a 'local knowledge' survey was conducted with fishing communities to obtain information on the fishers' knowledge of the resources, the environment and environmental changes. There was extensive participation by the fishers as well as agreement with the conclusions of the survey, which was presented to them at a number of community meetings after the survey.

- Consolidation of all available information on the Gulf of Paria to avoid duplication of effort
  A review of all organisations and institutions likely to have relevant information on the Gulf of Paria (published as well as grey literature) indicated that 51 were likely to have information related to aquatic resources of the Gulf coastal zone relevant for decision making for development planning. All the stakeholders identified contributed towards the compilation and publication of The Gulf of Paria Bibliographic Database (GULP).

  Over 25 organisations, some representing several agencies, contributed to the consolidation of geographic information on the Gulf of Paria. The resulting integrated GIS continues to demonstrate its value as a planning and management tool for development of the coastal zone.

- Consideration of alternatives to the prevailing "open access" approach to harvesting fisheries resources
  Suggestions for approaching this were obtained through the local knowledge survey. Fishers provided their views on the fisheries factors that contribute to abundance of resources. These were considered in the later development of a draft Fisheries Policy and draft Fisheries Management Bill, which were presented to the fishing communities.

- Consultations at the community and national levels to focus project objectives and activities and enhance institutional linkages
  The community surveys supported consultation at the community level while the compilation and publication of GULP as well the GIS on the Gulf contributed to the enhancement of institutional linkages and encouraged widespread involvement in two consultations:

  1. National Conference on Information Networking on Fisheries and the Coastal Zone (February, 1995). The electronic bibliographic database developed under the project was formally handed over to the National Library and Information Services for national use and continual updating at the national level.

  2. Inter-agency Seminar on Integrated Planning Coordination and Management for the Coastal Zone (April 1995). This resulted in an arrangement whereby the Fisheries Division became part of the review process for Environmental Impact Assessments for developments within the coastal zone. This arrangement remains to be formalised.

7. Lessons learnt

It is important to consider prevailing perceptions and culture.

There exist perceptions about the fisheries sector which contribute to its low profile and constrain its ability to participate in the wider context of coastal zone planning. This influenced the strategy used to initiate this activity. With regard to the fishers, their independent nature and the history of associations in some communities affected the extent to which they can be organised to be effective.

Extent of stakeholder identification.

In planning the project and seeking confirmation of the initial list of stakeholders it was possible to identify all the relevant interests. However, this proved insufficient for actual participation, pointing to the need for stakeholder identification to go further than simply identifying who should be involved in the process. The methodology employed should also identify the extent of participation possible and how this participation can be effective.

Stakeholder identification and capacity building assessment.

The process drew attention to the disorganised or weakly organised groups that are difficult to include in a collaborative framework effectively. As previously mentioned some groups were excluded because they were not organised and in a number of ways the nature of their activities did not facilitate bonding.

Convenor's bias can lead to inadvertent marginalisation of some stakeholders.

Relevant concerns of other groups can be marginalised as a consequence of the convenor's focus on its own general goals. For the Gulf of Paria project the Fisheries Division was the convenor. In seeking to include the fisheries sector's concerns in the development planning process, the Division adopted the role of representing the views of the entire fisheries sector at the expense of other groups. In addition, donor support was available which more readily facilitated project implementation in fulfilment of the narrow objectives of the Division.

Understanding power relations.

Stakeholder identification helps with understanding power relations among sectors which can affect the consultative process. It was evident that economic hegemony among the various sectoral interest in the Gulf determined the ratio of power relations.

Research and networking are key elements for capacity needs assessment.

The entire project was a learning experience which facilitated extensive public and private sector collaboration and identified the skills and structures that need to be considered for the participatory process. It is therefore important to identify the groups and areas which need to be enhanced if the process is to be effective. Within the project cycle it was possible to enhance the capacity of the Fisheries Division to ensure that the Division was equipped with the necessary skills to foster participatory management of the fishery resources in the Gulf of Paria. It was difficult to include the fishery participants in this process so that intrasectoral linkages could have been strengthened to provide a ready avenue for collecting and incorporating field intelligence in support of ICFM.

Rationalising urgency with practicability

Urgency to implement approaches can affect implementation strategies and outcomes. The Gulf of Paria Integrated Coastal Fisheries Management Project was very ambitious given its one-year duration. As a pilot project, perhaps it should have been limited in terms of geographic coverage or sectoral interests. While the project achieved its objectives in enhancing the image of the fisheries sector and laid a foundation for inter-agency collaboration, the time did not allow for thorough examination of options for establishing a legal framework with appropriate stakeholder representation.

Feasibility in determining size of area to be managed

Ferreira (1998) listed a number of criteria for successful fisheries co-management which are applicable in the case of ICFM. Among them it is pointed out that the area to be managed should not be too large or at least should be confined to the local waters of a particular community. Perhaps in applying formal techniques for co-management, in the context of this project, the implementation strategy may have

been different. For example certain environmental issues are more important for some areas than others. Perhaps with the involvement of the fishermen, environmental issues could have been stratified and a number of local level entities could have been encouraged to deal with environmental issues common to the local waters of a particular community. This would not have affected project output and could have contributed to the sustainability of the initiative.

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