CAPIBARIBE MELHOR PROJECT
ENVIRONMENTAL IMPACT ASSESSMENT
EXECUTIVE SUMMARY

1. INTRODUCTION

The general objective of the Capibaribe Melhor Project is to create the appropriate conditions for improving the urban and socio-economic situation of people living in a part of the Basin of the River Capibaribe, located downstream from highway BR-101 and stretching down to Avenue Agamenon Magalhães. The Project, which will be developed over a period of five years, involves funding of the order of US$52.5 million. The main thrust of the Project will comprise the following:

Component 1 - Integrated Urbanization of the Territory. The idea is to provide better quality urban spaces in the area covered by the Project through the creation and recovery of a physical infrastructure that will benefit leisure activities, sanitation, macro-drainage, access and mobility.

Component 2 - Social and Economic Development of the Territory. This component involves activities concerned with the development of health and environmental education, support for income improvement and employment, development of sporting and cultural potential and encouragement for popular participation and social control.

Component 3 - Institutional Development. Embracing a group of activities aimed at strengthening physical, financial and environmental management within the local municipal authority.

The Project was classified as category “A” by the World Bank in accordance with its safeguard policies (OP 4.01). At the preparation stage of the Project, an Environmental Impact Assessment (EIA) was drawn up with the aim of identifying the potential environmental impact of the Project, to put forward mitigating and compensatory measures to counteract the negative and maximize the positive impacts of the Project. An Environmental Management Plan (EMP) was subsequently submitted in which all these measures would be considered to be part of the Project. The following document summarizes the results of the Environmental Assessment.

2. BACKGROUND

The municipality of Recife, capital of the state of Pernambuco, is situated in the centre-east of the Northeast region of Brazil, covering an area of 220 square kilometers, with a population of 1,422,905 inhabitants - according to the IBGE Census for year 2000. The entire population of the Recife municipality is located in the urban area. The municipality is the hub of the respective Metropolitan Region and suffers accordingly from a number of demographic, social and economic problems resulting from the uncontrolled process of urbanization. This is reflected in growing deterioration of the housing and working conditions of the population and the consequent lowering of people's quality of life. Rapid urban growth is also highlighted by the accompanying environmental degradation and in the increasing social and economic vulnerability of the lower income groups within the population.
The Project embraces an area within the basin of the Capibaribe River. The eastern boundary of the area is formed by the Agamenon Magalhães Avenue, to the west by BR-101, to the north by Avenida Norte and to the south by Avenida Caxagá.

![Figure 1: Boundaries of the area covered by the Capibaribe Melhor Project](image)

Approximately 56,349 families live in this area, forming a total population of around 225,396 inhabitants. The population is distributed in 36 neighborhoods with 116,244 people living on the "right bank" of the Capibaribe River, while 109,152 have made their homes on the "left bank".

Recife possesses a high deficit of green area per inhabitant (ie: green space containing leisure installations/equipments). At present this ratio amounts to 0.70m² per inhabitant, which is contrary to a number of rulings, including State Law 9.990 which recommends an area of 6m² /inhab. The United Nations recommends 12m² /inhab.

The area covered by the Project suffers from a lack of sewage and wastewater disposal facilities. This has been responsible for polluting the Capibaribe River, its tributaries and the Açude de Apipucos. The direct result has been serious degradation of the water quality of the above and deterioration of the environmental quality of the entire region. In the area of the Project located on the right bank of the Capibaribe River there is no conventional sewage system. Its 8 ‘non-conventional’ sewage systems (SES) serve 12% of the dwelling units in the area while the rest of the region has no sewage collection at all. Most of the left bank area of the Capibaribe River falls within the ‘Peixinhos System’ and two non-conventional sewage systems are still in working order. Almost all of the above-mentioned existing systems have fallen into disrepair, do not work properly and need repair.

The Açude de Apipucos is seriously polluted as a result of sewage and garbage entering its hydrographic basin. These effluents reach the açude through the drainage system of the basin. Cleaning activities are frequently required on account of the huge proliferation of aquatic plants of the *Eichhornia crassipes* variety, also known in Portuguese as *baronesa* or *aguape*. Due to
their fast growth rate in nutrient-rich waters, this community of plants has taken over large areas of the water surface effectively undermining the Açude.

The water supply system in the Project area also presents a number of serious problems, mainly because of the intermittent and unmetered supply system. The situation is made even worse on account of the high leakage rate.

The area covered by the Project is crisscrossed by 19 drainage canals. This canal system runs across low gradient sedimentary surfaces (planicies). The following situations have been observed with respect to these canals: (i) a lowering of the river channel and the canal beds; (ii) increasing occupation of natural flood plains/meadows (várzeas); (iii) silting up; (iv) accumulation of garbage and vegetable matter as well as a variety of other obstructions. These factors make it difficult for the water to run normally through the canals and flooding is obviously a high risk as a result. Since rainwater is frequently mixed with sewage, health risks certainly exist for the communities affected by flooding.

The Capibaribe River cuts across the Project area from west to east, forming a geographical boundary which divides the north from the south region - mainly along the stretch between the II and IV Perimetral Metropolitana: respectively the Rúa José Bonifácio and the BR-101. Thus the road system in this region is essentially regulated by the Capibaribe River and the bridges on the Perimetral Metropolitana II and the BR-101. This is where the main traffic flows converge, causing frequent traffic congestion.

3. MAIN ACTIVITIES OF THE PROJECT

3.1 COMPONENT 1: INTEGRATED URBANIZATION OF THE TERRITORY

3.1.1 PARKS AND GREEN AREAS

The Project plans interventions in three urban parks of Recife by means of initiatives aimed at rehabilitating and expanding two of them (the Caiara and Santana Parks) and the implementation of a third intervention at Parque Apipucos. The latter involves urbanizing and greening (tree planting) on the banks of the Açude de Apipucos, located on the left bank of the Capibaribe River. The Caiara Park will be rehabilitated and the 'Caiara Multicultural Improvement Project' installed there. The Parque de Santana will be increased in size and its existing infrastructure made good. Furthermore, plans are underway to establish the City Academy Project (Projeto Academia da Cidade) under the aegis of the Project.

3.1.2 WATER AND SEWAGE MACRO SYSTEM

(A) Sewage

Interventions planned for the sewage system are as follows:

Right bank of the Capibaribe River – the ‘Cordeiro System’

- implementation of part of the Cordeiro System based on sewage units UE 39 and 40 (sewage networks, emissaries and elevators) including integrated sanitation in 12 poor areas\(^1\) as well as the rehabilitation of five isolated existing sewage systems (SES)\(^2\) all located in Sewage Units 39 and 40;
- integrated sanitation in Caranguejo and Tabaias\(^3\) (UE-45/Cabanga System);
- rehabilitation of the Santa Luzia isolated sewage system (UE-41);
- implementation of the first stage of the Cordeiro Sewage Treatment Station – ‘ETE Cordeiro’ (with a capacity to serve the UEs 39 and 40, equivalent to 33% of the Cordeiro System).

Left bank of the Capibaribe River - Peixinhos System

- repair and rehabilitation of the two existing isolated sewage systems: SES Caetés/Laura Gondim and SES Poço da Panela, together with the introduction of integrated sanitation in 4 poor areas 4 to be connected to the Peixinhos System.

(B) Water Supply

A number of steps will be taken to improve service provision, to implement sectorization and more effective operational control, with a view to optimizing the water supply system.

3.1.3 REHABILITATION OF THE MACRO DRAINAGE SYSTEM

The Project plans to rehabilitate 11 canals (ABC, Buriti-Macaxeira, Caiara, Jenipapo, Parnamirim, Prado, Santa Rosa, São Mateus, Serpro, Sport, Valença) through a series of initiatives to improve drainage and the state of the surrounding landscape. Six settlements exist on the banks that need to be relocated either because of their precarious state (‘palafitas’ - shacks built on stilts) or because the buildings have been erected on top of the walls of the canals and effectively occupy ‘public areas’. The remaining dwellings do not need to be relocated: while some of the buildings need to be finished in order to reduce maintenance and cleaning costs, others will benefit in some way from Project initiatives. The activities proposed for improving the macro drainage system will be of direct benefit to a population of approximately 78,560 inhabitants residing in the areas near to the 11 canals for which interventions are planned.

3.1.4 INCREASING URBAN MOBILITY AND ACCESSIBILITY

The interventions in the road system within the Project area aim to facilitate mobility of the local population and to afford access to both banks of the Capibaribe River. Steps to be taken include providing roads running along the river, bridges etc and access to a range of urban equipments (mainly those to be installed under the Capibaribe Melhor Project). With the aim of endowing the implementation of the road activities with a degree of flexibility, the interventions have been divided into seven different segments, as follows:

**Group A – Semi-perimetric sub-system:** Left Bank ⇒ Semi-perimetric viaduct, Rua 19 de Abril, Rua Pinto Campos and lateral roads, Rua Tapacurá, Rótula Encanamento- Arraial/ Av. 17 de Agosto, Rótula Rua 19 de Abril and Av. 17 de Agosto, stretch between ‘rótulas’ on Av. 17 de Agosto / Right Bank ⇒ Rua Maria de Fátima Soares, Rua Itapiranga, Via Lindeira to Rio Capibaribe (between Rua Itapiranga and Ponte do Barqueiro), Rua Jomalista Possidônia Cavalcanti, Rua José Pessoa de Queiroz and Estrada do Barbalho.

1 Poor areas Right Bank: Airton Senna, Barbalho, Invasão São João, Santa Marta, Skylab, Vila São Pedro, Detran, Itapiranga, Barão de Soledade, Caiara Bomba Grande, Marquês de Queluz, Vila Genésio (total population of 13,239).
2 SES: Barbalho, Skylab, Skylab I, Vila São João, Vila União
3 Caranguejo /Tábares: Population estimated at 3,930 inhabitants.
4 Poor areas Left Bank: Vila São João, Vila Esperança, Cabocó, Ilha das Cobras (total population of 2,556 inhab.)
Group B - Integration semi-perimetric to Radial V (binary): Right Bank ⇒ Rua Dom Diamantino Costa, Rua Maria de Fátima Soares and Rua Pereira Coutinho Filho.

Group C - Integration semi-perimetric to Parque do Caiara: Right Bank ⇒ Rua Palmital and extensions (stretch between Rua Itapiranga and Parque do Caiara), Via Lindeira to Parque do Caiara (between Rua Palmital and Rua Dr. José Anastácio da Silva Guimarães), Rua Leal de Barros and Via Lindeira to Parque do Caiara (stretch between Rua Leal de Barros and Radial V).

Conjunto D – Sub-system III perimetric: Left Bank ⇒ Ponte da III perimetric, Rua do Chacon, Rua Oliveira Góes, Rua Dona Olegarina de Cunha and lateral roads, Rua João Cauás, Rua Dr. Luís Ribeiro Bastos, Vias Lindeiras to the Rio Capibaribe (stretch between Rua Oliveira Góes and Rua Jorge Gomes de Sá) and Rua Santana / Right Bank ⇒ Av. Prof. Estevão Francisco da Costa, Rua São Bento do Norte, Via Lindeira to the Capibaribe (stretch between Rua São Bento do Norte and Av. Prof. Estevão Francisco da Costa), lateral roads to Av. Prof. Estevão Francisco da Costa and III perimetric, roads around the Casarão do Cordeiro.

Conjunto E – Integração Parque Santana/ Av. 17 de Agosto/ Av. Rui Barbosa – local internal roads): Left Bank ⇒ Rua João Santos Filho, Rua Saulo Suassuna, Rua Leonardo Bezerra Cavalcanti, Rua José Gomes de Sá/ Rua Afonso Albuquerque de Melo and Rua Igarrassu (stretch between Rua Igarrassu and Rua Leonardo Bezerra Cavalcanti, 200 meters).

Conjunto F – Estrada do Encanamento Binary/ Estrada do Arraial: Left Bank ⇒ Estrada do Encanamento, Estrada do Arraial, Av. 17 de Agosto and Rua Desembargador Gois Cavalcanti.

Conjunto G – Semi-perimetric Integration / III perimetric (1km-local internal roads): Left Bank ⇒ Rua Jorge Albuquerque, Rua Dr. Seixas, Rua Marechal Bitencourt/ Rua Engenheiro Jair Furtado Meireles, Rua Joaquim Xavier Andrade, Rua Tapacura, Rua Luis Guimarães and Estrada Real do Poço (stretch between Rua Luis Guimarães and Rua Marechal Bitencourt).

On account of the budget revisions concerning implementation of the road system and the limitations on resource availability, whereas implementation of groups A, B, C, F and E were awarded priority (in this order). Groups D and G will be implemented according to the financial availability of the Recife Prefecture and/or with the participation of the private sector. An assessment of the environmental impact of the entire proposed road scheme will nevertheless be presented.

3.1.5 RESETTLEMENT

The Capibaribe Melhor Project will lead to the relocation of 1,453 families located in the areas either directly or indirectly affected by the Project (See Table 3).

<table>
<thead>
<tr>
<th>Component</th>
<th>Families to be resettled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water and sewage macro-system</td>
<td>997</td>
</tr>
<tr>
<td>Macrodrainage</td>
<td>306</td>
</tr>
<tr>
<td>Road system</td>
<td>150</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,453</strong></td>
</tr>
</tbody>
</table>

In view of the non-availability of the executive Projects related to the proposed interventions, a Conceptual Resettlement Framework was developed during the preparation stage of the Capibaribe Melhor Project pending development of the future definitive Resettlement Plan to
deal with the affected families. In order to identify possible sites for resettlement of the families to be resettled, a number of field visits were carried out and areas were identified that were near to where the families were to be moved from, thereby keeping disruption to a minimum.

- **Interventions in poor areas**

On the basis of Component-1 (Integrated Urbanization of the Territory), the Project plans interventions in 25 poor areas located in its coverage area. These areas contain 19,725 inhabitants (See Table 2):

Table 2

<table>
<thead>
<tr>
<th>Locality</th>
<th>Poor Area</th>
<th>Proposed Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right Bank Rio Capibaribe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - Airton Senna</td>
<td>Integrated sanitation</td>
<td></td>
</tr>
<tr>
<td>2 - Barão de Soledade</td>
<td>Integrated sanitation</td>
<td></td>
</tr>
<tr>
<td>3 - Barbalho</td>
<td>Integrated sanitation</td>
<td></td>
</tr>
<tr>
<td>4 - Calaré/Bomba Grande</td>
<td>Integrated sanitation</td>
<td></td>
</tr>
<tr>
<td>5 - Caranguejo Tabaiaras</td>
<td>Integrated sanitation</td>
<td></td>
</tr>
<tr>
<td>6 - Deltran</td>
<td>Integrated sanitation</td>
<td></td>
</tr>
<tr>
<td>7 - Invasão São João</td>
<td>Integrated sanitation</td>
<td></td>
</tr>
<tr>
<td>8 - Itapiranga</td>
<td>Integrated sanitation</td>
<td></td>
</tr>
<tr>
<td>9 - Marquês de Queluz</td>
<td>Integrated sanitation</td>
<td></td>
</tr>
<tr>
<td>10 - Santa Luzia</td>
<td>Recovery of SES</td>
<td></td>
</tr>
<tr>
<td>11 - Santa Marta</td>
<td>Integrated sanitation</td>
<td></td>
</tr>
<tr>
<td>12 - Skylab</td>
<td>Integrated sanitation</td>
<td></td>
</tr>
<tr>
<td>13 - Skylab I</td>
<td>Recovery of SES</td>
<td></td>
</tr>
<tr>
<td>14 - Vila Genésio</td>
<td>Integrated sanitation</td>
<td></td>
</tr>
<tr>
<td>15 - Vila São João</td>
<td>Recovery of SES</td>
<td></td>
</tr>
<tr>
<td>16 - Vila São Pedro</td>
<td>Integrated sanitation</td>
<td></td>
</tr>
<tr>
<td>17 - Vila União</td>
<td>Recovery of SES</td>
<td></td>
</tr>
<tr>
<td>Left Bank Rio Capibaribe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 - Cabocó</td>
<td>Integrated sanitation</td>
<td></td>
</tr>
<tr>
<td>19 - Caetés/Laura Gondim</td>
<td>Recovery of SES</td>
<td></td>
</tr>
<tr>
<td>20 - Ilha das Cobras</td>
<td>Integrated sanitation and Recovery of canal</td>
<td></td>
</tr>
<tr>
<td>21 - N. Senhora Conceição</td>
<td>Road system</td>
<td></td>
</tr>
<tr>
<td>22 - Poço da Panela</td>
<td>Recovery of SES</td>
<td></td>
</tr>
<tr>
<td>23 - Vila Esperança</td>
<td>Integrated sanitation</td>
<td></td>
</tr>
<tr>
<td>24 - Vila Inaldo Martins</td>
<td>Road system (total removal)</td>
<td></td>
</tr>
<tr>
<td>25 - ZEIS Vila São João</td>
<td>Integrated sanitation</td>
<td></td>
</tr>
</tbody>
</table>

5 Integrated sanitation will bring about improvements in the water supply, drainage and sewage systems. It will also improve street paving, family resettlement, health and environmental education, better domestic sanitation and plumbing installations, domestic water and sewage connections and, finally, vector control.

### 3.2 COMPONENT 2: SOCIAL AND ECONOMIC DEVELOPMENT OF THE TERRITORY

This component aims to bolster the development of participative and economically entrepreneurial communities and at the same time to educate communities in the need to preserve the natural and built environment in the places where they live (throughout the city of Recife). The following activities are planned:
3.3.1 DEVELOPMENT OF ENVIRONMENTAL AND HEALTH EDUCATION: actions to instill environmental and health awareness by demonstrating and justifying the relevance of the need to preserve the environment;

3.3.2 SUPPORT FOR INCOME IMPROVEMENT AND EMPLOYMENT: support to be given to individual or collective small businesses with the objective of generating better incomes for workers and expanding employment opportunities. The following actions are proposed: (i) establishment of a Public Center for the Promotion of Employment and Income; (ii) setting up of two Solid Waste Screening Facilities; (iii) enhancing public water transport in small watercraft.

3.3.3 DEVELOPMENT OF SPORTING AND CULTURAL POTENTIAL: involves training facilitators to help improve existing sport and leisure facilities, thereby improving development of sporting and cultural activities among the local population.

3.3.4 FOSTERING URBAN PROPERTY DEVELOPMENT: diagnosis of the area covered by the Project in order to identify areas of interest for implementation of urban property development and the creation of a databank to maintain a proper record of the same. In addition, two seminars will be held to disseminate property and urban planning opportunities.

3.3.5 POPULAR PARTICIPATION AND SOCIAL CONTROL: to increase popular participation and social control on the basis of key activities: (i) mobilization and social communication activities; (ii) implementation of five Community Civil Defense Units (NUDECS) in ‘precarious’ settlements throughout the area covered by the Project.

3.3 COMPONENT 3: INSTITUTIONAL DEVELOPMENT

This component consists of a group of actions aimed at assisting the organs within the Municipal Prefecture of Recife that have direct responsibilities in the field of activity covered by the Project, to exercise their functions more efficiently and efficaciously. The following activities are planned:

3.3.1 PROGRAMME FOR IMPROVING THE PHYSICAL AND FINANCIAL MANAGEMENT OF THE MUNICIPALITY: to reinforce the physical and financial administration of Recife, which should result in improved tax revenue, enhanced quality of budgetary execution, reduced administrative costs and raised investment capacity for the future.

3.3.2: MUNICIPAL ENVIRONMENTAL MANAGEMENT: structuring and strengthening the municipal environmental management of Recife through the following activities: (i) structuring and installation of the Sub-Committee of the Basin of the River Capibaribe of the RMR; (ii) structuring and implementation of the Municipal Policy for Environmental Education; (iii) regulating four Special Environmental Protection Zones (ZEPAs) [Ilha do Zeca, Açude de Apiipucos, Iputinga-Apipucos, Parque das Capivaras]; (iv) municipalization of environmental licensing; and (v) up-scaling environmental enforcement activities.

3.3.3: MANAGEMENT, MONITORING AND ASSESSMENT OF THE PROJECT: developing management mechanisms for the execution, supervision and dissemination of activities undertaken under the Capibaribe Melhor Project, together with an assessment of results based upon management and performance indicators coordinated by the Management Unit (UGP) of the Project to be established under the aegis of URB-Recife, with the assistance of a specialist consultancy.
4. ENVIRONMENTAL ANALYSIS TO COMPLY WITH WORLD BANK SAFEGUARD POLICIES.

The Capibaribe Melhor Project was classified as category “A” in accordance with the environmental policies of the World Bank. The following safeguards were activated: (i) Environmental Assessment (PO/PB 4.01); (ii) Natural Habitats (PO/PB 4.04); (iii) Cultural Property (PO 11.03); (iv) Family Resettlement (PO/PB 4.12); and (v) Pest Management (PO 4.09).

4.1 PO/PB 4.01 - ENVIRONMENTAL ASSESSMENT OP 4.01

During the preparatory stage of the Capibaribe Melhor Project, the present Environmental Assessment Report was prepared in accordance with the terms of reference approved by the World Bank team, in order to comply with the environmental policies of the Bank applicable to category “A” Projects.

The EIA examined the potential positive and negative environmental impacts of the proposed Project, comparing them with viable alternatives and possible different scenarios (including under-performance of the Project) and recommended a series of necessary measures designed to avoid, minimize, mitigate or compensate for adverse impacts while (i) maximizing the positive impacts and (ii) improving performance with respect to environmental management initiatives under the aegis of the Project.

The mitigating measures of the negative impacts were included in an Environmental Management Plan (EMP) involving incorporation of an environmental management system during the implementation of the undertaking. Eleven environmental programs were in fact proposed. Costings were drawn up for each programme, together with schedules. Reference was made to the bodies that would be responsible for program implementation.

Given that environmental degradation in the Basin of the Capibaribe has reached appalling levels, particularly in the area planned for Project intervention, and the obvious need to improve living conditions for the population involved, the Project clearly presents a positive environmental externality. It is important to emphasize that this Project comprises a group of interventions of an urbanistic, environmental and social nature. As such, the Project is intended to improve the environmental situation in the Capibaribe basin and help reduce the urban and social vulnerability of the population. The Project in this respect plans investments with a view to improving the dwelling conditions of a total of 19,725 people living in 25 poor areas within the Project area.

Together with the above interventions, a number of environmental protection initiatives were conceived. The key initiatives covered activities focused on (i) the implementation and recovery of three urban parks; (ii) the regulation of four ZEPAs located in and around the Project area; and (iii) the structuring and installation of the Subcommittee of the Basin of the Capibaribe River of the RMR (Recife Metropolitan Region). As a complement to the above, activities to reinforce municipal environmental management, principally with respect to the municipalization of the environmental licensing procedures and up-scaling environmental enforcement, are of great importance for the sustainability of the Project given that the municipal environmental management structure was set up recently (2001) and is still in the formative stage.

During project preparation several public consultation were conducted during meetings with CPRH, Ministerio Publico, and micro-regional forums of participatory budget program. Public consultations of this EIA took place on January 9, 2006 (see 8.Public Consultations).
4.2 PO/PB 4.04 - NATURAL HABITAT

The Natural Habitat Safeguards Policy was activated by the Capibaribe Melhor Project in view of the proposals for interventions in permanent conservation areas (APPs), according to Municipal Law 16.930/2003 and on the area of land protected under the Parque Apipucos ZEPA, which will be the site of the aforementioned park. In accordance with Law 16.609 of 2000, the Parque Apipucos Conservation Unit was set up within the Parque Apipucos ZEPA to afford special protection for the existing ecosystems within the area. However, the ZEPAs and the Conservation Unit have not yet been regulated.

The APPs of the Capibaribe Melhor Project comprise the following: (i) a 120 metre long strip along the banks of the Capibaribe River (width varying between 60 to 130 metres); (ii) a 40 metre long strip along the other watercourses of up to 10 metres wide; (iii) of 15 metre strip around the wet perimeter of the Açude de Apipucos; (iv) the manguezal (mangrove swamp) area.

According to Municipal Law 16.930/2003, which is compatible with the National Forest Code, the total or partial removal of permanent conservation vegetation will be allowed only for executing works, plans, activities or projects that are considered to be of public or social interest and providing prior agreement has been given by the Municipal Environmental and Urban Development Councils and express authorization has been handed down by the Municipal Executive Power. The APPs of the Capibaride Melhor Project relate in effect to the urbanized areas in accordance with the Forestry Code. They aim to comply with the ‘minimum strips specifications’ as defined in the Forestry Code in line with the urban reality of the locality and with the objective of minimizing social impacts. Thus, the Capibaride Melhor Project considered two main aspects, as follows:

- restrictions and possibilities of the environmental legislation related to the subject;
- final state-wide studies and planning. For example, ETE Cordeiro, which planning includes basic studies inside PQA (IBRD) and the sanitation master plan of the Recife Metropolitan Region.

The municipality of Recife, in conformity with the requirements of the Code covering permits for urbanized areas, possesses an Environmental Council (COMAM) with deliberative power and a ‘Master Plan’. This latter body is responsible for assessing requests for removal of vegetation or the maintenance of areas occupied within the APPs.

In order to verify any changes that had been caused by the implementation of the Capibaribe Project in the Permanent Conservation Areas alongside the Capibaribe River, an aerial photography survey was carried out. This survey produced the following results:
Since various interventions have been planned under the aegis of the Project (parks, ETE, roads etc) in the area bordering the Capibaribe River, it was obvious that increased occupation would take place along the APP strip. Before the Project, 70.5% of the APP was occupied whereas after the Project had been implemented 80.5% of the area will be occupied. Therefore, it is important to clarify and define exactly what "occupation of APP" is, which without a careful analysis could lead to inconsistent discussions.

The reduction of the free area in the APP strip is substantially due to the: expansion of the park areas, the implantation of the ETE Cordeiro, and the availability of the family resettlement areas.

The conclusion from observing the park intervention is that although the parks are occupying a larger area 9,40ha, this area is not necessarily impermeable or native vegetation elimination area. It is quite the opposite, even though part of the area is occupied with equipments, the implantation of the park will increase the green areas available to the population, considering that vegetation will be preserved and riverside vegetation will be recovered. Also, the implantation of the parks is a determinant factor in the APP preservation of irregular occupation, particularly when considering the occupation of the edges of rivers and creeks in the city of Recife. Therefore, the implantation of parks should definitely not be considered as damaging occupation to the APP.
Regarding ETE Cordeiro, it is key to mention that the implantation area was not determined by the technical team of the Capibaribe Melhor Project, but defined by a series of studies that preceded the project, several of them financed by international institutions which evaluate the implantation of all sewerage systems (not only of the Recife municipality but the entire metropolitan area). The studies, more specifically the PQA (IBRD) and master plan of sewerage of the Recife metropolitan region, evaluated several potential areas for the implantation of the ETE and decided for the area where the Capibaribe Melhor Project in been implemented based on technical and environmental criteria. Moreover, the ETE represents a significant environmental improvement for the region and is the first instrument of a bigger project which views the implantation of sewerage treatment for the entire Capibaribe Basin.

The two areas recommended for family resettlement should be considered as potential areas for resettlement and not as permanent areas. It should be mentioned that the family resettlement plan for families affected by the Project has not yet been designed and these areas may be substituted by others which the Prefecture and the population consider appropriate for the affected families. Independently, if APP areas in the Project are to be used for this purpose, it is mandatory that the APP strip within a minimum distance of 30m of the river edge be unoccupied. Finally, the APP of the Capibaribe River in the Project area is considered to be an altered urban area, with degraded parts by human activities, including occupations of less constructive standards. The interventions proposed aim at recovering these areas.

Thus, it is possible to conclude that the Project will have a highly positive impact on the natural habitat since it will: finance investments in the three parks and green areas of the city, empty out the encroached channels, empty out APP areas occupied by irregular housing, and promote the sewerage treatment of part of the sewerage that is currently thrown “in natura” into the Capibaribe river, which would contribute to the beginning of the process of river recover. In all respects, the Project will carefully and substantially mitigate the impact that will be caused to the APPs. Moreover, the Project will provide funding for regulating the four ZEPAs located in the area covered by the Project.

4.3 PO/PB 4.12 -INVOLUNTARY RESETTLEMENT

It is estimated at 1,453 families will be re-settled as a result of the implementation of the interventions proposed under the aegis of the Project. In order to comply with the requirements of World Bank resettlement policy and to plan correctly the resettlement of the families that will be affected by the interventions of the Capibaribe Melhor Project, a Conceptual Resettlement Framework was drawn up, pending elaboration of the PDRI during the first year of the Project. The choice of a Conceptual Framework is justified by the fact that the physical interventions remain to be detailed at basic Project level. For identification of potential land where families could be re-settled, a series of field visits was carried out and plots identified near to the areas from which families are to removed- which should help minimize the negative impacts of resettlement.

4.4 PO/PB 4.09-PEST MANAGEMENT

Since the Project takes into account activities for creating and improving the three urban parks of Recife, it is necessary to activate the Pest Management Safeguard in order to minimize the environmental dangers and impacts on public health due to the use of pesticides in green areas.

The urban parks of Recife are maintained and conserved by the Urban Cleansing and Maintenance Company EMLURB. In the area of plant health, the Prefecture needs to control two
principal pests at present: termites and ants. The places where treatment is going to be applied is
previously visited by agronomist who determines the quantity and type of procedures necessary.
In the case of termites, the material that is required for spraying consists of an insecticide
piretrine and piretroid of low toxicity (deltramine). For ants, a granulated substance (sulframide)
is used as bait, of toxicity class IV (low toxicity). In compliance with the requirements under
Federal Law number 9.974/00, the empty pesticide receptacles are rinsed three times and together
with the material employed in the procedures described above are stored in suitable places
registered by ANDEF and ANDAV.

4.5 PO 4.11 CULTURAL HERITAGE

The Cultural Heritage Safeguard was activated by the Capibaribe Melhor Project given that the
area covered by the Project is of great historical and cultural importance, comprising 13 Special
Historical and Cultural Heritage Preservation Zones of the total of 33 such a zones existing in the
entire municipality. Some of the proposed interventions are located around or nearby the ZEPH,
but none has direct impact on the ZEPH.

During the implementation of the works, activities requiring the use of heavy equipment could
interfere with the ZEPH located near to the interventions. The following are the main sites at
risk: ZEPH 15 – Casa Grande do Engenho Barbalho (near to the Comunidade Airton Senna and
Santa Marta); ZEPH 02 - Apipucos and ZEPH 05 - Poço da Panela. Damage could be caused by
activity close to any of these sites. The Prefecture of Recife needs to require contractors to adopt
specific steps to avoid damage during the execution of works near to the ZEPAs. Detailed
procedures can be found in the Environmental Construction Plan (PAC). In order to comply with
the Protection of Cultural Heritage Policy, strict procedures will be included in building contracts
when significant historical and cultural assets are at stake.

4.6 SUMMARY OF SAFEGUARDS ACTIVATED BY THE PROJECT AND
MITIGATION MEASURES

<table>
<thead>
<tr>
<th>Safeguards Activated by the Project</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Assessment OP 4.01</td>
<td>EIA, EMP and Public Consultations</td>
</tr>
<tr>
<td>Natural Habitat OP/BP 4.04</td>
<td>Constructive Methods to Replace Permanent Conservation Vegetation, Study Program and Research to Preserve Açude de Apipucos, Park Management Plan, Rio Capibaribe Water Quality Monitoring Program, ETE Cordeiro Operation and Monitoring Program</td>
</tr>
<tr>
<td>Pest Management - OP 4.09</td>
<td>Control of Procedures Related to the Use of Pesticides in the Parks and Green Areas</td>
</tr>
<tr>
<td>Cultural Heritage - OP 4.11</td>
<td>Specific Requirements to avoid damage to the ZEPHs during the Implementation of works. Detailed procedures for the execution of works described in the Environmental Construction Plan.</td>
</tr>
</tbody>
</table>

5. ENVIRONMENTAL ANALYSIS TO COMPLY WITH BRAZILIAN ENVIRONMENTAL LEGISLATION; ENVIRONMENTAL PERMIT QUESTIONS

The licensing system adopted by the State of Pernambuco (CPRH) is based upon the allocation of
four licensing documents which constitute legal instruments. In addition, the Environmental Impact Study is regarded by the State authorities as a technical and scientific instrument employed in the course of the Environmental Impact Assessment (AIA) for assessing
undertakings/initiatives that could bring about significant changes in the environment, and prior to awarding them environmental permits

- **I. Preliminary Permit (LP)** - this is given at the preliminary stage of planning any activity and contains the basic requirements to be complied with when selecting localities, preparing plans for installation and operation of activities. It serves to ensure awareness of rules of compliance with municipal, state or federal planning rules regarding land-use.

- **II. Installation Permit (LI)** - authorizing the ‘go-ahead’ for establishment of a specific activity in accordance with the specifications set forth in the Approved Executive Project.

- **III. Operation Permit (LO)** - authorizing, after the necessary verification steps have been taken, the ‘go-ahead’ for the licensed activity and its control mechanisms in accordance with the procedures contained in the ‘preliminary’ and ‘installation permits’.

- **Authorizations** - legal instruments allowing activities that may cause some alterations to the environment to proceed within a defined timescale. The period of validity varies according to the type of activity to be undertaken.

In order to comply with Brazilian environmental legislation and that of the State of Pernambuco, the investments planned for the Project must be submitted to the environmental licensing process administered by CPRH, as described above. The Capibaribe Melhor Project will have a Preliminary Environmental Permit (LP), with an IA/RIMA for the Project as a whole. As work on the planning of the different interventions proceeds, these will be eligible for their respective Installation Permits (LI). The process of licensing the Capibaribe Melhor Project began in June 2005, at which time the undertaking was registered in CPRH on the basis of completion of the ‘Form for Undertakings and Miscellaneous Works’.

**6. OVERALL ENVIRONMENTAL IMPACTS**

Given that environmental degradation in the basin of the Capibaribe has reached shocking levels, particularly in the area planned for Project intervention, and in view of the need to improve the living conditions of the population involved, it is obvious that the Project clearly presents a positive environmental externality. It should be particularly noted that the forecast of impacts is ‘generic’ since none of the interventions proposed in the Capibaribe Melhor Project has been detailed in the Basic Project.

It can be seen that the majority of the negative impacts refers to the execution phase of the works. It is necessary to emphasize however that these impacts at generally are on a minor scale, localised and likely to be of short duration, confined to the period during which works will be in progress.

It is important to highlight that this Project comprises a group of interventions of an urbanistic, environmental and social nature that aim to improve the environmental situation in the Capibaribe Basin. The Project also embraces a multiplicity of activities designed to improve living conditions and urban infrastructure by relocating people to better-quality dwellings and to improve environmental sanitation in an area of serious water pollution, as well as to upscale drainage systems and improve and extend parks and green areas. The Project in this respect plans investments with a view to improving the housing conditions of a total of 19,725 people living in 25 poor areas within the Project area.

It needs to be reiterated that the different activities have been submitted as an integral part of the Project and will be dealt with jointly on the basis of prior planning, thereby guaranteeing environmentally sustainable solutions.
6.1 POSITIVE ENVIRONMENTAL IMPACTS

6.1.1 PLANNING AND IMPLEMENTATION OF WORKS STAGE

In the planning stage the main positive impacts consist of an improvement in associative working methods, particularly as regards liaison between the Municipal Secretariat and other bodies involved in the Project. In order to maximize the potential of these impacts a number of activities concerned with social communication, environmental education, community participation, environmental and social management will be undertaken. At the time of execution of the works, the main positive impact will be an increase in the availability of employment for the population, providing appeals are made to the construction companies to give priority to contracting people from the local community.

6.1.2 OPERATIONAL STAGE

(A) Parks and Green Areas

Bearing in mind that there will be no need to expropriate and relocate the population, the establishment of the Parque Apipucos, the rehabilitation of Parque Caiara and the expansion of the Parque Santana will incur highly positive impacts for the population benefited by the Project and for the municipality as a whole, with the creation of better conditions for thousands of city dwellers to enjoy decent spaces in which to practice leisure and sporting activities, surrounded by the renewed vegetation of the urban area. Since the interventions concerning the parks will be accompanied by better access, the people living on both sides of the Capibaribe River will be able to visit these facilities more regularly. Consolidated public use of leisure areas on both banks of the Capibaribe River will be able to reduce the pressure exerted by inappropriate settlements on the Environmental Protection Agency and will at the same time serve as a response to the growing demands for facilities of this type - considered to be important for integrating the resident population into an area of an increasingly densely populated city.

(B) Water and Sewage Macro System

The proposed implementation and recovery of the sewage systems will eliminate the need to empty domestic sewage directly onto the ground or into the drainage system, thereby improving the sanitary conditions of the area covered by the Project and reflecting positively on the health conditions of the local population. Positive environmental impacts will be further increased by the implementation of the programme consisting of the elimination of crossed connections (illegal connections made on the sewage network) in the UE 39 and 40. Moreover, the operation of the proposed system will result in an improvement in the quality of the water of the Capibaribe River and its tributaries within the area of the Project through the establishment of a system for collecting and treating domestic effluent. This particular intervention will not only benefit the local environment but will also improve the quality of life of people living in the area and those in the area is situated downstream from these watercourses.

Installing integrated sanitation in selected poor areas will improve living conditions for 19,725 inhabitants as a result of the following: (i) better accessibility; (ii) elimination of informal garbage dumps; (iii) facilities for channeling rainwater; (iv) improved sanitary and health conditions of the population; (v) increased control over irregular activities. These impacts will be strengthened on the basis of Environmental Education and Popular Participation Activities designed to motivate participation by the community and to encourage the formation of community associations and/or interest groups aimed at ensuring the long-term sustainability of the improvements.
The proposed interventions for the water supply system will improve the system substantially by improving the operation, reducing leakage and avoiding water rationing in the area covered by the Project.

The positive impacts related to the water and sewage macrosystem are significant and permanent. It is expected that they will help to reduce urban, environmental and social vulnerability of the population residing in the Project area. In order to reinforce and guarantee the beneficial effects of this intervention, the Project plans the development of social communication, community participation, environmental and health education activities together with a system of environmental management.

(C) Recovery of the Macro Drainage System

The recovery of the 11 canals under the aegis of the Project will result in the following positive impacts: (i) improvements to the drainage capacities of the canals and of the surrounding landscape conditions; (ii) cleaning activities made easier; (iii) reduction of flooding, which will bring considerable improvements to the quality of life of the population residing near to the canals; (iv) will contribute to returning strips of public land (at present occupied) to the public domain which will make enforcement more efficient and efficacious. In order to maximize the positive impacts, the Project has planned the development of environmental education activities aimed at increasing environmental awareness -mainly of the population living on the River banks- basically to teach them not to dispose of solid waste in the network of macro drainage canals.

(D) Increasing Mobility and Urban Accessibility

The interventions concerned with improvements in the road system proposed under the Project will improve the traffic flow in the area of influence of the undertaking by integrating the two sides of the Capibaribe River thereby bringing about improved integration of the two neighborhoods separated by the River as well as substantially improving urban mobility to other parts of the city. A further positive impact that has been foreseen by the Project is encouraging the use of bicycles and improved safety for cyclists on the basis of establishing cycle paths (ciclovias).

(E) Social and Economic Development of the Territory

This component is predominantly positive. It will provide incentives for the development of participative and economic league entrepreneurial communities in the area covered by the Project. At the same time this component will still into these communities the need to preserve and conserve the natural and the built environment in the places where they live.

(F) Institutional Development

In the institutional development component also possesses strong positive appeal since it will permit up-scaling of personnel training in a number of different thematic areas of interest to the Project, particularly operational modernization and the strengthening of the environmental capacity of the Prefecture. The following are the expected positive impacts of this component: (i) improvement in physical and financial management of Recife; (ii) strengthening of municipal environmental management with initiatives that will have a decisive effect on the sustainability of the Project given that the environmental management structure of the municipality was established recently (2001) and is still at the formative stage.
6.2 NEGATIVE ENVIRONMENTAL IMPACTS

6.2.1 PLANNING AND WORKS IMPLEMENTATION STAGE

In the planning phase, the main impacts will be the generation of expectations among the resident population in the Project intervention areas. The following three basic activities will be undertaken: social communication, environmental education and community participation, all of which are designed to make the population aware of the real benefits that will flow from the interventions. These activities will be also useful for ensuring participation by the population in the Project and enable the potential beneficiaries of the Project to be appropriately informed.

The majority of infrastructural interventions will have negative impacts but they will be localised and small-scale arising from the actual works. They can be mitigated with adequate planning of execution of interventions and good building procedures.

(A) Impacts during the Works Stage

An Environmental Construction Plan (PAC) was drawn up as a guide to appropriate environmental practices which must be complied with by the contractors executing the various works. The environmental construction plan involves among other things: (i) environmental management of the construction sites and the accommodation set aside for construction workers; (ii) environmental control of the building activities, covering noise control, working hours, leveling activities, ditching, land-filling, transport and temporary stocking of materials, building rubble or civil construction inputs, etc; (iii) security measures for site workers and to protect the local population; (iv) traffic control; (v) repair of buildings, streets and public service equipment that could be damaged during works; (vi) handling and disposal of material dredged from rivers and canals; (vii) control and rehabilitation of the areas used for construction work and storage of new and used materials, etc; (viii) strict requirements for environmental rules to be followed by suppliers of materials.

(B) Land Expropriation

With the aim of compiling a register the Prefecture of Recife is collecting data on owners of the land where the interventions will take place. At present, it is not possible to quantify the impacts caused by possible land expropriation. Nevertheless if expropriation becomes necessary, an Expropriation and Involuntary Resettlement Plan will be drawn up, to guarantee that expropriation occurs peacefully and in accordance with guidelines laid down by the Prefecture of Recife and the World Bank.

(C) Relocation and Resettlement of Families

The proposed interventions will result in the resettlement of 1,453 families. The change of residence of families from the localities where they have lived for many years is a significant negative impact and anxiety can be generated by having to move to a new location. Other downside effects include peoples’ need to adapt to a new and better constructed home and the breaking of neighborhood ties. The high density typical of the Project can also generate a negative impact unless resettlement is accompanied by measures guaranteeing environmental quality of the area (the possibility of the future environmental deterioration of the area, as for example occurred in other popular ‘housing settlements’). With the aim of guaranteeing trouble-free resettlement of the families and in accordance with the guidelines laid down by the Prefecture
of Recife and the World Bank, an Expropriation and Involuntary Resettlement Plan should be drawn up forthwith.

6.2.2 OPERATIONAL STAGE

(A)  Parks and Green Areas

The Parks run the risk of being under-utilized unless an appropriate working structure and efficient administration is put in place. This negative impact could be mitigated by implementing the Management Plan for the Apipucos, Santana and Caiara parks. Furthermore, in order to guarantee the sustainability of the Parks public-private partnerships will be offered the management of these parks.

A eutrophisation assessment was drawn up of the Açude de Apipucos based on application of the CEPIS model, taking into consideration three scenarios: (i) Scenario 1 - tendencial; (ii) Scenario 2 - installing a bypass for the canal and tributary waters that feed Cell No 1 (proposed by the Project); (iii) Scenario 3 - total removal of the sewage at present flowing into the Açude. Given the nonexistence of consistent data referring to discharge measurement and the phosphorous concentration in the tributaries of the Açude, an assessment of the phosphorous load was not possible based on the concentrations and outflows. In order to estimate a figure for the phosphorous load, data was used from relevant literature regarding flows created by domestic waste water and superficial drainage. The results, taking into account the dry season are presented in the following table:

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Cell</th>
<th>Result</th>
<th>ConcentrationP (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>100% hypereutrophic</td>
<td>3,844</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>100% hypereutrophic</td>
<td>6,306</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>100% hypereutrophic</td>
<td>3,844</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>100% hypereutrophic</td>
<td>4,306</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>19.26% hypereutrophic</td>
<td>0,138</td>
</tr>
<tr>
<td></td>
<td></td>
<td>74.90% eutrophic</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.83% mesotrophic</td>
<td></td>
</tr>
</tbody>
</table>

These simulations demonstrate that the alternatives suggested for removing all the sewage generated in the basin of the Açude are not sufficient to completely resolve the eutrophization of the Açude. Unfortunately, although the bypass alternative (Scenario 2 - installing a bypass for the canal and tributary waters that feed Cell No 1) initially appeared promising and would have been a relatively low price investment, it did not turn out to be as efficient as expected. Consequently, this method is not to be recommended for recovering the environmental degradation of the Açude.

Despite the lack of data, the model demonstrated that the Açude de Apipucos is at present extremely degraded from an environmental point of view and steps are needed which are likely to involve structural and nonstructural initiatives. Proposing such solutions however requires a deeper level of understanding of the hydrological, hydraulic and limnological conditions existing in the Açude. The elaboration of a programme of studies and research is proposed which would present alternatives for rehabilitating the Açude de Apipucos.

(B)  Sewage System
At the operational stage, the negative impact of the system will be limited to the following: the possibility of the obstruction and rupture of sewage networks, odor emissions from the elevators and the ETE, possible overflows of effluents to the watercourses, generation of solid waste retained in the sand filters, and sludge riginating in the aerobic reactors. Furthermore, the increase in sewage bills (to be paid by the population served by the system) needs to be taken into account as a negative fall-out from the Project. Measures designed to improve the operation and maintenance of the sewage systems include setting up the Green Belt in the ETE, treatment and appropriate transport for waste and its disposal in landfills, encouraging social communication and the introduction of a ‘social tariff’ to enable poorer people to pay for domestic waste water services have been proposed in order to mitigate the negative impacts on the population.

Simulations have been done with the application of the QUAL2E model to explore a number of alternative situations for quality assessment of the water in the Capibaribe River. The following conclusions are of interest:

- the quality of water in the Capibaribe River will deteriorate substantially unless investments are made in sewage treatment;
- the interventions proposed in the Capibaribe Melhor Project are not sufficient to substantially improve the quality of the water in the Capibaribe River;
- secondary treatment with the application of disinfectants in all the sewage flowing into the Capibaribe River in the municipality of Recife is not sufficient to bring the quality of the water of the river up to acceptable standards;
- to obtain a satisfactory level of water quality in the urban stretch of the river running through the city of Recife the following are required as a minimum: treating the sewage produced in the Capibaribe basin in Recife and Camaragibe at secondary level with disinfectant; to maintain the present conditions in the upstream inflows; to carry out efficient collection of the sewage of the Capibaribe basin in Recife belonging to the Cabanga and Peixinhos systems.

These results do not necessarily lead to the conclusion that the sewage interventions proposed in the Project should be discounted. Since resources are not always available to carry out the necessary interventions, dividing the future work into different stages is the only way of reaching the desired target. Therefore, the decision of including the ETE Cordeiro implementation in the project is justified due to its contribution to:

- consolidation of the sewerage system concept in the municipality and the metropolitan areas, according to the current plan;
- immediate occupation of the planned area and availability of the equipment (avoiding the risk of having the equipment assigned to a different use);
- improvement, although not significant, of the Capibaribe water quality.

(C) Recovery of the Macro Drainage System

The negative impacts with respect to the operation of the drainage canals are mainly to do with the risk of obstruction of the canals due to the population throwing garbage into them. Environmental education designed to instill environmental awareness into the population—particularly people living near the banks of the canals— is called for in order to mitigate this negative impact.

(D) Enhancing Urban Mobility and Accessibility
In order to lay down cycle tracks on the banks of the Capibaribe River and to construct roads running alongside the River, a number of stretches of vegetation at present in the APP will need to be removed, producing a negative impact. However, in the majority of cases, removal of the vegetation will be confined to areas covered with grass or bush and this will only mean the loss of permeable areas.

7. ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Assessment includes various measures of mitigation, compensation and reinforcement to ensure reduction of the negative impacts and to highlight the positive impacts. These measures, together with their costs, schedules and organs/bodies responsible for their implementation, are set out in the Environmental Management Plan. The activities described in the Environmental Management Plan were included as Project components.

7.1 System of environmental management: a System of Socio-Environmental Management (SGA) will be set up in the Recife Urbanization Company (URB/Recife) - linked to the Secretariat for Participative Planning, Works and Urban/Environmental Development and forming part of the Project Management System with the following responsibilities: (i) to coordinate the socio-environmental aspects of the Project; (ii) to inspect, follow up and provide guidance for the execution of the mitigating measures called for by the various environmental permits and the recommendations laid down in the Environmental Construction Plan; (iii) to supervise implementation of the sub components ‘environmental education’ and ‘institutional strengthening’. URB/Recife is responsible overall for Environmental Management but will call for assistance from contractor firms. The costs of this activity are included in the administration and management of the Project.

7.7.2 Programme of Social Communication: this programme is already an integral part of the Capibaribe Melhor Project (component 3 – ‘Institutional Development’/Subcomponent: ‘Management, Monitoring and Assessment of the Project’) and as a result the cost, amounting to R$81,000,00, is already incorporated in the overall cost of the Project. This programme aims to facilitate implementation of the Project through the involvement of the population directly and indirectly affected by the interventions and, in due course, the whole population of the municipality concerned. This programme is under the responsibility of URB/Recife which will be in a position to contract specialist firms or to establish partnerships with local institutions for the direct execution of the services required.

7.7.3 Health and Environmental Education Programme: this programme is already an integral part of the Capibaribe Melhor Project (Component 2- ‘Social and Economic Development of the Territory’/Subcomponent ‘Development of Environmental and Health Education’) and its cost (R$255,000,00) has already been incorporated in the overall costs of the Project. It is estimated that implementation of a programme of health and environmental education will have far-reaching local impacts. This programme should be ongoing during the entire period of implementation of the Project and will be the responsibility of URB/Recife. The establishment of a Management Committee is planned. This committee will comprise representatives of URB/Recife, UGP/Capibaribe Melhor Project; the Environmental Directorate/SEPLAM, the Social Communication Advisory Unit and, finally, the Secretariat for Education.

7.7.4 Programme to Eliminate Crossed Connections (R$150,000,00): this programme will be implemented in Sewage Units UEs 39 and 40 in order to prevent sewage from continuing to infect the watercourses and rainwater and compromising the capacity of sewage collection facilities and sewage transport and treatment systems in the region. The programme will be implemented by URB/Recife supported by SANEAR – the Sanitation Agency of Recife and COMPESA- and the Pernambuco Sanitation Company. The programme to eliminate crossed connections should be
initiated simultaneously with the works dealing with sewerage and should be concluded six months following the conclusion of these sewage improvement works.

7.7.5 Management Plan for the Apipucos, Santana and Caiara Parks (R$ 100,000.00): The Parks Management Plan is indispensable for the physical and environmental sustainability of the Parks, since public use of green areas is closely linked to the maintenance, conservation and security of these areas. The principal aim of the plan is to ensure that the urban parks and green areas under the aegis of the Project can continue adequately to serve the population. For this a management system capable of maintaining the facilities on a permanent basis is needed. Another aim is to secure information that would help to improve the initial phase of installation of the facilities. It is recommended that the municipality should seek other alternatives for managing the parks and green areas. One method might be for civil societies and entities to ‘adopt’ the parks and manage them. For the moment, the installation of the parks is the responsibility of the URB/Recife which can contract specialist firms or establish partnerships with local institutions to carry out direct management.

7.7.6 Monitoring and Operation Programme for the Cordeiro ETE: (the cost to be incorporated into the amounts reserved for the Cordeiro ETE Project): this programme consists of two sub-programmes: (i) a monitoring plan for the Cordeiro ETE and (ii) a plan for installing green belt in the Cordeiro ETE. The Cordeiro ETE Monitoring Plan aims mainly to verify the efficiency and efficacy of the measures adopted at the implementation and operational stages of the Cordeiro ETE together with the activities related to minimizing the negative impacts of the undertaking. The Green Belt Implementation Plan contains a suggestion that the edges of the Cordeiro ETE land should be planted so as to form a green belt to act as a windbreak and minimize the effects of possible emissions of malodorous gases which may originate at the anaerobic phase of the sewage treatment process. The services to the implemented by this programme are the responsibility of URB/Recife.

7.7.7 Programme to Monitor the Quality of the Water of the Capibaribe River (R$120,000.00): This programme aims to provide data about the quality of the waters circulating in the stretch of the Capibaribe River within the area of influence of the Project. Monitoring and diagnosis will also be a ‘preventive activity’ insofar as changes in the quality of the waters are concerned. Such diagnoses will permit the timely adoption of control measures to avoid future problems. The responsibility for implementing this programme belongs to URB/Recife in collaboration with CPRH - the State Agency for the Environment and Water Resources. Other institutions (COMPESA and SANEAR) will be called upon to participate in the production of information, diagnoses and monitoring of the waters within the context of this programme.

7.7.8 Programme of Studies and Research for Defining Alternatives for Recovery of the Açude De Apipucos (R$500,000.00): This programme aims to monitor the quality of the water in the Açude de Apipucos during the first two years of the development of the Capibaribe Melhor Project. The programme will comprise limnological, bathymetric, hydrological, hydraulic (measurements of the outflow from the tributaries) as well as efforts to determine the following: (i) the existing and affluent organic load in the Açude; (ii) the catchment area; (iii) interception of all the tributaries flowing into the Açude. The programme will help to instill a better understanding of the internal dynamics of the lacustrine ecosystem and provide information for designing a new model for gauging the water quality of this Açude and adoption of measures for its rehabilitation and management. Responsibility for implementing the programme falls to URB/Recife jointly with SANEAR. COMPESA and SANEAR can be called upon to participate in the production of data, diagnosis and monitoring of water within the ambit of the Project.

7.7.9 Environmental Plan for Construction (PAC): (the costs will be included in the overall cost of the works and therefore the PAC must be included in the technical specifications of the
works): this plan was elaborated for adoption as a guide to cover appropriate environmental practices to be complied with by the firms contracted to execute the works. Therefore, it must be incorporated into the bidding processes so that the construction firms can have prior knowledge of the requirements and understand that compliance with the plan will be reflected in the contractual arrangement. Implementation of the plan is the responsibility of URB/Recife and of the construction companies.

7.7.10 Expropriations and Involuntary Resettlement Plan (R$32,287,569,56): the Project will relocate 1,453 families. A Conceptual Framework for Resettlement has been developed based upon the resettlement policies of the Prefecture of Recife and according to the resettlement guidelines of the World Bank. The PDRI will be developed during the first year of implementation of the Capibaribe Melhor Project. The Conceptual Framework offers two compensatory alternatives for the relevant families or property owners: (i) resettlement on a property possessing basic services and near to the present locality occupied by the above and (ii) financial compensation. Implementation of the Expropriations and Involuntary Resettlement Plan will be the responsibility of URB/Recife, which will act in partnership with the Secretariat for Housing. Both official organs would be free choose to contract specialist firms to carry out the works if necessary.

8. Public Consultation

In the preparation stage of the Capibaribe Melhor Project project, several types of public consultations were conducted during meetings in the CPRH, Ministerio Publico, and micro-regional forums of participatory budget program. In addition, a specific public consultation for the presentation of the RAA of the Program was conducted on January 9, 2006, at 2:00 o’clock, in the Capiba Auditorium, in the Recife Prefecture. 121 people participated in the consultation, including several representative entities of the Poder Publico, and civil society, among them were: OAB Pernambuco, Ministerio Publico, CREA, IPAD, CODECIR, CPRH, IBAMA Pernambuco. Among the NGOs were: ASPAN, ECOS, Movimento Capibaribe, Centro Vivo Recife, UNIECO, and also, resident representatives of some of the affected areas. The complete list of participants is included in the RAA.

The consultation was largely publicized through the Prefecture’s website and invitations (with copy of the executive summary) sent to international institutions, public and private entities and NGOs part of the Municipal Councils for Urban and Environment Development.

After the presentation of the Program and RAA results by the Prefecture’s team, the floor was opened for questions and answers with intense public participation. A large majority of the audience commended the general concept of the Project, clarified some doubts and criticized specific aspects of the project’s concept. The main points were: permanent conservation areas (APPs), parks and green areas, recovery of the Capibaribe River, general environmental evaluation, non-measurable impact and insufficient dissemination.

The Recife Prefecture clarified the issues raised, responding to the questions and detailing the most conflicting issues. The Prefecture also took into account the criticism regarding the general environmental evaluation and non-measurable impact and corrected errors in the main RAA document.