

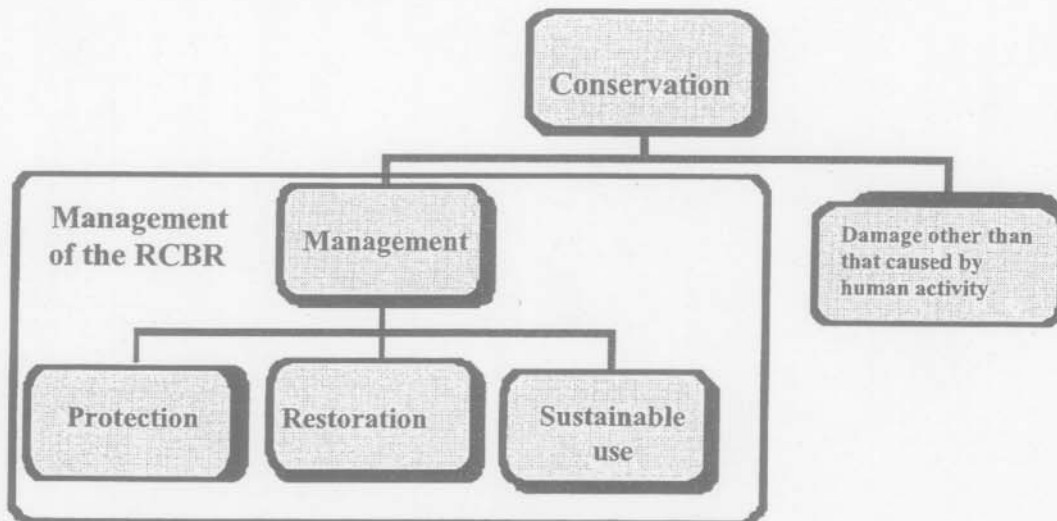
3-4. Analysis of Target Development Issues through PCM Workshop

3-4-1. Positioning of PCM Workshop on the Study

This Project's master plan is the Real Celest n Biosphere Reserve (the RCBR) Management Program¹ (hereinafter, the Management Program) currently being prepared by SEMARNAT. In this plan, terminology related to ecosystem management of the RCBR (the original language is Spanish) is used as explained below, and the Project will use the terms in the same sense.

- Conservaci n/Conservation means the condition of an ecosystem's biological diversity conserved from external threats.
- Manejo/Management means the implementation of activities that will continuously lessen the human impact on the environment².
- Protecci n/Protection means the implementation of direct activities to minimize the negative impact that human activities have on the ecosystem as part of ecosystem management.
- Restauraci n/Restoration means the artificial restoration of elements of the ecosystem that have been damaged, or the hastening of activities for its natural restoration.
- Aprovechamiento/Use means the gathering of natural resources for human survival, and the use of the functions of natural resources.

Management structure of the RCBR mentioned in the Management Program



In the Management Program, the main environmental impacts in the RCBR originate from human activities, and the management system that can comprehensively control these factors is not functioning well enough. Basic concept of the Management Program is the solution of this issue.

Therefore, the analysis on the PCM Workshop (hereinafter, the Workshop) in the First preparatory study will focus on insufficient management in the wetlands in the RCBR, .

3-4-2. Results of Problem Analysis on the Workshop

The primary issue, and the starting point of the analysis was insufficient conservation of wetlands in the RCBR . At the Workshop, the causes were analyzed in detail on approximately 140 cards; organizing and summarizing the contents yielded the following:

1. Insufficient management activities at the administration office of RCBR

This is the core problem on the analysis. There are not sufficient regulations and systemization of human activity necessary to maintain a condition in which human activity has little negative impact on the RCBR ecosystems. The management necessary for this is not yet adequately carried out by the administration office of RCBR.

(1) Information necessary for environmental management is not obtained

The current state must be correctly understood to manage the RCBR ecosystem. However, currently the related information is not sufficiently received on a sustained basis³. In particular, environmental monitoring is not sufficient, and participants affiliated with the research division have pointed out that the latest environmental information and its progress is not understood. The specifics of this issue are outlined below.

1-1) Existing research results are not integrated

The specialized level of the existing research and studies is very high, but it is often carried out independently at the various institutions, and the organization and integration of those results necessary for the management do not take place.

1-2) Insufficient research

The existing research is not enough to cover the environmental information necessary for management of the RCBR.

1-3) Insufficient monitoring

Environmental monitoring is not sufficient, as a system capable of continuous monitoring has not been created.

(2) Inadequate office management abilities

It is essential that a system be built with the participation of many stakeholders, such as local residents and the community, related administration institutions and NGOs, in order to carry out general regional environmental management. The administration office of RCBR must have coordination abilities necessary to become the core of the activities, but at present these abilities are not adequate.

2-1) Inadequate ability to plan and implement management policies

The ability to plan specific policies to carry out general regional environmental management such as orderly urban development, regulations governing land use and environmental regulations on infrastructure construction, as well as the ability to lead many stakeholders, is inadequate.

2-2) Insufficient ability to regulate illegal behavior

Surveillance of illegal behavior is not sufficient. The reasons include insufficient equipment, personnel and technology; insufficient coordination among related institutions; the administration office of RCBR—the institution that conducts surveillance—lack of judiciary authority⁴; and lack of cooperation by the community.

Other illegal behavior includes the use of lead bullets, animal poaching and illegal fishing. Illegal fishing activities include hunting prohibited species⁵, not observing fishing prohibition periods and hunting in game preserves⁶, using dragnets⁷ with mesh smaller than those prescribed by regulations and catching fry under the legal minimum size⁸. In actuality, fishing-related regulations are frequently disobeyed, but the roots of this problem are complex and originate in social problems such as the low profit returns of fishing and lack of employment opportunities. The fishermen show strong resistance against the regulations.

2-3) Insufficient ability to plan and implement policies concerning the sustainable use of natural resources

Despite over-use exceeding capacity of natural recovery, the ability to plan and implement countermeasures is not sufficient. Over-use includes overfishing¹⁰ in the fishing industry, tourist activities that obstruct the growth and behavior of plants and animals and cutting down timber for use as fuel.

Due to a program meant to find alternative employment after the collapse of the sisal hemp industry, the immigrant fisherman population in the R a Celest n region has increased dramatically in the past 15 years¹¹. Although there are limitations on the number of fishing licenses that are issued¹², alternative economic activities have not been developed.

(3) Insufficient advice and technical assistance concerning control¹³ of environmental impacts
3-1) Insufficient advice and technical assistance for environmental restoration work

There is not sufficient reforestation of mangrove and other natural trees that have been depleted due to the impact of human activities, construction of drainage in road crossings to restore canals in the wetlands and restoration activities such as stocking depleted fish species.

This is caused by the lack of a restoration program, no introduction or propagation of technology and the lack of infrastructure directly required for restoration activities such as nursery stations and fish farms.

3-2) Insufficient advice and technical assistance for urban pollution countermeasures

Urban pollution countermeasures include sewage and waste measures, regulations governing land use and regulations governing residential and public infrastructure.

The current state for each instance is recognized to be as described below. The technical assistance necessary for these countermeasures is not adequate.

- Urine¹⁴ and sewage are discharged¹⁵ from the Celest n county community, and community residents and tourists dispose of garbage¹⁶ illegally¹⁷. Garbage is often used in illegal reclamation of wetlands¹⁸. All of these factors cause contamination of wetland water quality. This is not only a negative impact on the wetland ecosystem, but it also worsens the sanitary environment of the community s residents¹⁹. However, countermeasures are not sufficient. This was a point that most participants of the Workshop agreed as having a particularly serious environmental impact.
- The construction of harbor moorings in Celest n fishing harbor and the development of residential areas could cause the fragmentation of the vegetation on the coastal sand dunes. The road between Celest n and Isla Arena²⁰ and the construction of the bridges²¹ built at the mouths of the Celest n Estuary and the Isla Arena, respectively, have a negative impact on the water quality of the wetland. Insufficient consideration is being given to minimizing the environmental impacts.
- Land is increasingly being used in an unsystematic way. Illegal housing development using reclaimed wetland, reduces the wetland area, which is the foundation of the ecosystem, and valuable vegetation on sand dunes is burned when residential areas expand to the inland areas.
- As countermeasures for forest fires and the washout of garbage collection areas²² during a flood have not been taken, it is feared that there would be significant damage to the environment in a disaster. Although there has not actually been a disaster, it is a latent problem.

(4) Insufficient environmental education

Local residents and those engaged in local industry do not adequately recognize that conservation of the natural environment provides sustainable benefits to them.

A major reason for this is insufficient environmental education, and it is a basic and crucial problem lying at the core of many problems. For example, one reason for illegal disposing and dumping of garbage and discharge of sewage is because of a lack of understanding of the conservation of their living environment. One cause of overfishing is that fishermen themselves do not understand that they are threatening their own sustainable benefits. When water level is low in the bay, tourist boats ply the wetland areas, and their disturbance of resting animals in an attempt to make them move has a negative impact on the natural environment.

Many of those in the tourist industry understand that this threatens the foundation of their own lives. However, some in this industry are not sympathetic, and they recognize that they need to establish order²³ themselves.

Even if monitoring and regulations are strengthened, without awareness on the part of those stakeholders, the situation will fall into a negative cycle of regulations and environmental destruction, and RCBR s conservation will not be improved.

2. Insufficient implementation of projects to conserve environment

The environmental restoration work and pollution countermeasures described in 3-1) and 3-2) suffer not only from lack of technical assistance from related fields, but not enough implementation of projects. For example, one of the direct causes of waste matter and sewage contamination is the lack of public services,²⁴ including the necessary infrastructure and the system that manages such infrastructure.

By all rights, implementation should be carried out by those causing environmental damage and administrative institutions, but in actuality they are not sufficiently implemented.

3. Insufficient regulations governing use of natural resources

Due to the insufficient regulations described below, human economic activities carried out within the reserve have a negative impact on the wetland ecosystem.

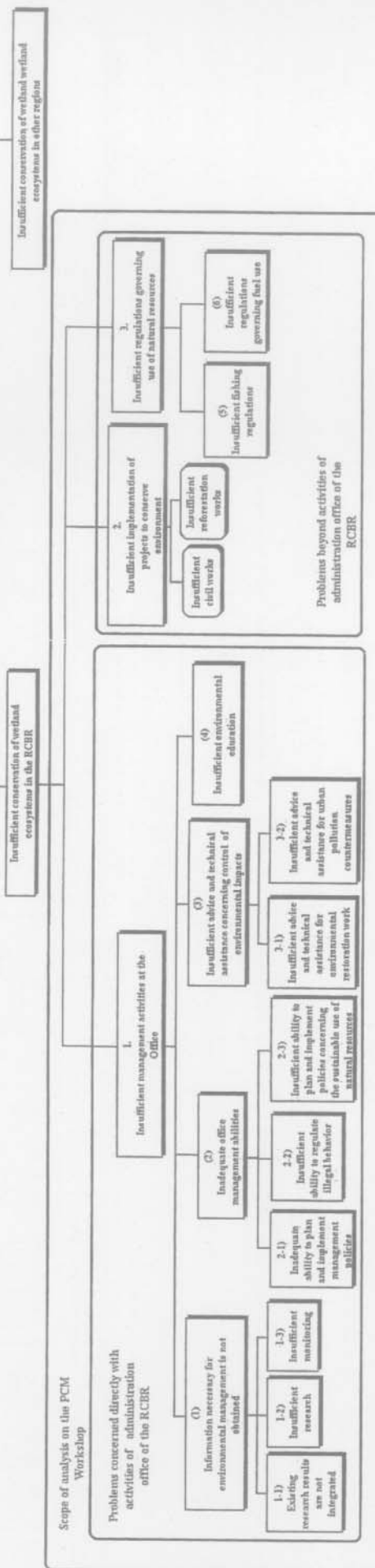
(5) Insufficient fishing regulations

This means the use of illegal fishing implements, a cause of overfishing. Specifically, this points to the illegal fishing implements used to catch sea bass, octopus and crab and dragnets with extreme fine mesh.

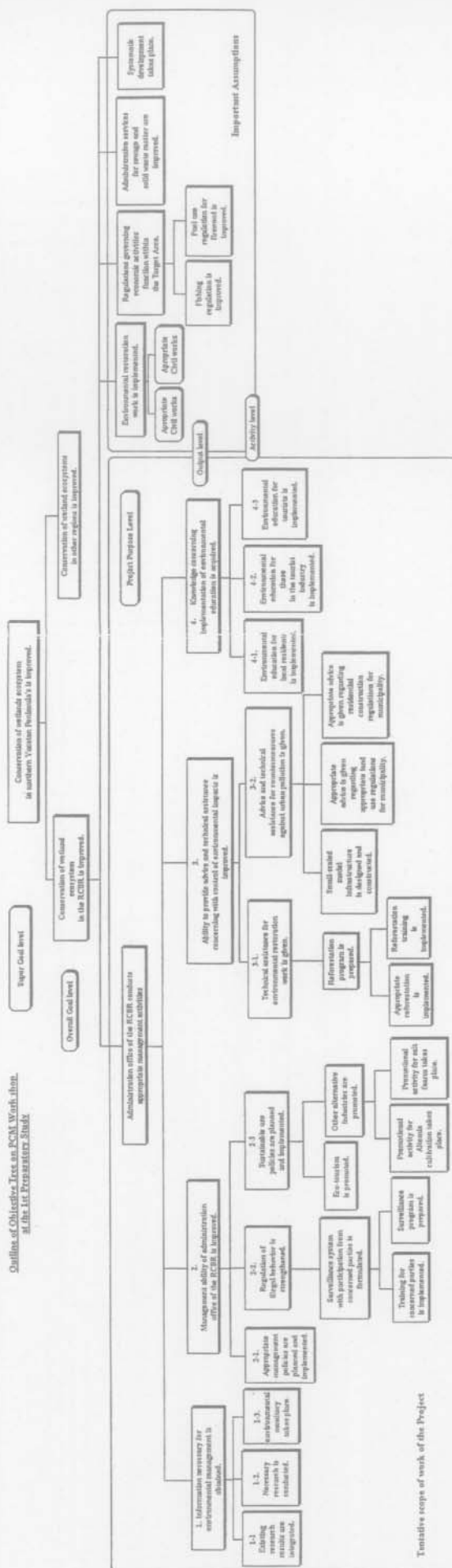
(6) Insufficient regulations governing fuel use

The use of coastal vegetation such as mangrove for fuel has only just begun, and use of trees is limited to home use. It is accepted that the environment impact by their use as fuel is not serious, but in the future regulations of use will be necessary.

Outline of Problem Tree on PCM Work shop
at the 1st Preparatory Study



Outline of Objectives Text as PCN Work Item
in the LIFE PREPARATORY PHASE



5. Master Plan of the Project

In the First Preparatory Study, in order to emphasize decisions concerning the Project's general framework, the PDM will consist only of subjects on margins of the table, Project Summary, Preconditions and Important Assumptions, and other items will be investigated in detail after the Second Study.

5-1. Scenario from Project Purpose to Super Goal

<Project Purpose>

- This Project's purpose is the appropriate activities of administration the office of RCBR so that it can become the core of regional environmental management.

<Overall Goal>

- With this as the foundation, the RCBR's wetland conservation is improved.

<Super Goal>

- While coordinating with the accomplishment status of projects implemented in other regions such as RLBR, the conservation of the wetland ecosystem of the northern Yucatan Peninsula is improved.

Relationship to the Project and beneficiaries

Super Goal: Conservation of wetland ecosystems in northern Yucatan peninsula is improved	
<p><u>Overall Goal:</u> Conservation wetland ecosystem in the RCBR is improved</p> <p>Beneficiaries: Wetland ecosystem including residents of Celest n reserve</p>	Impact Wetland ecosystems including northern Yucatan peninsula residents
<p><u>Project Purpose:</u> The administration office of RCBR conducts appropriate management activities</p> <p>Target Group: The residents in the RCBR area and those concerned with wetland ecosystem management.</p>	Impact

5-2. Project purpose

Project purpose: The administration office of RCBR conducts appropriate management activities.
Target group: Residents in the RCBR area and those concerned with management of wetland ecosystem.

As described before, management of wetland ecosystems means the implementation of activities that will continuously lessen the human impact on the environment, as used in the Management Program, and extend through the following three areas.

- Protection of ecosystems
- Environmental restoration
- Sustainable use of natural resources

The project purpose is the improvement of the general regional environmental management abilities, encompassing all concerned parties, through the achievement of activities and outputs in all three of the above areas, and appropriate activities on the part of the office to build a structure that will enable this.

Ultimately, it is necessary to completely secure a management structure including administrative institutions, but as it is difficult to accomplish this subject within the implementation term of the Project, the Project Purpose will be as described above.

The residents—who are also participants in regional environmental management—are a part of the beneficiary groups of the achievement of the Project Purpose. The Target Group is the Project's ultimate beneficiary—the residents in the RCBR area and those concerned with wetland ecosystem management. Specifically, the beneficiaries will be all stakeholders participating in RCBR's regional environmental management structure, including administration office of RCBR as direct counterpart institution, related NGOs, administrative organizations and local residents.

5-3. Overall Goal

Overall Goal: Conservation of wetland ecosystem in the RCBR is improved.

This applies to Direct Results on Objective Analysis in the Workshop.

The overall goal means that conservation of wetland ecosystem in the RCBR is improved using regional environmental management abilities improved by achievement of the Project Purpose.

5-4. Super goal

Super goal: Conservation of wetlands ecosystem in northern Yucatan Peninsula s is improved.

As a result of improved conservation of RCBR and RLBR s wetland ecosystem, the impact will promote the integration of wetland ecosystem management in the northern Yucatan Peninsula.

This improvement of conservation is the ultimate aim. It is essential that experiences in both reserves have an impact on conservation in other reserves.

5-5. Output and Activities

The accomplishment of all output must be continuously maintained. The Activities include the construction of the necessary sustainable systems (organizations, funds, technology, personnel).

As it is impossible for administration office of RCBR to manage directly all the diverse activities, the Project will lead the job division and coordination of related institutions such as administrative organizations and NGOs,²⁵ as well as constructive use of local sub-contracting.

Since there are uncertain elements, the designation of the Ramsar Convention of Wetlands as a Project output will not be included in the Narrative Summary.

5-5-1. Outputs 1 and Activities

Output 1: Information necessary for environmental management is obtained.

Activity 1-1.: Existing research results are integrated .

Activity 1-2.: Necessary research is conducted.

1-2-1. List of necessary research is prepared.

1-2-2. Necessary research is conducted by contracting with existing research institutions.

Activity 1-3.: Environmental monitory takes place.

1-3-1. Monitoring plan is prepared.

1-3-2. Monitoring is implemented.

Output 1. is the basis of all output. A system that will continuously collect environmental information, for the purpose of RCBR management, will be built, and environmental information about wetland ecosystems will be integrated so that it is systematic.

In activity 1-1 it is necessary that an organization be established as the platform to integrate the existing research²⁶ results carried out separately at each institution. It will have to be determined whether inadequate research will be conducted directly by the Project (activity 1-2), conducted with technical and financial assistance from other institutions or not carried out by the Project, based on the content of the research.

In activity 1-3, a continuous monitoring system will be built through technology transfers. Institutions that had previously worked independently will be brought into a technical and financial cooperative structure. At the Workshop, it was suggested that an environmental information center be established, but it is necessary to review the scope of implementation while considering the scale of Project implementation.

It would be efficient to integrate the information from output 1-1 through 1-3 with GIS for management. Existing GIS includes the environmental zoning and socio-economic information prepared by PRONATURA, and it would be efficient to improve the system and supplement of the information. As Mexico already has sophisticated GIS preparation technology²⁷, it should be possible to improve the system through consignment to local institutions.

Monitoring of water quality, hydrology and birds was implemented in the RLBR, making coordination, affiliations and use of experiences possible.

5-5-2. Output 2 and Activities

Output 2: Management ability of the administration office of RCBR is improved.

Activity 2-1.: Appropriate management policies are planned and implemented.

Activity 2-2.: Regulation of illegal behavior is strengthened.

2-2-1.: Surveillance program is prepared.

2-2-2.: Surveillance system with participation from concerned parties is formulated.

2-2-3.: Training for concerned parties is implemented.

Activity 2-3.: Sustainable use policies are planned and implemented.

2-3-1.: Eco-tourism is promoted.

2-3-1-1.: Eco-tourism policies are planned and implemented.

2-3-1-2.: Eco-tourism institutions are coordinated with and given assistance.

2-3-2.: Other alternative industries are promoted.

Output 2. is improvement of ability to implement policies in line with the Management Program. Specifically, the office's general management abilities will be strengthened, enabling better surveillance and the promotion of alternative industries.

The staff of the office conduct surveillance, but their direct surveillance will not completely regulate illegal behavior as the reserve area is extremely large and they do not have police authority. It is therefore necessary to create a self-regulating system by local residents and tourist boatmen and a participatory system in which residents and concerned parties conduct independent surveillance. However, it is also necessary to take some physical measures, such as boundary markers against the incursion of hunters from peripheral areas. For these activities, it is essential to build up affiliations with related institutions such as the police and PROFEPA.

Activity 2-3 concerns the promotion of alternative industries in place of the tourist boat industry and fishing, which have already reached the saturation point. PRONATURA, UNDP, the government and research institutions have assisted alternative industries for the RCBR area society since the late 1980s, and this Project's activities will not require the development of new technology, due to affiliations with these institutions and the use of existing technology. However, in fostering alternative industries, technology problems are less important than overcoming socio-economic obstacles²⁸, and it will be necessary to promote them, including fund raising and development of commercialization system after conducting a general feasibility study. Industries with technology that can be used currently or that can be developed are cultivation (crab, *Altemia*, coastal fishes), eco-tourism²⁹ and handicrafts. Residents are also interested in tourist industries such as beach activities, sports fishing, kayaking, salt farm tours and bird watching.

5-5-3. Output 3 and Activities

Output 3: Ability to provide advice and technical assistance concerning with control of environmental impacts is improved.

Activity 3-1.: Technical assistance for environmental restoration work is given.

3-1-1.: Reforestation program is prepared.

3-1-2.: Reforestation training is implemented.

3-1-3.: Appropriate reforestation is implemented.

Activity 3-2.: Advice and technical assistance for countermeasures against urban pollution is given.

3-2-1.: Small-scaled model infrastructure is designed and constructed.

3-2-2.: Appropriate advice is given regarding appropriate land use regulations for municipality.

3-2-3.: Appropriate advice is given regarding residential construction regulations for municipality.

Output 3 is the restoration of forests that have been damaged (activity 3-1) and the promotion of urban pollution measures (activity 3-2).

The following activities are necessary for environmental restoration in this area:

- Construction work to expand the span of the bridge on the mouth of the estuary of R a Celest n and Isla Arena
- Construction of culverts to improve the hydrologic condition of both shores of the road connecting R a Celest n and Isla Arena
- Reforestation of vegetation that was damaged, such as mangrove and palm trees

Among these activities, a) and b) involve large-scale facilities and reconstruction work that would require significant funds; therefore, it was agreed that they will not be a target of Output-3 in this Project.

Three years previously, a nursery station was set up for planting in the RLBR, and since the RCBR is in the beginning stages, technical assistance will be given. Assistance might also be given for small-scale dredging work.

The following measures will be necessary to fundamentally resolve environmental pollution from solid waste matter and sewage:

- d) Studies concerning pollution countermeasures
- e) Review of legal regulations
- f) Reform of administrative services such as garbage collection
- g) Construction of infrastructure such as garbage collection sites, sewage treatment facilities and drainage ducts

Among these, e) and f) are issues that exceed the supervisory scope of the administration office of RCBR—a main counterpart institution—but as they are important issues for reserve conservation, the municipality will be given administrative advice and assistance in environmentally sustainable administrations. As g) exceeds the budget limitations of the Project-type Technical Cooperation Scheme by JICA, it will be limited to discussion of facility plans, design and fund raising, using a local consultant. The possibility of expanded assistance for the construction of model infrastructure will continue to be discussed.

Currently, land use regulations based on zoning and infrastructure construction regulations are not in place in the reserve. The cause is the absence of a system that regulates unsystematic development and administrative institution's lack of specialized knowledge concerning environmental administration. This is an administrative problem that exceeds the authority of the administration office of RCBR, but as regulations governing land use and development activities are crucial issues for reserve management, the Project will offer advice to create an efficient system.

In activity 3-2, MUCEM is promoting the spread of improved toilets (baño seco ecología), receiving aid from fellow NGO PRONATURA.

5-5-4. Output 4 and Activities

Output 4: Knowledge concerning implementation of environmental education is acquired.
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Activity 4-1: Environmental education for local residents is implemented. Activity 4-2: Environmental education for those in the tourist industry is implemented. Activity 4-3: Environmental education for tourists is implemented.

Output 4 is the basic support of the other Outputs and the foundations of the achievement of the Project purpose.

The goal of environmental education is to give residents a sense of pride in the valuable land they live in, and encourage them to take a leading role in environmental conservation. The targets of environmental education are the local residents, tourists, students and young children and tourist boat guides, but it is difficult for the Project to directly conduct environmental education for all of those related. Therefore, a strategy in which environmental education is given first to the core group and this group then expands activities to include the other concerned parties will be more efficient. The focus groups—which PRONATURA, as a community leader, has been helping to foster—are those in the tourist boat industry, members of the health committee and residential NGOs (GECE and MUCEM).

PRONATURA prepared an environmental program³⁰ for 2001 - 2010, and in activity 2-1 an environmental education program in coordination with the former program will be prepared.

5.6 Implementation strategy for activities

It is essential that the current state of RCBR's environmental information be understood. To do this, activity 1-1 must be started, and these results will serve as feedback in the activities from activity 2. and onward.

Project activities are the creation of a general regional environmental management system that includes the local residents and related institutions in RCBR's surrounding area. Without the participation of these major players, the Project's activities cannot be implemented. Because the region has complex socio-economic problems, the Project must proceed with activities while fully taking into account these problems and offering incentives to residents and all the other stakeholders. To gain residents' cooperation, activity 2-3 must be started at an early stage, continuing with other activities while encouraging residents with the Project's incentives.

Through each activity, the technology transfers necessary to achieve Outputs will be carried out, as well as the creation of an implementation structure for each activity. The ultimate goal is the construction of an integrated regional environmental management structure for conservation of the RCBR. There will be various participants in this structure, including the administration office of RCBR, local residents, administrative institutions, research institutions and related NGOs. The RCBR office will coordinate between these groups and guide activities. Thus, Project implementation requires an expansion of the management office's authority vis-à-vis the administrative institutions.

5.7 Commitments from the Mexican side

(1) Establishment of a steering committee

Although coordination of related Mexican institutions was agreed to in the Minutes of Meetings, the

establishment of a steering committee for Project implementation must be discussed again in the second study.

(2) Securing buildings necessary for Project implementation

As the current reserve office is confined, CONANP will borrow the PRONATURA or DUMAC office for use as the experts' workspace. The Japanese side is discussing the possibility of constructing a building for the administration office of RCBR in the Project.

(3) Securing counterpart staff

There are currently only five staff in the administration office of RCBR, and as they will serve as the Project's counterpart staff, this is not sufficient for Project implementation. The Japanese side has made a formal request to the Mexican side that the staff be increased.

(4) Participation of the Lagartos staff in the Project

As the experience accumulated in RLBR and technology use are necessary for Project implementation, it has been agreed that part of the RLBR's management office staff will participate in the Project as counterpart staff.

(5) Securing VAT budget

Although value-added tax (VAT) is necessary for donated equipment procured within Mexico, the Mexican side has agreed to take responsibility for this. However, it is necessary to go through budget request procedures the previous fiscal year to secure a budget, so the Mexican side must be notified of the sum the previous fiscal year.

5-8. Comments from USAID

After the completion of the first preparatory study, there was a conference with the general director of the USAID Mexico office, Mr. Paul White, and based on the Japan-U.S. common agenda, he made the following two comments concerning aid cooperation with USAID:

- It is essential that PRONATURA participate in the Project through consignment of a portion of the Project activities to PRONATURA and participation in joint committees.
- The PDM attached to the minutes of the meeting was coordinated with the Management Program prepared with USAID assistance.

5-9. Inputs

At this point, the expected input is as follows:

5-9-1. Input from Japanese side

(1) Long-term experts

1) Chief adviser (one person)

The chief adviser will have an understanding of the content and background of the project-type technical cooperation by JICA, will have knowledge and experience about the conservation of wetland environments and be capable of technical coordination. The chief adviser should have environmental administration knowledge, as well as ecological knowledge. Proficiency in English and Spanish is preferable.

2) Coordinator (one person)

The coordinator will understand JICA's Project method technology cooperation, and must respect and deeply understand Mexico and Latin America's socio-economy and culture. The coordinator must be proficient in English and Spanish.

(2) Short-term experts

Appropriate short-term experts will be chosen, including recruits from Mexico and a third country, and dispatched. At this point, the dispatch of short-term experts from the following areas is being considered:

- 1) Environmental administration
- 2) Environmental monitoring general theory
- 3) Individual monitoring technology including detection and analysis
- 4) Environmental education
- 5) Surveillance system
- 6) Cultivation of coastal fish species (crab, shrimp, shellfish, coastal fish species)
- 7) Altemia cultivation
- 8) Promotion of organization of fishermen
- 9) Eco-tourism
- 10) Handicrafts
- 11) Alternative tourist activities
- 12) Urban development

- 13) Sewage countermeasures
- 14) Garbage countermeasures
- 15) Reforestation

(3) Acceptance of counterpart trainee

Counterparts from the Mexican side will be sent to Japan or a third country.

(4) Donated machinery and equipment

Equipment and machinery essential to Project activities will be donated.

The Mexican side will take responsibility for customs duties and VAT that may apply to the equipment and machinery.

(5) Local cost

Local cost for activities of Japanese Experts will be provided.

5-9-2. Inputs from the Mexican side

(1) Counterpart staff

Counterpart staff will be allocated to the administration office of RCBR. At this point, staff to supervise the following fields is presumed necessary, although they may hold more than one post concurrently. RLBR management office staff must be included in the counterpart staff.

Each staff must have knowledge and motivation to learn concerning their area.

- 1) Team leader
- 2) Environmental administration
- 3) Environmental information
- 4) Monitoring technology
- 5) Environmental education
- 6) Surveillance
- 7) Alternative economic activities
- 8) Countermeasures for sewage and waste matter
- 9) Environmental restoration

(2) Secretary

(3) Office staff

(4) Drivers

(5) Land, buildings, facilities

Infrastructure to be used as the Project offices for the Japanese expert and Mexican staff's workspace and conference space will be prepared before the Project begins. This will include the provision of energy such as electricity, waterworks and gas, and air-conditioning units.

(6) Cars

(7) Expenses necessary for Project implementation

- Customs duty on equipment supplied through JICA, expenses for storage, domestic transportation, installation, transfers and maintenance
- Expenses for a portion of the necessary equipment other than that supplied through JICA, facilities, tools, vehicles, spare parts and the purchase and transfer of other materials
- All other expenses necessary for Project implementation, such as the following: salary for staff on the Mexican side, stipends and domestic official business trips; electricity, gas, waterworks, fuel expenses; raw material expenses, expenses for training implementation; facility maintenance expenses.

5-10. Analysis of Important Assumptions

Consideration of Important Assumptions, while also examining the Project outputs and activities range, will be planned in detail for the second study. They should be the approaches and cards that were not adopted in the Narrative Summary in the PDM on the Project selection process in the Workshop. The current Important Assumptions are described below.

5-10-1. Important Assumptions at the Super Goal level

- Regional society can maintain interdependent life with the wetland ecosystems.

5-10-2. Important Assumptions at the Overall Goal level

- Conservation of wetland ecosystems in other regions is improved.

Conservation in the other wetland ecosystems other than the RCBR must be improved and be synchronized in order to improve integrated conservation of wetland ecosystems in the connected northern Yucatan peninsula.

5-10-3. Important Assumptions at the Project Purpose level

- Environmental restoration work is implemented.
- Regulations governing economic activities function within the Target Area.

Administrative institutions and those influencing the environment will receive advice and technical assistance through the Project, and it is essential that environmental restoration work be implemented and environmental regulations function efficiently.

- The reserve's natural environment is not destroyed in natural disasters.
- Administrative services for sewage and solid waste matter improve.

This issue cannot be fundamentally solved unless infrastructure is built and incidental services implemented. The Project will offer plans, designs and advice, but it will be necessary to consider including other items in Important Assumptions.

- Systematic development takes place.

Systematic development means the adoption of Project advice such as restraints on population influx, regulations governing land use and construction of environment-friendly infrastructure and development that takes environmental conservation into consideration.

5-10-4. Important Assumptions at the Output level

- Policies of related institutions, organizational structures and budgets do not significantly change
- Fishing regulations improve.

Fishing regulations should be realistic regulations that the fishermen can agree on and respect. Therefore, it has been suggested that fishing regulations be reformed to include a participatory decision process.

- Fuel use regulations for firewood are improved.

5-10-5. Important Assumptions for Activities

- Mexican side's counterpart staff continue Project employment.
- Those who received training continue at the RCBR.

It is particularly important that the Mexican side's counterpart staff and those who received training continue to be involved in the Project, as this is tied to the maintenance of transferred technology and the output.

- Customs clearance, consumption tax procurement and transportation procedures are not delayed.

Large-scale equipment will likely need to be procured for monitoring implementation and promotion of alternative economic activities; the arrival time of donated equipment greatly influences the time at which the output is achieved. The Mexican side will be responsible for any consumption tax applied to equipment procured locally, but it is essential that an accurate plan for equipment input be prepared in cooperation between the two countries to ensure well-planned budget procurement.

5-10. Pre-conditions

- Parties concerned and related institutions do not oppose Project implementation.
- Project is supplied with necessary Mexican side counterpart staff.
- Buildings necessary for Project implementation are secured.

7. Project's basic plan

7-1. PDM

The PDM as of completion of the first preparatory study is described the next page.