

INTEGRATED COASTAL MANAGEMENT INITIATIVE FOR TAMANDARÉ-PARIPUEIRA

(TC-96-11-08-0-BR)

EXECUTIVE SUMMARY

EXECUTING AGENCY: Fundação Mamíferos Marinhos - FMM

FINANCING: IDB: US\$1,750,000 (FSO/LOC, non-reimb.)
Local: US\$ 350,000
Total: US\$2,100,000

TERMS: Execution period: 36 months
Disbursement period: 42 months

BENEFICIARIES: 10 Local Fishing Communities

OBJECTIVES: The purpose of this technical cooperation is to establish a coastal zone management program for the area between Tamandaré (PE) and Paripueira (AL) which responds to the need of local fishermen and other stakeholders. The long-term aim is to enable rural communities along approximately 120 km of coast to improve their livelihood by opening new economic opportunities made possible through management of marine and coastal ecosystems and improved municipal land use planning.

DESCRIPTION: The technical cooperation will comprise the following components:

1. **Establishment of a local institutional structure for integrated coastal management:** The activities will consist of: (a) a stakeholder analysis; (b) creation of a local management committee for coastal management bringing together local governments, resource users, and local NGOs; (c) consensus-building on priorities and solutions; and (d) preparation of agreements and regulations.
2. **Establishment and management of a marine protected area ("Costa dos Corais").** This component will contribute to the elaboration of the zoning and management plan for the area. Main activities will include: (a) a comprehensive biophysical assessment of reef health in relation to changing land uses; (b) a management strategy

for sustainable artisanal fisheries in both coastal reefs and mangroves; (c) community-based demonstration projects in reef restoration, municipal reserve management and wildlife protection; and (d) formulation of a long-term management plan for the marine protected area.

3. **Strengthening of local coastal governments and environmental education:** Includes support for: (a) training and technical assistance in coastal pollution and erosion control for ten rural municipalities; (b) application of conflict resolution techniques in municipal land development; (c) strengthening and establishment of community-based organizations dependent on coastal resources; and (d) environmental education activities in schools, such as training of teachers, the adaptation of existing modules, and field trips to nearby biological reserves and other special events.

BENEFITS:

This technical cooperation will launch Brazil's first truly local coastal management program designed to reconcile and integrate land development processes with marine conservation priorities. As such, the project will yield important benefits locally as well as lessons which can be transferred nationally. **Social benefits** include enhanced transparency in municipal land use decisions affecting fishing communities; reduced resource use conflicts between artisanal fishermen, shoreline residents and tourists; and greater economic opportunities for coastal residents in ecotourism-related activities. **Environmental benefits** are expected in terms of avoided environmental losses from reduced physical damage to reefs, controlled pollution; maintenance of marine biodiversity in a high-priority region; and reaching consensus and finding long term mechanisms for the recovery of depleted coastal fisheries.

RISKS:

There are risks associated with the rate and degree of local acceptance of innovative coastal management solutions such as reef closure areas. However, these risks have been minimized through the intense consultation process underlying all components of the project and the participatory nature in which all solutions will be implemented.

THE BANK'S COUNTRY STRATEGY:

The proposed technical cooperation reflects the overall strategy agreed upon by the Bank and Brazil during the 1997 Programming Mission, by focusing on the following areas: (i) social needs of low income

groups; and (ii) environmental protection. In addition, through this operation, the Bank will support a participatory development process which will reinforce the cultural identity of coastal communities as well as their self-sufficiency. The proposed technical cooperation is also highly complementary to the Bank's efforts to include coastal and marine resources management as a strategic complement to its sustainable development mandate under the 8th Capital Replenishment.

**ENVIRONMENTAL
REVIEW:**

The Committee on Environment and Social Impact reviewed and approved this operation on the 10th of October, 1997.

**SPECIAL
CONTRACTUAL
CONDITIONS:**

As a condition prior to first disbursement, the following should be submitted to the Bank:

- a. the signed agreements between the different institutions and local and federal governments involved in the execution of the project. (see 3.21)
- b. Evidence to the satisfaction of the Bank, that the experts' time (being furnished as counterpart) will be available during project execution as part of the agreement(s) between FMM and UFPE, CEPENE and the Peixe Boi-Center. (see.3.25)

PROCUREMENT:

Standard Bank procedures for hiring of consulting services and acquisition of goods and services will be applicable in this operation.

**TC PROFILE
APPROVED:**

25 June, 1997

I. BACKGROUND

A. Coastal resources and the rural communities of Northeast Brazil

- 1.1 The coastal ecosystems of Northeastern Brazil including the nearshore waters and reefs found along the coasts of the states of Pernambuco and Alagoas are among the most intensively used of the region. Artisanal fisheries in this region are intense, targeting a large variety of reef fish, crustaceans and other species. The economy of small rural towns scattered along the coast is largely based on harvesting these reef resources as well as seasonal work during the peak tourism season and in coconut and sugar cane production. Approximately 30% of all coastal residents here fish daily for food and there are indications that fisheries are an important part of the diet of people who are otherwise living in severe poverty. Living conditions for the thousands of artisanal fishermen in the area are worsening due to rapidly declining fisheries stocks combined with heavy migration of workers from inland areas. Declining fisheries and displaced workers have added significantly to problems of food security and environmental degradation in coastal areas.
- 1.2 Contained between two major cities of the northeast, Recife (PE) and Maceió (AL) , this coastal region has come under increasing pressure from the rapid expansion of seasonal residences and resorts. The population of small towns such as Tamandaré (15,000 inhabitants) can triple during peak tourist season, thus adding to the pressure on coastal resources. Recent proposals for coastal tourism development as part of the *Costa Dourada* initiative (e.g., *Centro Turístico de Guadalupe*), the diversification of marine fisheries, and port development are expected to bring even more changes in land use along this stretch of coastline, requiring intense management of the area's coastal ecosystems. While the employment generated by tourism is welcomed by local residents and governments, there is concern for the indirect effects of poorly planned construction and rapid growth on municipal services and quality of life.
- 1.3 Although there are about 3000 km of coastal reefs and associated marine ecosystems along the Brazilian coast, the only existing marine protected areas are Abrolhos and Atol das Rocas, both located in distant offshore areas. A recent regional marine priority setting study for Latin America and the Caribbean identified the coastal ecosystems between Recife and Maceió as the highest priority for integrated coastal management for the Tropical Southwestern Atlantic Region. The relative isolation which characterized the coral reefs in this area until recently has contributed to the formation of an endemic marine fauna of international significance. The social and cultural character of the region with its communities that have close ties to the marine environment, adds to the uniqueness of the area.

B. Local coastal management initiative

- 1.4 For the last four years, the Department of Oceanography of the Federal University of Pernambuco (UFPE) in collaboration with the Northeast Center for Fisheries Research and Extension (CEPENE-IBAMA) and with the Peixe Boi (Manatee) Center, have been studying the coastal ecosystems along the southern coast of Pernambuco and the northern coast of Alagoas. These institutions have been working with local NGOs, including the Fundação Mamíferos Marinhos - FMM, which has successfully carried out community-based conservation activities, such as the reintroduction of stranded manatee and the establishment of a marine reserve, with the municipality of Paripueira. This partnership between local and national institutions has generated a reliable database and strong local interest for the creation of a marine protected area which would complement efforts now underway to regulate coastal development. This integrated coastal management initiative has the support of the Brazilian Program for Coastal Management (Programa Nacional de Gerenciamento Costeiro - GERCO), the Directory of Ecosystems (IBAMA) and state environmental agencies.
- 1.5 In late 1996 and at the request of the local institutions, including the ten small municipalities in the area, IBAMA began the process for declaring a new federal marine protected area ("Área de Proteção Ambiental" - APA). Declaration of this new marine APA (called *Costa dos Corais*) has been the culmination of a year-long consultation process where key stakeholders voiced strong support for placing the reefs under a coordinated management regime. The marine APA which was officially declared on October 25, 1997, will include approximately 120 km of coastline from Tamandaré to Paripueira. It will extend inland 33 meters above the high tide mark and stretch about 29 km offshore to the border of the continental shelf. The marine APA will complement state conservation units (on land) recently declared in Pernambuco and Alagoas. Zoning plans for the area will have to be elaborated and a long term management plan (Plano de Gestão) formulated and implemented. To be effective, management of the marine APA will require that municipal governments play an active role in resource allocation decisions and that local stakeholders (i.e., artisanal fishermen, tourism operators, shorefront property owners) benefit from management activities.
- 1.6 Improved management of marine ecosystems is one of the stated priorities for GERCO, particularly in states dependent on sectors such as coastal tourism and fisheries. While the Program has had successes in states such as Sao Paulo, there is currently an interest to strengthen its activities and promote local implementation of coastal management measures in states such as Pernambuco and Alagoas where rural poverty in the coastal zone is a major issue.
- 1.7 The proposed initiative is also seen as an opportunity to better manage subsistence fisheries which play such a crucial role in the

local diet and yet are not included in most established fisheries management activities. For example, IBAMA's on-going collection of fisheries catch statistics is geared towards the offshore commercial fisheries (which extend over the continental shelf). The integrated coastal management program will help understand the close linkages that exist between the conservation status of reefs and mangroves, fisheries productivity, subsistence needs and recruitment of offshore stocks.

C. Future trends and coastal management needs

- 1.8 Significant land use change is expected along the coasts of Pernambuco and Alagoas in the next five years, largely owing to improved road access and accelerated tourism development as part of the "Costa Dorada" where an estimated 3,000 new hotel rooms will be constructed. As they take place, these land use changes will lead to a variety of problems typical for coastal management. These include, for example, rising land prices and speculation, increasing coastal contamination of beaches, pollution of nearshore areas and coastal rivers, increased littering and insufficient water resources particularly during peak tourist season.
- 1.9 These problems combine with the effects of migration from inland rural areas. Thousands of unemployed sugar cane workers have been moving to the coast looking for employment, food, and land. Many have already settled in flood prone areas, taken to using destructive fishing techniques and have entered into conflicts with artisanal fishermen. These social problems combined with the severe environmental stress resulting from rapid land use change are placing unusual demands on the municipalities of the region. These problems are being addressed at the state and federal levels through programs aimed at giving support to agricultural enterprises which will eventually substitute the sugar cane industry and provide alternative employment. In addition, some local governments are attempting to improve the living conditions for displaced workers through municipal services (e.g., food programs). However, having traditionally served small fishing communities, these local governments find themselves needing to address environmental and social issues associated with the transition to a tourism-based economy which will also provide alternative employment to migrant workers.
- 1.10 There is broad consensus that the local coastal management initiative being launched in the Tamandaré-Paripuera area should focus on resource problems which directly affect the livelihood of its residents. The municipalities, NGOs and research institutions in the area have identified the following as priorities: declining reef and mangrove fisheries; beach erosion; encroachment into mangroves and estuaries; coastal pollution from land-based sources; and land use practices that increase sedimentation. These are problems that simultaneously affect economic sectors (fisheries and tourism) and the health of the region's coastal reefs for which the marine APA has been declared. In this context, the coastal

management initiative will have to yield practical solutions which can be implemented through local entities and which produce relatively immediate benefits in terms of food security, public health, and the protection of shoreline property.

D. The Bank's strategy and previous experience

- 1.11 The proposed technical cooperation reflects the overall strategy agreed upon by the Bank and Brazil during the 1997 Programming Mission by focusing on the following areas: (i) social needs of low income groups; and (ii) environmental protection. In addition, through this operation, the Bank will support a participatory development process which will reinforce the cultural identity of coastal communities as well as their self-sufficiency.
- 1.12 The Bank has approved financing for the Northeast Tourism Development Program (LO-841/OC-BR), which includes basic infrastructure in the states of Pernambuco and Alagoas. In those instances where the program contemplates infrastructure in tourism areas, the corresponding state must present zoning plans which identify ecologically sensitive areas (marshes, dunes, nesting sites, etc.), and establish APA's on land. The proposed technical cooperation is seen as highly complementary to these efforts in reinforcing preventive measures in coastal areas and extending them in marine areas likely to be affected by tourism development.
- 1.13 The proposed technical cooperation is highly complementary to the Bank's efforts to include coastal and marine resources management as a strategic complement to its sustainable development mandate under the 8th Capital Replenishment. The technical cooperation will, in fact, address an important recommendation of the Bank's coastal and marine resources management strategy by supporting a demonstration project in integrated coastal management from which lessons can be applied to other areas in Brazil.

II. OBJECTIVES

- 2.1 The purpose of this technical cooperation is to establish a coastal zone management program which responds to the needs of local fishermen and other stakeholders in a marine protected area between Tamandaré (Pernambuco) and Paripueira (Alagoas). The long-term aim is to enable rural communities along approximately 120 km of coast to improve their livelihood by opening new economic opportunities made possible through management of marine and coastal ecosystems and improved municipal land use planning.
- 2.2 The specific objectives of the proposed project are the following:
 - a. build consensus on development policy for the coastal region by integrating the local entities responsible for land and marine resource management;

- b. strengthen local coastal management capacity;
 - c. improve understanding of the effects of coastal development on the area's marine ecosystems, particularly the coral reefs upon which artisanal fisheries and tourism depend; and
 - d. increase economic opportunities through the creation of employment alternatives in ecotourism, maintenance of fisheries yields and habitat conservation, and strengthened land use planning.
- 2.3 A key element will be the establishment of Brazil's first coastal reef protected area between Tamandaré and Paripueira along with a coordinated management regime for its area of influence.

III. PROJECT DESCRIPTION

A. Components

- 3.1 The project would consist of the following components:
- 1. Creation of a local institutional structure for integrated coastal management (US\$299,200)
- 3.2 The aim of this component is to consolidate and reinforce the local partnerships necessary for integrated coastal management. Key local partners will include: the local municipalities, FMM, the Department of Oceanography of UFPE, Centro Peixe-Boi, CEPENE, GERCO, IBAMA, and state environment agencies. These entities have already played a key role in promoting the declaration of the marine APA. At a meeting held in June 1997, they also called for the creation of a new local structure which would ensure that the interventions of each entity contribute to effective administration of the marine APA and improved economic opportunities for local residents.
- 3.3 This will entail a clear articulation of responsibilities for land use planning, development permitting, enforcement, fisheries and other resource management as well as mechanisms to resolve resource use conflicts in the coastal zone. To this end, the component will include the following activities leading toward the creation of a local structure: (i) in-depth stakeholder analysis with a view toward providing options for their participation in the local management structure; (ii) workshops, periodic seminars and surveys leading toward the definition of the local management committee structure, its membership and responsibilities, participatory selection process and operating rules; and (iii) formal creation of and technical assistance for a local management committee. GERCO staff will help evaluate various models for management committees and will facilitate consensus building in these initial workshops.

- 3.4 Once established, pursuant to the presidential decree declaring the Marine APA, the local management committee will be the structure used to promote better integration of land development decisions and management of the marine APA. The committee will guide: (i) the identification of priorities for local coastal management (e.g., beach erosion, coastal pollution, fisheries depletion, wildlife protection); (ii) preparation of local agreements and regulations for coastal development, land use zoning, building standards, coordinated legislation and enforcement, emergency response etc.; (iii) selection of demonstration projects (see below); and (iv) preparation of a long-term, self-financing coastal zone management strategy. The geographic information system being developed through GERCO will be at the disposal of the local management committee for preparing integrated land and marine use zoning options. In addition, as established in the decree, IBAMA will set up a permanent local supervision and control unit for the area led by a coordinator who will assist in the preparation and implementation of the management plan.
- 3.5 Initially, three small field stations will be created to implement the coastal management strategy. Each field station will be staffed with a site coordinator and will serve as a logistical base for all demonstration projects, community-based patrolling activities, environmental education and field research projects.
- 3.6 In support of these activities, the project will finance three site coordinators to be hired for 30 months and one short term social scientist who would be responsible for the consultative process (stakeholder analysis). The project will also finance the costs of organizing and holding the workshops, seminars and meetings of the management committee.

2. Marine protected area management (US\$716,100)

- 3.7 This component will contribute to the elaboration of the zoning plan for the marine APA. The aim will be to initiate and consolidate the management of the area through activities such as: (i) a comprehensive biophysical assessment of reef health in relation to changing land uses -- the first such assessment in Brazil; (ii) a management strategy for sustainable artisanal fisheries; (iii) community-based demonstration projects in integrated coastal management; and (iv) formulation of a long-term management plan for the marine APA.
- 3.8 Integrated management of the marine APA requires accurate and timely information on the conservation status of the coastal reefs and associated ecosystems upon which tourism and fisheries depend. The biophysical assessment will encompass the entire marine APA and will consist of the following field investigations:
- in-depth inventory and mapping of coastal reefs and nearby shelf areas; reefs would be classified based on their conservation status (e.g., good, fair, poor condition) in close

consultation with local fishermen who are knowledgeable of changes that have occurred in the past. The reef condition maps would be used to develop zoning proposals and other management measures for the marine APA.

- physical oceanographic survey to establish large-scale patterns in currents, sediment transport, wave/wind regime as well as specific conditions in target areas (e.g., estuaries). The results would be used to link processes in the marine with adjacent coastal watersheds, including potential effects of land-based sources of pollution;
- Survey of shoreline dynamics, bottom sediments and coastal geology using a combination of field data collection. The results would help identify shoreline stretches vulnerable to erosion. To ensure that the results are used in land use planning, vulnerability maps, proposed beach setback lines through precatory principles, and other tools would be developed with local municipalities in selected erosion-prone areas.

3.9 These biophysical investigations will be complemented by surveys of existing uses and a threat analysis which will serve as a basis for formulating the marine APA management plan. All field investigations will be carried out in consultation with, and with the participation of, local municipalities and state agencies to ensure that the results are applied in land use decisions (see below). Marine science students from UFPE will be able to participate in the field teams as part of their course work and to promote future interest in science-based management.

3.10 The project will support the development of participatory management for the region's subsistence fisheries, with the objective of improving the sustainability of all fisheries dependent on reef and mangrove systems. With technical assistance from UFPE and CEPENE, local fishermen at six villages will be trained to collect and report fisheries catch and effort data. On-site surveys will be carried out of subsistence catches in reefs and mangroves (and to ascertain the local reliance in the diet). This information will be combined with catch and by-catch statistics from the artisanal fleet belonging to local associations. A local field guide will be developed as a basis for monitoring subsistence fisheries. The monitoring will be complemented by a study of reef fish population dynamics in an effort to identify depleted or fully exploited stocks and recommend fisheries management solutions.

3.11 Several small-scale pilot projects will be carried out to help build practical experience in resource management, and to demonstrate the efficiency of management measures and the benefits that they can bring to the local communities. The success of the marine APA in meeting its objectives depends on artisanal fishermen experiencing direct benefits from management measures within a

relatively short time period. To this end, one of the demonstration projects will consist of a carefully selected reef fisheries for which local stocks recover quickly after one season (such as squid). To facilitate implementation, the "no take" zones would be established in well marked reefs. Under these circumstances fishermen will benefit from improved catches resulting from the "no take" zones contributing to the recruitment of fisheries stocks in adjacent areas. The same approach could be applied for mangrove fisheries. Another demonstration project would consist of setting aside experimental closures of heavily damaged reef areas to tour boats to accelerate recovery from anchoring and trampling.

- 3.12 The establishment of these restricted zones will be accompanied by intensive awareness activities as well as efforts to rally local users into volunteer marine patrols. The existing Paripueira municipal marine reserve will be used to demonstrate municipal-level coastal management actions. Building on the prominent success of the Peixe-Boi Project initiated in 1994, a second-stage re-introduction of stranded manatee (*Trichechus manatus*) will be carried out in suitable habitat in an effort to create a biological corridor for this endangered species.
- 3.13 In the third year of the project, the results of the biophysical assessment, fisheries management strategy and demonstration projects would be combined into a management plan for the marine APA which would be the subject of formal consultations and approval by IBAMA. The resulting protected area management plan would form an integral part of the coastal zone management strategy (see above) and would be consistent with municipal land use plans.
- 3.14 In support of these activities, the project will finance: one specialist in marine resources management for 30 months; and field assistants (approximately 17 for 30 months). The project will also finance: costs of field data collection and laboratory analysis; specialized marine monitoring equipment; costs for implementing the demonstration projects; short term consultancy in reef sonar scanning and travel and per diem for consultants and experts.

3. Strengthening of coastal communities and environmental education (US\$383,800)

- 3.15 This component will include technical assistance to the 10 coastal municipalities in the area with the specific aim of reinforcing their capacity in making sound decisions on coastal development and land use. The intent would be to build a "fast response feedback loop" where local officials would request assistance in solving local coastal management problems, alternative agricultural use for supplemental nutrition, and have access to in-situ advice combined with practical training. Activities will include: (i) training in best practices in tourism development and other coastal infrastructure and in coastal pollution control; (ii) technical assistance to municipal governments in revising their land use plans to monitor urgent problems such as beach erosion and

sustainable use of resources, and for resolving coastal use conflicts and emergency response and develop and implement sound municipality environmental legislation.

- 3.16 This component will be aimed at raising general public awareness of the benefits that can be derived from conserving coastal and marine ecosystems. A related objective will be to disseminate information and broaden support for the marine APA among local stakeholders. Activities under consideration include: (i) non-formal marine education campaign (through local media and NGOs); (ii) incorporation of marine environmental education in school and youth activities (*mentalidade maritima*); (iii) promotion of alternative sources of employment in ecotourism and income-generation; (iv) organizing groups of fishermen, women and youth; and (v) campaigns for sustainable tourism.
- 3.17 The technical assistance included in this component is designed to alleviate the tensions that currently exist between tourism development trends, conservation interests and community needs. Through the consultations undertaken on the municipal land use plans and the management plan for the marine APA, the project area will gradually gain a clear vision of its potential for ecotourism. Local government and residents will be better prepared to benefit from the opportunities offered by projects such as PRODETUR by being able to present small-scale investment proposals tailored to the unique ecology and social character of the area.
- 3.18 In support of these activities, the project will finance: a social consultant for 10 months; a specialist in environmental education for 30 months; third party services; technical and community training and organization; exhibits and publications; and equipment and material.

B. Organization and execution of the project (US\$250,200)

- 3.19 The project will have an execution period of three years and will be executed by the Fundação Mamíferos Marinhos (FMM), a non-profit, non-governmental institution, in close cooperation with the following agencies: the Department of Oceanography at UFPE, CEPENE, the National Center to Aquatic Mammals Conservation and Management-Centro Peixe-Boi/IBAMA, and the National Program for Coastal Management (GERCO) - Ministry of Environment. GERCO will designate its activities to representatives at state levels, such as the municipalities and the Pernambuco and Alagoas State Environmental Agencies (Conselho Pernambucano de Recursos Hídricos - CPRH, and Instituto de Meio Ambiente de Alagoas - IMA, respectively).
- 3.20 Established in 1989, the FMM is a locally based NGO with offices in Paripuera. With a permanent staff of 6 administrative and technical coordinators and 21 local technical assistants, FMM is promoting and developing work in environmental protection, especially related to the preservation of aquatic mammals, implementation of environmental education programs, and promotion of technical and

scientific exchange with national and international institutions. A recent included objective in the foundation's bylaws is to promote and incentivate traditional culture in the coastal and Amazon regions. FMM has cooperation agreements with the Peixe-Boi Center, PNMA (Programa Nacional do Meio Ambiente), FNMA (The National Environmental Fund), UFPE, CPRH and other public and private entities. FMM gets its funding through technical cooperation agreements, sponsors (both private and public sector), and income from the sale of products and publications on aquatic mammals preservation. In 1996, the net income from the sales (US\$175,000) covered 74% of the administrative costs.

- 3.21 FMM's main responsibilities in project execution will be: overall project coordination; recruitment, hiring and management of project staff and consultants; execution of demonstration projects and environmental education activities; acquisition of all equipment; project monitoring, reporting and financial administration. The FMM will also be responsible for the preparation of all inter-agency agreements needed for project execution. The basic agreements between FMM, UFPE, Centro Peixe-Boi, CEPENE, GERCO, IMA, CPRH and the municipalities establishing their respective responsibilities during project execution will be a requirement prior to first disbursement.
- 3.22 A Project Execution Unit (PEU) will be set up and will include the following to be financed with project funds: a full-time project coordinator, a financial assistant and two secretaries/administrative assistants (see technical files for terms of reference). The team will be complemented by four expert coordinators to be financed by the local counterpart (see below). The experts will provide additional technical oversight to the PEU.
- 3.23 The UFPE Department of Oceanography will be responsible for providing two of the expert coordinators (in reef ecology and artisanal fisheries). These coordinators would coordinate and participate in the realization of the biophysical assessment, subsistence fisheries strategy and demonstration projects as well as provide overall technical oversight to FMM for the project.
- 3.24 The Peixe-Boi Center, based in Paripueira, will be providing an expert coordinator with demonstrated experience in community-based marine conservation. CEPENE, based in Tamandaré, will provide an expert coordinator for technical and community training. In addition both institutions will provide infrastructure, logistic support and additional technical advice for project administration and execution.
- 3.25 Evidence to the satisfaction of the Bank, that the experts time be made available during project execution should be part of the agreements between FMM and UFPE, CEPENE and the Peixe-Boi Center mentioned in 3.21.

C. Monitoring and reports

- 3.26 The technical cooperation agreement to be entered into between the Bank and the executing agency will stipulate that FMM must prepare certain reports and submit them to the country office in Brazil, which will have the primary responsibility for monitoring the project. The following reports will be required:
- a. an **initial report** containing the timetable and work plan for the project components and activities, including indicators and means of verification, must be submitted within 90 days after signing of the agreement. A description of the mechanism for coordination and execution must be included;
 - b. throughout the execution period, a **progress report** on each six-month period must be submitted within 30 days after the end of the period. The report must include a description of the progress made relative to the initial plan, degree of compliance of benchmarks established, deviations and the operational plan for the next six-month period;
 - c. within 90 days following the close of each calendar year during the period of execution of the project and following the date of last disbursement, the executing agency must submit **financial statements** on the use made of the Bank's resources and of the local counterpart contribution. All the financial reports must be audited by an independent auditing firm accepted by the Bank; and,
 - d. within 60 days after completion of the project, the executing agency will submit a comprehensive final report evaluating the lessons learned from the initiative. Copies of the report will be provided to the Bank's country office and distributed at headquarters.
- 3.27 Based on the reports FMM and the Bank will jointly review and evaluate the project with the participation of key entities including UFPE. The second annual review will be a mid-term evaluation.

D. Project cost and financing

- 3.28 The total cost of this technical cooperation is estimated at US\$2,100,000. The Bank's contribution would be US\$1,750,000 chargeable to the net income of the Fund for Special Operations (FSO), local currency, and provided on a non-reimbursable basis. The local counterpart would be the equivalent of US\$350,000 being the experts salaries paid for by UFPE, CEPENE and the Peixe-Boi Center. The following table shows the costs and financing resources.

(US\$ equivalent)

COMPONENTS/CATEGORIES	BANK	LOCAL	TOTAL
<u>Administration:</u>			250,200
Project coordinator 36 months	108,000		
Financial assistant 36 months	36,000		
Secretary/Adm.asst. 36 months	18,000		
Secretary/Adm.asst. 30 months	15,000		
Experts 4x36 months		350,000	350,000
Equipment	23,200		
Material	30,000		
Auditing	20,000		
<u>I. Creation of local institutional structure:</u>			299,200
Site coordinators 3x30 months	180,000		
Social specialist 2 months	4,000		
Workshops	48,000		
Meetings	45,000		
Equipment	22,200		
<u>II. Marine protected area management:</u>			716,100
Specialist biodiversity 30 months	45,000		
Specialist Side scan 2 months	2,000		
Field assistants 17x30 months	127,500		
Travel	70,000		
Per diem	194,400		
3rd party services	80,000		
Equipment	197,200		
<u>III. Strengthening of communities and local governments:</u>			383,800
Specialist social sector 10 months	10,000		
Specialist env.education 30 months	45,000		
Community training	150,000		
Equipment	60,800		
Publication and exhibition	88,000		
Material	30,000		
Contingencies	100,700		100,700
TOTAL	1,750,000	350,000	2,100,000

- 3.29 In addition the Executing Agency will provide logistical support as well as complementary personnel at their offices in Paripueira.
- 3.30 This technical cooperation will have an execution period of 36 months calculated from the signing of the agreement. The date for final disbursement will be 42 months after that date.
- 3.31 Procurement of equipment and hiring of consulting services to be financed by the project proceeds will be conducted in accordance with national legislation. Standard procedures specified in Annexes B and C to the technical cooperation agreement will apply. All equipment purchased with project proceeds will be owned by FMM.

IV. BENEFITS AND RISKS

- 4.1 This project will launch Brazil's first truly local coastal management program designed to reconcile and integrate development processes along 120 km of coast with marine conservation

priorities. As such, the project will yield important benefits locally as well as lessons which can be transferred nationally.

- 4.2 Social benefits include enhanced transparency in municipal land use decisions affecting fishing communities and other shoreline residents; reduced resource use conflicts between artisanal fishermen, shoreline property developers, tour operators and seasonal residents; and greater economic opportunities for coastal residents. For example, artisanal fishermen who are gradually being displaced by shoreline tourism development combined with declining fisheries will gain means to improve their livelihood both by alternative employment opportunities in tourism and service-related micro-enterprises as well as gradual recovery of fisheries stocks. Local governments and a variety of shoreline residents will gain a better understanding of how to safeguard municipal infrastructure and property from the damages of beach erosion. Beneficiaries will include an estimated 7,000 artisanal fishermen and their families (a total of 35,000 people) which depend on coastal fisheries stocks for their livelihood. Another 100,000 residents living in the 10 coastal towns within the project area will benefit from improved conditions. Social and economic benefits for distinct stakeholders are summarized below:

STAKEHOLDERS	ESTIMATES	TYPES OF BENEFITS
Artisanal fishers and families	35,000	- food security - alternative sources of income (eco tourism) - reduced conflicts with commercial fishermen
Other coastal residents	100,000	-alternative sources of income -improved quality of life
Local governments	10 municipalities	- reduced land use conflicts - savings in costs for environmental protection
Ecotourism operators	1,000	- increased demand for services - improved quality of services
School children	35,000	- improved education/job alternatives - clean environment
Shorefront property owners	20,000	- reduced damages to property - maintained or improved beach conditions
Resource managers (IMA, CRHG, GERCO, IBAMA)	20	-improved conditions for consensus building and support
UFPE students	20	-improved conditions for research
Tourists (mainly nationals)	100,000 annually	-improved services -improved beach conditions -increased alternatives for ecotourism

- 4.3 Benefits are also expected in terms of avoided environmental losses from reduced physical damage to reefs, controlled beach erosion and pollution; maintenance of marine biodiversity and recovery of depleted coastal fisheries. In addition, the baseline and monitoring data acquired through the project will contribute to

better informed development decisions and more accurate impact assessments particularly in the Costa Dourada region.

- 4.4 The operation will offer important long-term benefits in terms of gained experience and improved methodologies for GERCO and its state partners in Pernambuco and Alagoas. Professional staff will gain practical experience in implementing coastal management techniques by working directly with the local management committee and municipal governments.
- 4.5 This project will be of special importance for the municipalities located in the state of Alagoas currently going through a serious financial crisis which makes it impossible for the state to get resources for investment. The implementation of the marine APA will directly benefit the 7 municipalities along the northern coastline which will receive help in the formulation of their land use plans through the project. In the medium term, those plans could constitute efficient instruments for the orientation and sustainable development of this region.
- 4.6 There are risks associated with the rate of local acceptance of innovative coastal management solutions such as reef closure areas. These risks are being minimized through the intense consultation process underlying all components of the project and the participatory nature in which all solutions will be implemented.

V. EVALUATION

- 5.1 Evaluation of this project will be an on-going process through the reports described in section III:C, to be prepared by the executing agency and forwarded to the Bank. In addition, the country office in Brazil will have basic responsibility for administration of the project and will conduct periodic inspections.

VI. SUSTAINABILITY

- 6.1 The sustainability of this project will depend on the continued cooperation among the different stakeholders in the area and their ability to allocate resources for the implementation of the management plan.
- 6.2 In component I, a comprehensive financial management strategy will be prepared which will identify and establish alternative income-generating mechanisms for the program, their collection and enforcement. This could include a combination of user fees, tour concession fees, service charges, property taxes and other levies. The strategy will also identify new facilities and services, such as visitor centers, which would be eligible for financing through PRODETUR and other existing programs and for which additional fees could be collected. The project will give the management committee and the municipalities the technical assistance needed to improve their access to these other resources. The financial strategy will

identify the funds needed on an annual basis for recurrent costs and the share of local and federal institutions for management of the federal APA.

INTEGRATED COASTAL MANAGEMENT INITIATIVE FOR TAMANDARÉ-PARIPUEIRA
Summary Logical Framework Table (TC-96-11-08-0-BR)

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p><u>Goal</u></p> <p>The protection of the "Costa dos Corais", an ecological system of great environmental, cultural, social and economic value:</p>	<p>Compared to base-line data:</p> <ul style="list-style-type: none"> - No further deterioration of coral reefs or mangroves - No decline in endangered species, increase in certain species - Improved living standards for local populations 	<ul style="list-style-type: none"> - Site inspections. - Monitoring data on reefs and water quality - Fisheries statistics 	<ul style="list-style-type: none"> - Commitment by local, state and federal governments for continued support. - little resistance from summerhouse owners and tourists to stop misusing the ecological areas.
<p><u>Purpose</u></p> <p>Active participation by local communities and other stakeholders in the management of a marine protected area (APA) between Tamandaré (PE) and Paripueira (AL).</p>	<ul style="list-style-type: none"> - A Management Committee for the marine APA being created with the participation of all relevant stakeholders - Consensus reached on the management plan for the marine APA - Coastal management strategy being implemented - Agreements and regulations being implemented 	<ul style="list-style-type: none"> - Minutes from local and regional meetings - Official registration of Management Committee and its by-laws. - Project Reports. 	<ul style="list-style-type: none"> - Formal declaration of the marine APA - Financial resources available to permit the continuation of activities. - Continued political support. - All stakeholders interested in consensus building
<p><u>Outputs (Components)</u></p> <p>1. Establishment of local structure for integrated coastal management:</p> <ul style="list-style-type: none"> • Creation of local management committee • Consensus-building on priorities and solutions • Agreements and regulations in effect <p>* Sustainable integrated management strategy in place</p> <p>2. Establishment/management of a marine protected area:</p> <ul style="list-style-type: none"> • Management strategy for sustainable artisanal fisheries in coastal reefs and mangroves • Improved understanding of effects of coastal development on marine ecosystems • Sustainable recovery in reef fisheries and coral cover <p>3. Strengthening of local coastal governments/environmental education:</p> <ul style="list-style-type: none"> • Trained government and NGO staff in coastal pollution and erosion control • Reduced conflicts between coastal activities such as tourism and fisheries • Environmental education program in place • New opportunities for employment and income generation in ecotourism and small scale mariculture 	<p>1. - Stakeholder analysis ready within 4 months</p> <ul style="list-style-type: none"> - Workshops within 6 months - Management committee created within 6 months - Committee participants in agreement on priorities - Agreements prepared within 6 months - Regulations implemented - Periodic meetings (6/yr) - Self-financing strategy ready within 30 months <p>2. - Field studies conducted within 12 months</p> <ul style="list-style-type: none"> - 17 field assistants trained within 2 months - Field guide prepared within 12 months - Periodic monitoring of fisheries, water quality and reef conditions - Demonstration projects completed within 2 years <p>3. - Staff trained in pollution/erosion control within 6 months</p> <ul style="list-style-type: none"> - 10 local governments trained in conflict resolution techniques - at least 15 community based organizations established or strengthened during project execution - Environmental education program implemented in all local schools within the course of the project execution 	<p>1. - Stakeholders analysis report</p> <ul style="list-style-type: none"> - Workshop reports - Copies of registration of Committee - Minutes from stakeholders meetings - Minutes from Committee meetings - Copies of agreements - Information about new regulations - Progress reports <p>2. - Draft and final technical reports and maps</p> <ul style="list-style-type: none"> - Monitoring data and publications - Marine APA management plan - Progress reports on demonstration projects <p>3. - Course curriculum</p> <ul style="list-style-type: none"> - List of attendants for training - Progress reports 	<ul style="list-style-type: none"> - High participation by local population in project activities. - All relevant stakeholders being represented in Committee, and their recommendations being considered.

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<u>Activities</u>			
1. Local institutional structure			
a. In-depth stakeholders analysis providing options for their participation in the local management structure	- Consultants: (Site coordinators, social specialist) 184,000	- Site inspections - Progress reports	- Availability of qualified consultants as planned. - FMM has managerial skills and will administer project execution effectively.
b. workshops, seminars and surveys	- Workshops: 48,000		- Local fishermen willing to be trained for research and beachpatrol work.
c. Creation and registration of the Management Committee	- Meetings: 45,000 - Equipment: 22,200 Subtotal Component 1: 299,200		- Favorable attitude among local population, including summer house owners toward environmental education.
d. Identification of priorities for management of the marine APA		B	- Local population interested in alternative activities.
e. Preparation of local agreements and regulations		U	
f. Selection of demonstration projects		D	
g. Development of strategy for sustainable management		G	
2. Management of the marine APA			
a. Biophysical assessment of reef health including inventory and mapping of reefs, survey of currents, monitoring of shoreline dynamics and pollution sources	- Consultants: (Biodiversity, Side Scan) 47,000 - Field assists 127,500 - Travel 70,000 - Per diem 194,400 - 3rd party serv. 80,000 - Equipment 197,200 Subtotal Component 2: 716,100	E	
b. Sustainable fisheries studies including training of field assistants, elaboration of field guide and reef fish population dynamics study		T	
c. Community based demonstration projects including field work to establish and patrol a zone for reef restoration, conduct a reintroduction of endangered wildlife (manatee), and start new ventures in marine ecotourism		E	
d. Formulation of long-term management plan for the marine APA		X	
3. Strengthening local governments			
a. Training/technical assistance in coastal pollution and erosion control for 10 rural municipalities	- Consultants: (social specialist, environm. education) 55,000 - Comm. training: 150,000 - Equipment: 60,800 - Publ./Exhib. 88,000 - Material 30,000 Subtotal component 3: 383,800	C	
b. Application of conflict resolution techniques in municipal land development		U	
c. Courses/ technical assistance for community-based organizations dependent on coastal resources and support for establishment of new such organizations		T	
d. Design of environmental education programs in local schools and for youth groups		I	
e. Design of campaigns for sustainable tourism		O	
		N	

PROPOSED RESOLUTION DE- /97

**BRAZIL. NON REIMBURSABLE TECHNICAL COOPERATION
FOR AN INTEGRATED COASTAL MANAGEMENT INITIATIVE
FOR TAMANDARE-PARIPUEIRA**

The Board of Executive Directors

RESOLVES:

1. That the President of the Bank, or such representative as he shall designate, is hereby authorized, in the name and on behalf of the Bank, to enter into such agreements with the Fundação Mamíferos Marinhos - FMM and to adopt such other measures as may be pertinent for the execution of the plan of operations referred to in Document ____ with respect to a non reimbursable technical cooperation to support an integrated coastal management initiative for Tamandaré-Paripueira.
2. That up to the equivalent of US\$1,750,000, in local currency, is authorized for the purposes of this resolution, chargeable to the net income of the Fund for Special Operations.
3. That the above-mentioned sum is to be provided on a non-reimbursable basis.