

Document of
The World Bank

FOR OFFICIAL USE ONLY

Report No: 42668-BR

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED LOAN
IN THE AMOUNT OF US\$31.13 MILLION
TO THE
MUNICIPALITY OF TERESINA
WITH A GUARANTEE OF THE FEDERATIVE REPUBLIC OF BRAZIL
FOR THE
TERESINA ENHANCING MUNICIPAL GOVERNANCE AND QUALITY OF LIFE PROJECT
(PROGRAMA LAGOAS DO NORTE)
IN SUPPORT OF THE THIRD PHASE
OF THE
BRAZIL MUNICIPAL LENDING PROGRAM

February 27, 2008

Sustainable Development Department
Brazil Country Management Unit
Latin America and Caribbean Region

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank authorization.

CURRENCY EQUIVALENTS

(Exchange Rate Effective May 4, 2005)

Currency Unit = BRL
BRL\$2.53 = US\$1
US\$0.40 = BRL\$1.00

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AGESPISA	Piauí State Water Utility
AOP	Annual Operative Plan
APP	Permanent Preservation Area
ARSETE	Teresina Municipal Agency for Public Service Regulation
BdB	<i>Banco do Brasil</i>
BMLP	Brazil Municipal Lending Program
BNDES	National Bank for Economic and Social Development
CBR	Cost Benefit Ratio
CEF	National Investment Bank
COFIEX	External Financing Commission
COHAB	Piauí State Housing Company
CRAS	Social Assistance Reference Center
EA	Environmental Assessment
EAR	Environmental Assessment Report
EMP	Environmental Management Plan
ETE	Wastewater Treatment Works
FAMCC	Federation of Neighborhood Associations and Community Councils
FMS	Municipal Health Foundation
FRL	Fiscal Responsibility Law
GDP	Gross Domestic Product
GEPI	State Government of Piauí
GOB	Government of Brazil
IBGE	Brazilian Institute for Geography and Statistics
IDB	Inter-American Development Bank
IFR	Interim Un-audited Financial Report
IPEA	Institute of Applied Economic Research
IPMU	Minimum Standard of Urbanization Indicator
IPTU	Local Property Tax
IRR	Internal Rate of Return

FOR OFFICIAL USE ONLY

ISS	General Services Tax
MIS	Management Information System
NCR	Net Current Revenue
NGO	Non-Governmental Organizations
NPV	Net Present Value
PACS	Community Health Agents Program
PCAO	Program for Environmental Control of Works
PCS	Social Communication Program
PEA	Environmental Education Program
PEFA	Public Financial Management Performance Measurement Framework
PMA	Environmental Monitoring and Assessment Program
PMAT	Federal Tax Administration Modernization Program
PMSS	Water Sector Modernization Project
PMT	Teresina Municipal Government
PMU	Project Management Unit
PPA	Economic Growth Acceleration Program
PQA	Water Quality and Pollution Control Project
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
SMAE	Municipal Water Supply and Sanitation Service
SAETer	Education Evaluation System
SDU	Urban Development Superintendency
SDU-C/N	Urban and Environmental Development Superintendency for the Centre/North Region
SDU	Urban Development and Environment Superintendency
SEAIN	Secretariat of International Affairs, Ministry of Planning
SEMARH	State Secretariat for Environment and Water Resources
SEMPLAN	Municipal Secretariat for Planning and Coordination
SEMTCAS	Municipal Secretariat for Employment, Citizenship and Social Assistance
SPGP	Program Management System
STN	Federal Treasury, Ministry of Finance
SUS	National Health System
WSS	Water Supply and Sanitation

Vice President:	Pamela Cox
Country Manager/Director:	John Briscoe
Sector Director:	Laura Tuck
Task Team Leader:	Martin Gambrill

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not be otherwise disclosed without World Bank authorization.

BRAZIL
TERESINA ENHANCING MUNICIPAL GOVERNANCE AND QUALITY OF LIFE PROJECT
(PROGRAMA LAGOAS DO NORTE – APL III)

CONTENTS

	Page
A. STRATEGIC CONTEXT AND RATIONALE.....	1
1. Country and sector issues	1
2. Rationale for Bank involvement.....	4
3. Higher level objectives to which the project contributes	5
B. PROJECT DESCRIPTION.....	6
1. Lending instrument.....	6
2. Program objective and phases	6
3. Project development objective and key indicators	7
4. Project components.....	8
5. Lessons learned and reflected in the project design	10
6. Alternatives considered and reasons for rejection.....	12
C. IMPLEMENTATION	13
1. Partnership arrangements (if applicable)	13
2. Institutional and implementation arrangements	13
3. Monitoring and evaluation of outcomes/results	14
4. Sustainability	14
5. Critical risks and possible controversial aspects	15
6. Loan/credit conditions and covenants	15
D. APPRAISAL SUMMARY	16
1. Economic, financial and fiscal analyses	16
2. Technical	17
3. Fiduciary	18
4. Social	18
5. Environment	19
6. Safeguard policies.....	22
7. Policy Exceptions and Readiness	22

Annex 1: Country and Sector or Project Background.....	23
Annex 2: Major Related Projects Financed by the Bank and/or other Agencies.....	39
Bank Financed Projects	39
Other Development Agencies.....	39
Annex 3: Results Framework and Monitoring	40
Annex 4: Detailed Project Description	48
Annex 5: Project Costs	55
Annex 6: Implementation Arrangements	56
Annex 7: Financial Management and Disbursement Arrangements	60
Annex 8: Procurement Arrangements.....	64
Annex 9: Economic, Financial, and Fiscal Analysis	69
Annex 10: Safeguard Policy Issues.....	76
Annex 11: Project Preparation and Supervision.....	97
Annex 12: Documents in the Project File	98
Annex 13: Statement of Loans and Credits.....	99
Annex 14: Country at a Glance	103
Annex 15: Map (IBRD # BRA35998)	105

BRAZIL
TERESINA ENHANCING MUNICIPAL GOVERNANCE AND QUALITY OF LIFE PROJECT
(PROGRAMA LAGOAS DO NORTE – APL III)

PROJECT APPRAISAL DOCUMENT

LATIN AMERICA AND CARIBBEAN REGION

LCSUW

Date: February 27, 2008	Team Leader: Martin Gambrill
Country Director: John Briscoe	Sectors: General water, sanitation and flood protection; Sub-national government administration.
Sector Director: Laura Tuck	Themes: Access to urban services and housing; Municipal governance and institution building; Other environment and natural resources management, Pollution management and environmental health.
Project ID: P088966	Environmental screening category: Full Assessment
Focal Area: Urban Development	Safeguard screening category: Limited Impact
Lending Instrument: Specific Investment Loan (Part of Horizontal APL)	

Project Financing Data

[X] Loan [] Credit [] Grant [] Guarantee [] Other:

For Loans/Credits/Others:

Total Bank financing (US\$m.): 31.13

Proposed terms: Fixed Spread, Five Years of Grace

Financing Plan (US\$m)

Source	Local	Foreign	Total
BORROWER/RECIPIENT	13.34		13.34
IBRD	31.13		31.13
Total:	44.47		44.47

Borrower:

Municipal Government of Teresina, Brazil

Responsible Agency:

Municipal Secretariat for Planning, SEMPLAN

Estimated disbursements (Bank FY/US\$m)									
FY	07	08	09	10	11	12	13	0	0
Annual	0.00	0.00	11.285	7.624	5.942	4.055	2.224	0.00	0.00
Cumulative	0.00	0.00	11.285	18.909	24.851	28.906	31.13	0.00	0.00

Project implementation period: August 1, 2008 to July 31, 2013

Expected effectiveness date: August 1, 2008

Expected closing date: July 31, 2013

Does the project depart from the CAS in content or other significant respects? Yes No
Ref. PAD A.3

Does the project require any exceptions from Bank policies? Yes No
Ref. PAD D.7

Have these been approved by Bank management? Yes No

Is approval for any policy exception sought from the Board? Yes No

Does the project include any critical risks rated "substantial" or "high"? Yes No
Ref. PAD C.5

Does the project meet the Regional criteria for readiness for implementation? Yes No
Ref. PAD D.7

Project development objective

The objectives of the project are to (i) modernize and improve the management capacity of Teresina Municipal Government in the financial, urban, environmental, service-delivery, and economic development fields; and (ii) improve the quality of life of the low-income population of the *Lagoas do Norte* region of the city.

Project description

Component 1: Municipal Management Modernization, City Development and Project Management
This component includes activities to: (i) consolidate PMT's recent efforts to improve its financial and budget management processes and capacity; (ii) improve service delivery, with a focus on water supply and sanitation and education (for the former by bringing PMT into compliance with the new federal WSS law; for the latter through the development and implementation of a new education policy and strategy for the city); (iii) improve urban and environmental management capacity and processes; (iv) lead the process and dialogue of the city's local economic and social development vision and strategy; and (v) Project management support.

Component 2: Integrated Urban-Environmental Improvement in *Lagoas do Norte*

This component encompasses the undertaking of urban-environmental improvement interventions in the *Lagoas do Norte* region of the city, including: water supply, wastewater collection and treatment, macro and micro-drainage, recuperation of the natural environmental, urban upgrading, rehabilitation and implementation of parks and leisure spaces, local road network improvements, resettlement of beneficiary families from areas of risk, and implementing housing improvements

Component 3: Social and Economic Development in *Lagoas do Norte*

This component comprises social and economic development interventions in the *Lagoas do Norte* region, including: strengthening community associations and groups, provision of improved social services (health, education services, etc), environmental education, employment and wealth creation programs, and community mobilization and participation for works interventions.

Which safeguard policies are triggered, if any?

OP 4.01 Environmental Assessment; OP 4.04 Natural Habitats; OP 11.03 (being revised as OP 4.11) Protection of Physical Cultural Resources; OP 4.12 Involuntary Resettlement; and OP 4.37 Safety of Dams.

Significant, non-standard conditions, **if any**, for effectiveness: None

Board presentation: March 27, 2008

Loan/credit effectiveness: August 1, 2008

Covenants applicable to project implementation:

A. STRATEGIC CONTEXT AND RATIONALE

1. Country and sector issues

1. Brazil faces a number of complex challenges as it continues to build its agenda for socially equitable economic growth. Economic transformation over the past five decades has been largely driven by Brazil's urban areas that now contain more than 82 percent of the population and generate more than 90 percent of GDP. Over the past 15 years, large cities have shown reduced growth in both economic vitality and tax revenues. However, growing populations in urban areas present serious challenges to the federal government goals of fostering greater equity and sustainability while maintaining the country competitiveness and macroeconomic stability. To assist Brazil in responding to these challenges in the near- and medium-term, the World Bank has prepared a Municipal and City Strategy for Brazil¹ that focuses on four thematic priorities: *Competitive Cities*; *Creditworthy Cities*; *Cities Delivering Services* and on *Cities as Partners*. This strategy provides the context for engagement with the Municipal Government of Teresina (PMT) in support of the local government's *Lagoas do Norte Project*.

2. Teresina is the capital of Piauí state in the semi-arid Northeast of Brazil – the country's poorest and least-developed region. The state lies on Brazil's northern coast, at the point of transition between the semi-arid *sertão* to its east in the states of Ceará, Pernambuco and Bahia, and the more humid *cerrado* to its south and west in the states of Tocantins and Maranhão. Piauí is perhaps best known for being Brazil's poorest state, although by per-capita income measures it no longer deserves this tag, having surpassed neighboring Maranhão during the 1980s. As well as poor, Piauí is also very unequal in its income distribution: in 2001 it ranked fifth among Brazilian states for income inequality behind Acre, Pernambuco, Ceará, and Alagoas. These factors conspire to give Piauí possibly the deepest poverty problem of any of the Brazilian states. In 2001 only Maranhão and Alagoas had higher poverty headcount ratios than Piauí, but the poverty gap, and other measures sensitive to the depth of poverty, place the state at the bottom of the league. Piauí is ranked third from bottom nationally in terms of its human development index.

3. With some 800,000 residents, or a quarter of the state's population, Teresina has the lowest per capita income level of all Brazil's state capitals: in 2000 the average per capita income in the city was Brazilian Reais (R\$) 3,008, compared to an average of R\$ 3,805 for the capitals of the Northeast states and R\$ 5,033 for all Brazil's state capitals. Teresina nevertheless accounts for approximately two thirds of the GDP of the state of Piauí. The municipality's human development indices reflect those of its state: infant mortality is above the national average; income distribution is the fourth-worst of all Brazil's capitals; and some 52% of Teresina's children come from families with income levels of less than half a minimum salary, being the second-worst incidence among state capitals.

¹ *Brazil--Inputs for a Strategy for Cities: A Contribution with a Focus on Cities and Municipalities*, June 18, 2006. World Bank.

4. As a result of its strategic geographic location, the city not only attracts migrants from throughout the region but also exercises an important economic influence on the whole of Piauí, the eastern part of Maranhão, and the western reaches of Ceará and Pernambuco. The 2000 census shows Teresina's annual population growth rate to be 2.03%, compared with 1.09% for the state of Piauí, 1.31% for the Northeast, and 1.64% for the whole of Brazil. The historic response of local government to this urban influx has been inadequate, leading to disorderly occupations by poor populations who establish themselves in the peripheral areas of the city where basic urban services are at best precarious and, at worst, absent. Quality of life for these peri-urban inhabitants is very poor, and the lack of basic urban infrastructure, such as water supply, wastewater collection and treatment, drainage and solid waste collection, also has a negative impact on the local environment.

5. The municipality's urban growth has been particularly accentuated since the 1970s, with the then-population of around 200,000 having nearly quadrupled to 788,000 by 2005. Over this period, the city expanded significantly in all directions. The urban area now corresponds to 95 percent of the municipal territory, with an average density of around 2,780 inhabitants per km². The municipality today occupies 1,672.5 km², of which some 275 km² are classified as urban. The results of the explosive growth of Teresina can be seen in the disorderly expansion and organization of the urban space and land-use activities. 'Islands of wealth' in eastern Teresina and on the left bank of the River Poti contrast with the city's peripheral settlements, which are inhabited by low-income populations lacking basic urban infrastructure and other public services. The city growth has exceeded the capacity of PMT to attend to the infrastructure and social needs of its inhabitants. Recent surveys have identified 150 slums and other substandard settlements in the city, containing nearly 40,000 households. Estimates of the city's housing shortage vary between 20,000 and 60,000 units. In 2000, Teresina recorded the following indices related to water supply, wastewater and garbage disposal: water supply coverage reached 94 percent of all households in the city through the formal reticulated system, sewerage reached 14 percent, and regular garbage collection for 85 percent. The concession for water supply and wastewater services, previously held by AGESPISA, has not been renewed by PMT since it expired in 1997. This impasse, together with the overall inefficiency of AGESPISA, has impeded the expansion and improvement of the services.

6. Despite these challenges, the city displays a number of more optimistic socio-economic trends: The municipal-disaggregated Human Development Indexes (HDI-M) increased from 0.688 in 1991 to 0.767 in 2000. Child mortality rates are currently 19.1 per thousand live births, better in comparison to a number of other capitals in the Northeast region. The illiteracy rate remains at some 13 percent (2000), while the Family Health Program covers 79 percent of the population. Today Teresina plays host to a significant number of 'first-line' state hospitals, together with modern laboratories and clinics offering a vast array of specialized medical services. Over recent years, the availability of technologically advanced medical, hospital and laboratory equipment has increased substantially, to the point where Teresina is now considered a *Regional Health Hub*. The Municipal Health Foundation (FMS), the local management body for the SUS (National Health System), is responsible for prevention and health promotion policies in Teresina. The public health network, together with private healthcare facilities, is extensive.

7. Despite the traditionally inadequate response to the disorderly expansion, PMT and other actors have promoted some important recent developments with regard to planning the city's development. Firstly, in 2001, the *Integrated Development Region of Greater Teresina* was created in law, encompassing 13 municipalities in Piauí and one in neighboring Maranhão (with a total population in excess of one million), with a view to better articulating local government interventions within the area of influence of the state capital. Secondly, in mid-2001, through its 'Congresso da Cidade' (city congress), PMT and civil society embarked upon a participatory process to define an '*Agenda Teresina 2015*' – a development vision for the city. Otherwise known as '*Agenda 2015*' the twelve month process defined 17 development themes, taking into account the city's socio-economic development potential, trends and vocations. In addition, the core of PMT's *2005-2008 multi-year investment plan* consists of a group of policies designed to accelerate economic development and reduce the poverty and inequality affecting a substantial section of the population. Priorities have been established which involve making concerted efforts to promote the sustainable development of the municipality. These priorities are grouped into the following five component parts: (i) human and social development; (ii) urban development; (iii) economic growth; (iv) integrated action in special areas; and (v) municipal management modernization and governance.

8. **The Lagoas do Norte Region:** As part of its strategic planning process, PMT has focused efforts on Lagoas do Norte – an environmentally and socially vulnerable region of the city requiring special interventions. The frequent flooding and social exclusion that affect the lagoons area in the northern part of Teresina have resulted in the need to design and implement an investment program specifically for this region, which suffers from housing, health, environmental, cultural, social and economic problems that set it apart from the rest of the city. The *Lagoas do Norte* region consists of 13 neighborhoods covering an area of over 1,300 km², in which resides over 100,000 people.

9. The proposed Bank-financed Enhancing Municipal Governance and Quality of Life Project (*Programa Lagoas do Norte*) is designed to respond to the key development challenges facing the municipal government of Teresina in general, and the urban-environmental-social problems encountered in the Lagoas do Norte region of the city specifically, and is consistent with a number of municipal and sectoral development actions and programs currently underway, or that PMT and other bodies have undertaken in recent years. The Project thus aims to undertake, with a focus on one of the most vulnerable and poverty-stricken regions of Teresina, urban, environmental, social and economic interventions essential to improve quality of life for the Lagoas do Norte region of the city for the majority poor population living in this area, and safeguard them against the problems associated with perennial flooding. The Project will also promote initiatives to bolster local economic development and improve municipal governance in areas, including financial and budget management, strategic planning, and service delivery improvements.

10. **World Bank Municipal Lending Program** The Lagoas do Norte Project is one of eight municipal projects being supported by the Bank as part of a broader *Brazil Municipal Lending Program* (BMLP). Through a selective and strategic program of support to cities, the BMLP would assist in demonstrating how policies, effectively implemented at the local level, can improve the lives of the urban poor, promote sound local governance, and lead to a more competitive local economy. The federal government (GOB) has requested the Bank's support in

focusing strategically on a number of economically important and creditworthy municipalities to achieve concrete impacts and demonstrate the benefits of well targeted investments coupled with support for municipal and fiscal management. The guiding principles for Bank support to municipalities include the following: Bank lending should relate to the main development challenges outlined in the Bank's municipal and city strategy; Bank operations should catalyze multi-municipal exchanges and learning; Bank support should be directed to larger municipalities (at least 100,000 population); and, operations should help cities tackle complex development challenges.

2. Rationale for Bank involvement

11. The rationale of Bank involvement in the Brazil Municipal Lending Program is covered in the umbrella BMLP document. The proposed Teresina operation is grounded in a rich analytical framework and policy dialogue between the Bank and GOB as regards urban development, municipal fiscal policy, land management, housing, basic urban services to the poor, and decentralized environmental management. Lending to the Municipality of Teresina is strategically selective given its importance as a state capital and urban center in the country's Northeast Region, and because the proposed operation will serve as an instrument to finance on-the-ground investment with explicit linkages to national priorities in the areas of infrastructure provision, improved fiscal management and responsibility, improved services and shelter provision for the urban poor, urban and environmental management, and the scaling-up of slum regularization, while also providing lessons for other large municipalities in Brazil.

12. **Municipal Strategy:** The Project also fits within the four pillars set forth by the Bank in its strategy to support municipal development in Brazil: (i) improving municipal fiscal and administrative management; (ii) increasing the competitiveness of the municipality through local economic development; (iii) supporting partnerships across municipalities; and (iv) strengthening municipal capacity to deliver key services.

13. The Bank is uniquely positioned to provide extensive global experience in support of sector reforms and improved municipal management practices. It can also foster the inclusion of environmental and social safeguards in municipal projects, promoting a holistic approach to municipal planning and investment (integrated investment in infrastructure with social and governance elements such as monitoring and evaluation). In addition, the Bank can encourage systematic fiscal assessment, monitoring and management, and facilitate analytical work such as local economic development strategies and social/poverty assessments – all of which expand the focus of municipal development beyond traditional areas of physical intervention.

14. A municipal lending program by the Bank can help lay a foundation for market-based approaches to financing municipal development, as the federal government works towards developing an effective and sustainable municipal credit system. Participation in the BMLP can build confidence and capacity in the municipal administration by improving the quality of capital investments, demonstrating how municipalities can manage debt while maintaining their fiscal profiles, and leveraging results through partnerships. The BMLP and its individual operations seek to demonstrate that significant investments with high returns can be made at the municipal level within a framework of sound fiscal discipline. Participation in the BMLP will help municipalities build capacity, especially through carrying out the selection, analysis,

implementation, and evaluation of strategic investments, and through making the corresponding provisions for their fiscal sustainability and social and environmental viability.

15. The Bank is also in a position to capitalize on its role as a global knowledge broker by facilitating comparative learning and exchanges among a significant portfolio of urban and environmental projects with municipalities in Brazil. This growing portfolio of projects is contributing to a broad understanding of the issues facing municipalities and the identification of appropriate mechanisms to assist them realize their role in contributing to the national objective of socially equitable economic growth and development. Inter-municipal comparisons among projects within the portfolio will also allow for analyses that will highlight key differential features and the comparative advantages of individual municipalities. This differentiation will be a key feature as municipalities enter the private markets to access alternative forms of credit.

16. More specifically, the Teresina Project advances the federal government's *fiscal sustainability goals*, as it prioritizes the improving of fiscal and budget management by enhancing institutional and technical capacity of PMT's Finance and Planning Secretariats in order to consolidate the sustainability of the municipality's current fiscal adjustment effort. The Project also *supports national environmental decentralization policies* at the local level. The Bank's involvement in this Project focuses on strengthening the client's capacity to apply environmental safeguards for project preparation and implementation. The proposed Project supports national policy objectives with activities to strengthen the capacity of the municipal environmental entities.

17. The Project responds to a challenge raised in the Bank's 2003 State Economic Memorandum for Piauí: namely, that controlling the expansion of peri-urban settlements in Teresina should be a priority of the state and municipal governments: the Project would assist the municipality in 'getting ahead of the curve' in terms of planning socio-economic development and service provision to the city as a whole, and to peri-urban areas in particular

3. Higher level objectives to which the project contributes

18. GOB's 2004-2007 multi-year plan (PPA) sets forth a development strategy which emphasizes: (i) social inclusion and universal access to high-quality public services; (ii) macroeconomic stability and job and income growth; (iii) greater equity among the regions through regional and local development; (iv) greater integration between development and the environment; and (v) the promotion of civil society participation in decision making. In addition, GOB's recently announced economic growth acceleration program (*Programa de Aceleração do Crescimento*, PAC) places high importance on urban upgrading, housing improvements and water supply, sanitation, drainage and related basic service provision, especially for peri-urban, low-income areas of large cities.

19. The BMLP and the Teresina Project have been developed in support of the federal government's vision for a more equitable, sustainable and competitive Brazil outlined in its PPA, and will also provide complementary interventions to those proposed under the PAC. They would contribute to these higher level objectives by seeking to raise the well-being of some of the country's most vulnerable populations though improving access to and quality of basic urban services, promoting better governance and participation at the local level, scaling up the capacity

of municipalities to address the challenges of informal settlements of large urban areas, and strengthening the ability of local governments to promote employment and income generation and to combat environmental degradation.

20. Furthermore, the Brazil CAS for 2004-2007, which is built upon the four themes of equity, sustainability, competitiveness and macro economic foundations, lays out the higher order objectives to which the Project will contribute. The Project contributes to the higher level objectives of the PPA and the CAS by: seeking to improve the quality of life of some of the city's most vulnerable populations; improving access to basic urban services and improving the quality of those services; promoting better governance and participation at the local level of government; scaling-up the capacity of the local governments to attack the problems of inequality that exist in the informal settlements; and building the capacity of the local government to combat the problems of urban mobility and the brown environmental agenda.

21. The Project provides a classic example of challenges facing urban municipalities in Brazil as they grapple with constraints to growth, social exclusion, environmental vulnerabilities and identifying appropriate financing mechanisms for much needed investment. Specific interventions are aimed at realizing the challenge of sustainable and equitable economic growth that is central to Brazil's development agenda. This vision is expressed in a set of longer term development goals that builds on the national economic development strategy and the Millennium Development Goals.

B. PROJECT DESCRIPTION

1. Lending instrument

22. The Teresina *Lagoas do Norte* Project is part of the Brazil Municipal Lending Program Umbrella APL. The Bank would enter into an individual investment loan agreement with the municipality to finance investments. In integrated urban infrastructure, urban upgrading, basic service provision, and municipal capacity building and participation, consistent with the overriding development objective. The APL lending program is detailed in the Umbrella Program Document (Report No: 32315-BR).

2. Program objective and phases

23. This Brazil Municipal Lending Program is structured as a Horizontal Adaptable Program Loan (APL) consisting of up to eight operations for key cities having a common focus on poverty alleviation, urban environment, local economic development, and municipal management. These themes have been selected by the federal government and the municipalities as priorities for this first municipal assistance program. The individual projects would also be linked by a knowledge-sharing and policy analysis component at the federal level, which would be supported by one or more separate grants.

24. Eight municipalities were pre-identified to participate in BMLP—Uberaba, Recife, Belo Horizonte, Cubatão, Teresina, São Luís, Santos and Guarujá—on the basis of the following characteristics: (i) the projects focus on the priorities of urban poverty, environment, economic development, and municipal management; (ii) the municipalities are strategic economic and

governmental centers at the national or regional level (four of them are state capitals and three of them are in the Baixada Santista region, the main logistics corridor in São Paulo state), (iii) the municipal governments are committed to addressing issues on a large scale and to making reforms for sustainable improvements in city management, serving as models of innovation in municipal management and provision of services and contributing to cross-municipal learning, replication, and federal policy development, and (iv) the municipalities are in compliance with the Fiscal Responsibility Law and have been authorized by the federal government (COFEX), and by the respective municipal legislatures, to prepare projects for Bank financing, subject to subsequent authorization by federal treasury (STN) for borrowing.

25. Projects would not be identical in design, to allow for tailoring to local priorities and conditions, but they would share common content in order to ensure optimal knowledge-sharing and the generation of a critical mass of lessons and results that would be useful for learning and policy development.

The first of the loans under the BMLP, Uberaba, was presented to the Board together with the APL Project Document on March 21, 2007. On this occasion the Board provided its approval of the overall Horizontal APL concept and of the first loan of the lending program (Uberaba), and gave its authorization to devolve approval of all subsequent loans under the Horizontal APL (up to a ceiling of US\$240 million) to the Regional Vice Presidency for Latin America and the Caribbean. The remaining operations under the BMLP, including the proposed Teresina Lagoas do Norte Project, will be approved by the LAC Regional Vice Presidency following established approval procedures for Horizontal APLs (after the RVP approves a follow-on APL ‘in principle’ the project documents are circulated to the Board for a ten-day comment period; if no, or less than three, ED comments are received during this time, the RVP approval becomes effective). A summary of the operations under the BMLP are presented in Annex 1 and detailed in the Umbrella Program Document for the BMLP.

3. Project development objective and key indicators

26. The objectives of the Project are to (i) modernize and improve the management capacity of Teresina Municipal Government in the financial, urban, environmental, service-delivery, and economic development fields; and (ii) improve the quality of life of the low-income population of the *Lagoas do Norte* region of the city. The first objective will be attained through: (i) key capacity building and technical assistance (TA) activities for those PMT entities involved in financial and budget management, in environmental licensing and control, and in urban planning and development; (ii) supporting PMT’s compliance with the new federal WSS law², including the preparation of a municipal WSS plan, the creation and strengthening of a municipal WSS regulating body, and the formalization of a service delivery mechanism consistent with federal law; (iii) improving the efficiency of education services delivery through policy and strategy review, TA, and capacity building activities; and (iv) providing TA in the elaboration and implementation of a local economic development (LED) vision and strategy for Greater Teresina. The second objective will be attained from the preparation and implementation of

² The recently approved federal WSS law (11.445, January 5, 2007) brings long-awaited clarity to the institutional, regulatory, planning and service provision aspects of the sector

physical, environmental, social and service delivery activities in the low-income *Lagoas do Norte* region of the city.

27. The entire city population of almost 800,000 residents will benefit directly from the improved WSS service delivery arrangements that the Project is supporting, and from the new consolidated education policy and strategy that will be rolled out with the Project's support. The whole city population will benefit indirectly from PMT's improvements in financial and budget management, environmental licensing and control, and urban management – as these activities are intended to result in more effective and efficient municipal management generally. The city population will also benefit indirectly from the elaboration and implementation of the LED strategy as this is designed to promote the city's economic growth in the medium- to long-term. The approximately 100,000 inhabitants of the *Lagoas do Norte* region – one of the poorest and least-served areas of Teresina – will be direct beneficiaries of the Project's urban, environmental, social and economic interventions in that region of the city. The key outcome indicators to measure attainment of the Project's objectives are given below. Specific indicators to measure the results of each component are presented in Annex 3.

Municipal modernization

- Financial management: improve the municipality's aggregate PEFA³ score.
- Service delivery management: (i) adherence with all aspects of new WSS federal law, and improved service delivery and regulation; (ii) implementation of the new municipal education policy.

Quality of Life in Lagoas do Norte

- Increase in PMT's *Minimum Standard of Urbanization Indicator* (IPMU⁴).
- Property values (hedonic pricing) in the *Lagoas do Norte* region increase by 30%.
- Increase in the percentage of the population reporting improvements in/satisfaction with: (i) urban services (WSS, drainage, solid waste management, public lighting, local transport, etc.); (ii) social services (health, education, job and training programs, etc), and (iii) quality of the local environment.

4. Project components

28. The identification of the Project's interventions, while based on the objectives and description provided in PMT's federal government approved *Carta Consulta*, were refined as a result of the detailed discussion between PMT and the Bank during Project preparation. As a result of this process the Project was divided into the following three components: (i) Municipal Management Modernization, City Development, and Project Management; (ii) Integrated Urban-Environmental Development in *Lagoas do Norte*; and (iii) Social and Economic Development in *Lagoas do Norte*.

29. Component 1 groups the Project activities that are directly related to the first part of the PDO, namely modernization of municipal administration, while Components 2 and 3 encompass

³ 'Public Financial Management Performance Measurement Framework' (June 2005) – The Public Expenditure and Financial Accountability (PEFA) Secretariat, World Bank.

⁴ PMT's 'Indice de Padrão Mínimo de Urbanização' (IPMU)

activities directly related to the second sub-objective of the PDO, improving the quality of life in the *Lagoas do Norte* region of the city. Nevertheless, the ambitious, integrated investment program that the Project will support under Components 2 and 3 in the *Lagoas do Norte* region, with the overarching objective of transforming the quality of life in this area, will also bring much valuable experience to the municipal government on how to work in an integrated manner – with numerous entities within PMT as well as with civil society and the private sector – in the improvement of municipal service provision and outreach to disadvantaged communities, the lessons learned from which will themselves make important contributions to the process of municipal modernization and management improvement.

Component 1: Municipal Management Modernization, City Development, and Project Management (US\$4.37 M)

30. This component includes activities to consolidate PMT's recent efforts to improve its financial and budget management processes and capacity, to improve service delivery (in water supply and sanitation and in education, amongst others); to improve urban and environmental management capacity and processes, and to lead the process and dialogue of the city's local economic and social development vision and strategy. Details of the sub-components and their activities are given in Annex 4. Component 1 is divided into the following sub-components.

- **Financial and budget management modernization:** This sub-component will provide the technical assistance and capacity building necessary to consolidate and improve PMT's financial and budget management processes.
- **Water supply and sanitation service delivery modernization:** This sub-component will assist PMT as it advances to comply with the new federal WSS law, including the preparation of a municipal WSS plan, the creation and strengthening of a municipal WSS regulating body, and the formalization of a service delivery mechanism consistent with federal law.
- **Education management modernization:** Includes activities to assist PMT in the elaboration and implementation of a new education polity for the municipality, with a view to rationalizing and bringing more efficiency to education services in the municipality.
- **Urban and environmental management modernization:** This sub-component will assist PMT in its planning and control of the urban and environmental sectors in Teresina. Under urban management the Project will provide support to the preparation of the city's municipal urban master plan, municipal transport master plan, municipal drainage master plan, and municipal solid waste management master plan. It will also assist PMT in elaborating the new/updated laws to accompany the finalization of these different urban planning instruments. It will provide analytical and TA support to PMT to assist in developing consolidated strategies for enforcing existing legal and administrative mechanisms required to regularize slums, and for facilitating access to land. With regard to environmental management, the sub-component will seek to increase PMT's institutional capacity in this field with a view to introducing an environmental licensing and enforcement/inspection control system, thus improving PMT efficiency.

- **LED Strategy development and implementation:** This sub-component will assist PMT in the development and implementation of local economic development (LED) strategy for Greater Teresina, using as a starting point the economic and social development recommendations that were established in PMT's '*Teresina – Agenda 2015*'.
- **Project management:** This sub-component will support PMT in the structuring and the operationalization of the project management unit (PMU). It will finance the costs of selected individual consultants to support implementation in areas of Bank specialization such as procurement, financial management, safeguards, etc. It will also finance key consultancies for assisting in Project monitoring and evaluation, as well as financing Project audits.

Component 2: *Integrated Urban-Environmental Development in Lagoas do Norte* (US\$36.07 M)

31. This component encompasses the undertaking of the following activities in the thirteen neighborhoods which constitute the *Lagoas do Norte* region of the city: (i) interventions to optimize and expand water supply delivery; (ii) implementation of wastewater collection, transmission and treatment systems; (iii) execution of critical urban macro and micro-drainage interventions; (iv) actions to recuperate the natural environmental aspects of the region's lagoon and canal network, and the adjacent banks of the Parnaiba and Poti rivers; (v) interventions in urban upgrading, and the rehabilitation and construction of green spaces, parks, and leisure and community spaces; (vi) interventions to improve the local road network, to improve traffic flow, access and safety in the region (including for the ubiquitous bicycles); (vii) undertaking resettlement of beneficiary families from areas of risk, and implementing housing improvements for other eligible households; and (viii) undertaking engineering design and works supervision.

Component 3: Social and Economic Development in Lagoas do Norte (US\$1.91 M)

32. This component comprises complementary interventions to Component 2 in the *Lagoas do Norte* region, including: (i) actions to strengthen community associations and other community groups in order to improve the access of eligible families to the Project's social programs, crèches, basic health and education services, etc; (ii) undertaking of environmental and sanitary education and promotion activities in the region; (iii) promoting employment and wealth creation programs locally; (iv) renovation/expansion and construction of community facilities (health posts, schools, etc); and (v) analysis of, and support to, 'social control' of public service provision (a 'watchdog' function) in *Lagoas do Norte*, including community mobilization and participation for works interventions.

5. Lessons learned and reflected in the project design

33. Bank experience in both the urban development and WSS sectors have provided valuable lessons that will be incorporated into the project, building on such experiences as the Brazil First Water Sector Modernization Project (PMSS1), the Brazil Water Quality and Pollution Control (PQA) projects, the Brazil Municipal Fund projects, Cameba in Venezuela, Prometrópole in Recife, and a number of other WSS, WRM and urban and municipal development projects. Among the lessons learned from these projects are the following:

- Projects aimed to strengthen municipal capacity, as learned in the Bank's extensive experience with municipal funds projects in Brazil, work best when coupled with a lending Project which can serve as leverage for implementing reforms.
- Experience suggests that lending at the sub-national level can be an effective means for the implementation of national policy priorities at the sub-national level.
- The concern for a holistic approach to development has led to a call for greater integration in Bank funded projects. This aim of integrated development risks difficulties as objectives become overly complex and a 'Christmas tree' approach weighs down implementing and coordinating agencies. Integration, it has been learned, must be 'natural' so as to not force undue burdens on borrowers and implementing agencies. This project takes into account several important lessons in that regard, including those established through the urban, WSS, and water quality sectors.⁵
- Integrated approaches are needed to tackle problems related to urban upgrading, basic services, and the brown environmental agenda. With a basis in multi-sector and inter-institutional principles; an integrated approach to these issues can enhance the benefits of a wide range of interventions and contribute to poverty alleviation. In addition, holistic approaches focusing on basic service provision – in particular basic infrastructure – but also paying attention to local social and economic questions are necessary in order to address the complex challenges of spatial development.
- A macro urban perspective is important in upgrading projects as it is essential for weaving marginalized communities into the broader urban fabric. As an organizing force, river basins and their sub-basins can be effectively used as a planning basis not only for infrastructure delivery but also for prioritizing complementary urban upgrading actions. This is especially so since in many countries these are areas heavily populated with poor communities.
- Resettlement is an inherent element of any large-scale urbanization operation in slums. The need to provide rights-of-way for infrastructure, and to remove families located in high-risk or environmentally fragile areas, necessitates resettlement. It is known from experiences throughout Latin America that resettlement will increase project costs, but when included within the overall envelope of neighborhood consolidation, is about 25 percent of the cost of pursuing the alternative of wholesale new housing construction and slum clearance. In addition, recent experience suggests that governments have become more adept and sensitive in handling the resettlement process and that, when done properly, resettlement provides a win-win solution for beneficiary families and society.
- Integrated projects, as the experience of the Prometrópole and PQA projects demonstrate, are complex to implement and careful planning is required to prevent delays, especially if there are multiple implementing agencies involved.
- Decentralizing responsibility of investments to the lowest level possible, such as municipalities, increases accountability and typically improves service quality as a result.
- When preparing upgrading projects care should be taken to develop an effective monitoring and evaluation program. Indicators should be clear and easy to measure, focusing on project outcomes and performance for use as a management tool. Baseline beneficiary assessments are useful in this respect for allowing *ex-ante* and *ex-post* analyses of quality of life improvements in slum areas, and to help design interventions aimed at social inclusion.

⁵ See, for example, Azevedo, *et al.* 'Brazil: Managing Water Quality: Mainstreaming the Environment in the Water Sector' World Bank Technical Paper N° 532, December 2002, pp. 38-41.

- As has been learned in state-level interventions, sector investments can be used as an entry point for horizontal, cross-cutting components aimed at improving the governance of public sector institutions.

6. Alternatives considered and reasons for rejection

34. Several alternatives were considered for the delivery of this, and other, municipal operations, including: lending through a federal intermediary; lending via a federal ‘counterpart’ for learning/dissemination; direct, ‘stand-alone’ lending (as was the case in the Bank’s first municipal loan in Brazil, in Betim); and pooling in a ‘Horizontal APL.’ Lending through a federal intermediary has legal and administrative barriers that today would require legal exceptions in Brazil, and therefore needs a longer time-horizon to develop as a viable option. There is currently no federal counterpart prepared to take on the multi-sector nature of this or other municipal operations, with lending at the federal level for sub-national interventions proving largely inefficient and ineffective in many sectors in Brazil. The pooling of eight municipal loans under a horizontal APL was selected above stand-alone operations as a means of reducing transaction costs, consolidating preparation and supervision, and facilitating the approval process within the Bank by delegating those operations not taken to the Board with the Umbrella PAD to the Regional Vice Presidential level.

35. With regard to alternatives considered for the Teresina Project, during preparation a series of studies was conducted with a view to deciding on the appropriate technical, economical, social and environmental interventions for the municipal modernization interventions and for the physical and social activities in the *Lagoas do Norte* region.

36. The Project could have focused only on the physical and social interventions in the *Lagoas do Norte* region of the city. However, interaction between a cross-sectoral Bank team and its PMT counterparts identified earlier on in Project preparation opportunities for important gains concerning municipal administrative modernization, leading to the inclusion of a municipal modernization component with many important activities that the Project will now support.

37. Concerns regarding a shortage of financial resources prompted consideration – as an alternative for resolving the clean-up of the lagoons – of the establishment of sewerage networks only in the immediate areas surrounding the lagoons, so that the direct discharge of wastewater into the lagoons would be avoided (as currently practiced by households near the water edge). This alternative, leaving other parts of the region with septic tanks, was rejected since the water quality modeling exercise demonstrated that it would not guarantee the depollution of the lagoons. The high groundwater level and the soil conditions in the region do not permit the use of septic tanks as an appropriate solution for dealing with wastewater. The conceptual design of the wastewater treatment works was developed using water quality modeling techniques to ascertain the impact of different levels of treatment on the receiving water bodies, and demonstrated that the receiving river body has the assimilation capacity to accept a preliminary-treated effluent.

38. By using hydraulic models to simulate flood conditions and the behavior of the rivers and lagoons, it was possible to identify safe limits for human occupation at the edges of the lagoons. Raising the maximum water level in the lagoons (to 56 m) to increase their absorption capacity

during floods was rejected since it was shown that this solution would lead to a very high level of resettlement – the studies identified an optimal level of the water that thus took into account social and environmental impacts and optimal operation of the drainage lagoons.

39. All the other physical interventions proposed under the urban-environmental upgrading activities of the Project, not mentioned herein, were also subject to the analysis of alternatives in order to find optimum intervention solutions based on economic, financial, environmental, social and technical considerations.

C. IMPLEMENTATION

1. Partnership arrangements (if applicable)

Not Applicable.

2. Institutional and implementation arrangements

40. The implementation arrangements for the Project are organized around the following levels: (i) strategic decision-making; (ii) operational coordination; and (iii) execution. The main functions of each of the bodies involved at the different levels are detailed in Annex 6. The execution arrangements will utilize the following entities to handle Project coordination and participation, linked to each of these three levels:

41. **Project Steering Committee** ('*Conselho de acompanhamento*'): members will include the Mayor (*Prefeito*) and the Municipal Secretaries for Planning and Coordination, Finance, Education, and Health. The Steering Committee will meet quarterly to review progress generally and implementation of the **Annual Operative Plan** (AOP), specifically, to approve reports to be submitted to the Bank (financial management reports and implementation progress reports), to take strategic decisions regarding Project progress, to release resources from the municipal budget (replenishment of the designated account), etc.

42. At the local level, in all the areas of Project intervention, *Community Fora* will be established to allow the local population to accompany Project execution. The Fora will be organized by the Project's social outreach team (responsible for social and community development, resettlement planning and implementation, accompaniment, etc) and will include representatives of: (i) the municipality's Urban and Environmental Development Superintendency for the Centre/North region (SDU-C/N) responsible for civil works execution and supervision; (ii) those Municipal Secretariats involved in the implementation of local Project actions within their competence; and (iii) community representatives and civil society, and members of NGOs that provide social services in the areas of Project intervention. The Fora's monitoring of Project implementation progress, discussed at regular Fora meetings, will help in the drawing-up of the AOP for the subsequent financial year. The Community Fora will be the best-placed body to encourage co-responsibility of the interested parties – a vital element for the eventual success and sustainability of Project interventions. It will also help to ensure an effective 'watchdog' (*controle social*) function of regarding PMT's Project implementation performance. Furthermore, it will serve as an important link between the population and the

PMT, enabling social input into component design and execution, and immediate feedback from those living in the areas of intervention.

43. The Project is to be implemented by a *PMU* which is an integral part of the Municipal Secretariat of Planning, SEMPLAN. The PMU will be headed by a permanent PMT staff member and staffed with PMT civil servants, and executive coordination will be provided by the municipal secretary of finances. The PMU will be fully aligned with SEMPLAN's day-to-day *modus operandi* and with those of the other municipal implementing agencies. Decisions relevant to Project implementation will be considered at two levels – at a first instance, in SEMPLAN and, for decisions needing a higher instance, in the mayor's office. This implementation model has been successfully employed by PMT during Project preparation and in the execution of the accompanying PHRD grant.

44. Bidding and other tender documents for civil works, goods, consultant services and other procurement activities will be prepared by the PMU. The PMU will also supervise all Project activities and undertake the financial management (FM) including the preparation of payment requests based upon invoices submitted by suppliers, contractors and consultants. More details on the procurement and FM arrangements are presented in the respective annexes.

3. Monitoring and evaluation of outcomes/results

45. Overall responsibility for monitoring and evaluation (M&E) of Project components and activities, as described in the results framework, will lie with SEMPLAN's PMU. Responsibilities of other municipal entities with regard to M&E data collection is described in the results framework. The PMU will be assisted in the overall M&E process by specialized consultants as appropriate. The Project Operations Manual provides specific details regarding on the M&E responsibilities, including data collection requirements, timing and use of the information.

4. Sustainability

- **Borrower Commitment:** The Borrower has full ownership of the Project. The Project is fully demand driven, with the Bank adding additional value in the areas of institutional development and rigorous technical evaluation. The institutional aspects will contribute to the sustainability of the investments, especially in the area of municipal strengthening in financial and budget management processes and capacity, and in improvements to service delivery and urban and environmental management capacity and processes. The analysis of alternatives, and the study of the cumulative impacts of the Project's proposed interventions, ensure that the most appropriate solutions are being used contributes to their long-term sustainability.
- **Stakeholder Participation:** The Project has been discussed thoroughly with targeted beneficiaries, and it is widely accepted that this is a priority investment for the municipality. Stakeholders have been consulted on a number of occasions on the pros and cons of the Project, as part of the participatory planning process. In addition, during Project preparation, a social assessment and stakeholder analysis was undertaken which verified the broad support for the package of investments. This will serve as a baseline of information for the

public's perceptions and expectations of the Project, and will be repeated at the end of Project implementation for evaluation purposes.

5. Critical risks and possible controversial aspects

Risks	Risk Mitigation Measures	Risk Rating w/Mitigation
Inability of PMT to hedge exchange rate risk in dollar denominated debt.	Project preparation included a thorough fiscal assessment of PMT and its fiscal and financial management capacity. The fiscal assessment indicates a low-risk regarding exchange rate. Nevertheless, PMT has chosen a lending instrument that allows debt swaps to local currency during implementation and close monitoring and management of foreign exchange issues throughout Project implementation.	M
The process of formalizing WSS service provision in Teresina, in line with the new federal WSS law's timeframe, may result in a suboptimal service provision arrangement.	Detailed institutional reform analyses and strengthening plans were developed during Project preparation. PMT is currently preparing the municipal WSS plan and created in early 2007 the municipal WSS regulatory body (both required under the new law); it also created the municipal asset holding body. PMT is aware of the political sensitivities of municipalizing WSS services and, as it undertakes the critical steps to align it with the new law, is taking full account of political economy with GEPI and others. For the short term, PMT has entered into an interim legal arrangement with AGESPISA, valid through January 2010, which allows GEPI to access GOB PAC funds for investment in WSS in Teresina. The Project will support PMT in structuring a long-term solution to ensure it is aligned with the federal WSS law after January 2010. The Bank has also been providing support to GEPI and AGESPISA through PMSS in the development of alternative WSS service delivery models for the interior of the state, including scenarios for the loss of Teresina from the state utility.	M
Inexperience of the client with Bank procedures may cause delays in implementation. The financial management assessment rated the FM risk as substantial and the procurement assessment rated the procurement risk as high.	The FM and procurement risks were rated substantial and high, respectively, due to PMT's inexperience in implementing Bank projects. PMT has gained much experience recently with Bank FM and procurement processes during the implementation of the PHRD grant during Project preparation. PMT also has experience with the implementation of other integrated urban upgrading programs financed by the BNDES and CEF national banks. The FM system has been reviewed and deemed acceptable to the Bank. A risk mitigation plan has been established for Procurement. The PMU will be complemented with experienced individual consultants in the areas of Bank FM, procurement and safeguards.	M
The relatively large-scale of resettlement could cause delays given bureaucratic processes in land acquisition.	These actions will take place in parallel to engineering design and will be carefully phased to coincide with works implementation. Works not requiring resettlement will be executed first. A resettlement policy framework has been prepared.	M
Overall Risk		M

6. Loan/credit conditions and covenants

46. **There are no conditions of effectiveness:** During Project implementation no bidding processes in which the civil works involve resettlement shall proceed without Bank prior review and approval of the respective Resettlement Action Plan.

D. APPRAISAL SUMMARY

1. Economic, financial and fiscal analyses

47. **Economic Analysis:** A detailed cost-benefit analysis was prepared to determine the Project's economic feasibility, based on the infrastructure investment component. Results from the analysis demonstrate the overall economic viability of the Project as well as of its individual components. The details of the analysis are presented in Annex 9. For the estimation of benefits a detailed analysis of the potential beneficiary families was conducted, based on surveys conducted for a representative sample in the proposed areas of intervention.

48. The results of economic analysis for each major sub-component are summarized in the table below. With a positive net present value of R\$ 140 million and an overall economic internal rate of return of 24 percent, the Project is economically feasible. The robustness of this conclusion is supported by the results of a sensitivity analysis that was also carried out. All of the indicators analyzed presented levels of certainty of over 99 percent – thereby confirming the soundness of the results obtained.

Infrastructure Components	Net Present Value (R\$ 000)	Economic Internal Rate of Return (IRR %)
Drainage	61,345	23.2
Streets and Paving (1)	32,843	31.1
Streets and Paving (2)	5,405	13.4
Sewerage	33,643	24.9
Waste water treatment	1,737	22.5
Water	6,016	20.3
Total Project	140,988	24.00

49. **Financial Analysis:** The main aim of the financial viability study was to examine strategies and propose efficient mechanisms for ensuring the financial sustainability of the systems to be implanted, while taking into consideration the potential incremental resources that could be generated. The financial assessment, described in Annex 9, takes into consideration incremental income and expenditure accruing from Project implementation. The capacity for recovering the costs of interventions, in particular identifying specific revenue that could be generated by each component, was considered in the course of this task. The maintenance and operating costs of the proposed interventions provide a base for calculating the resources required for the sustainability of the Project. Some of these resources must be contributed by the beneficiaries through the payment of charges and taxes, according to their payment capacity. The sources of financial income from the Project include tariffs (based on AGESPISA's current tariff structure) that were used in the analysis of the WSS interventions. A simulation was made for the property tax (IPTU) based upon the expanded new infrastructure as a result of the proposed interventions. The financial analysis was conducted for each individual intervention and for the global cost of the Project based upon identification of the respective incremental revenues and costs resulting from the implementation of the interventions.

50. **Fiscal Analysis:** PMT has pursued strong fiscal governance in recent years, and this fiscal discipline can be maintained even when increasing its borrowing for investment under the

proposed Bank operation and through other financing sources. PMT has maintained a prudent fiscal stance since 1999. It is fully compliant with the legal requirements under the 2000 Federal Fiscal Responsibility Law (FRL), and its fiscal indicators are well below the ceilings set in the FRL. PMT's revenues grew slowly during 1999-2003, reflecting a dependence on relatively steady transfers from the federal and state governments, which represent the largest slice of municipal revenue. In 2005 and 2006, PMT maintained the sound fiscal behavior exhibited in the previous years. Municipal fiscal balances have improved as a result of a combination of control of current expenditures and good revenue performance. Primary balance grew strongly from 2.6 percent of net current revenue in 2004 to more than 10 percent in 2005. Figures through October 2006 indicate that the primary surplus in 2006 should be higher than those of 2005. As a result of its sound fiscal performance, PMT's FRL indicators improved substantially. The acceleration of financial assets accumulation resulted in a strong reduction of net consolidated debt which has turned negative passing from 10 percent of net current revenue in 2004, to -4 percent in 2005, and to -72 percent in October 2006. PMT has therefore increased the space for further indebtedness. Personnel expenditures were kept under control and maintained around 40 percent of net current revenue (against the 60 percent ceiling of the FRL). Other FRL indicators have been maintained well below the legal ceilings. The substantial primary balances obtained over the past few years and the impressive reduction of net debt, together with projections for fiscal balances based on realistic assumptions, indicate that Teresina has sufficient capacity to repay and contract new debt.

2. Technical

51. A comprehensive set of technical, environmental, social, institutional and service delivery analyses were undertaken as part of Project preparation, under the auspices of the municipality's PHRD grant, and are listed below. The corresponding preliminary or final reports can be found in the Project files: (i) water quality modeling of the lagoons and the adjacent rivers, demonstrating effects of different scenarios of wastewater effluent quantity and quality on the receiving water bodies; (ii) hydraulic modeling of the lagoons drainage system, with flood simulation scenarios; (iii) feasibility study design of water supply and sewerage/sanitation systems, and preliminary engineering design for optimization of the water supply system, in *Lagoas do Norte*; (iv) traffic demand study and feasibility engineering design of the *Lagoas do Norte* road system; (v) diagnosis of environmental recuperation of degraded areas within and around the lagoons; (vi) structural, geological and hydrological safety study of the River Parnaíba and River Poti dike system; (vii) topographical survey of the lagoons and their flood lines, register/mapping of typologies of houses in the region, and identification of those affected by the different flood lines; (viii) feasibility study of urbanization/landscaping of Lagoas do Norte Project area; (ix) Project Concept Report including consolidation of different Project preparation studies, institutional implementation arrangements, results framework, civil works implementation phasing arrangements, procurement plan; (x) diagnosis of local employment and income promotion for the Lagoas do Norte region; (xi) diagnosis of WSS service delivery alternatives for Teresina; (xii) diagnosis of PMT's financial, fiscal, budgeting and administrative management procedures and recommendations for improvement; (xiii) diagnosis of PMT's education policy, strategy and performance, and recommendations for improvement; (xiv) development and installation of computer-based Project management information system (MIS).

3. Fiduciary

52. **Financial Management:** A financial management (FM) risk assessment was carried out in accordance with OP/BP 10.02 and the ‘Financial Management Practices in World Bank Financed Investment Operations Manual’ issued by the Financial Management Sector Board on November 3, 2005. Project implementation will be coordinated by PMT’s PMU to be located within SEMPLAN. The overall objective of the assessment was to determine whether the Borrower and its PMU has acceptable financial management and disbursements arrangements in place. The conclusions of the assessment are that the FM arrangements of the proposed Project, as described in Annex 7, will satisfy the Bank’s minimum requirements, and that FM systems are or will be in place that can effectively control and monitor the Project and provide, with reasonable assurance, accurate and timely information on its implementation status. A risk assessment questionnaire was filled-in based on the observations made during the FM missions. The FM risk associated with the implementation of the Project is rated as substantial, and adequate mitigating measures were identified and discussed with PMT that will be implemented to ensure adequate financial management during execution. The risk assessment matrix in Annex 7 summarizes the degree of risk of each of the items related to Project financial management and presents the action plan to be followed by PMT to strengthen the FM arrangements.

53. **Procurement:** An assessment of PMT’s capacity to implement procurement actions for the Project was carried out. Procurement activities will be carried out by SEMPLAN and procurement monitoring and supervision will be undertaken by the PMU. The assessment reviewed the organizational structure for Project implementation and the interaction between the Project staff responsible for procurement and SEMPLAN’s relevant central unit for administration and finance. The issues/risks concerning procurement have been identified, and the corresponding mitigation measures include investments in organizational structure, human resources and equipment for the PMU. The corrective measures agreed with PMT are summarized in the action plan presented in Annex 8. The overall project risk for procurement is rated as high. The Borrower has prepared a Procurement Plan (PP) for Project implementation which describes the procurement methods to be employed. The PP will be updated in agreement with the Bank annually, or as required, to reflect the actual Project implementation needs and the improvements in institutional capacity. The PP, further details on procurement implementation arrangements, and other aspects of the procurement assessment are detailed in Annex 8 and in the Project Files.

4. Social

54. The *Lagoas do Norte* Project consists of a range of activities of benefit to the population of the municipality of Teresina as a whole, but with the bulk of activities directly focused on the population living in the *Lagoas do Norte* region. *Lagoas do Norte* is a region which concentrates a lower-income population and where public services are less in evidence, as are opportunities for economic development. Approximately 15 percent (around 100,000 people) of the total population of Teresina live in *Lagoas do Norte*, distributed within 13 neighborhoods, 65 percent of whom earns less than three minimum wages per month (or about US\$1.5/person/day), and the precarious socio-economic conditions of the families living there generate a high demand for social services. The percentage of women living in this area is significantly higher than in the

city overall. Informal economic activities predominate particularly in the service sector. Compared to the other five areas of the city, *Lagoas do Norte* contains more families living below the poverty line (25 percent) and families that are indigent (26 percent).

55. The main problems undermining the quality of life in the area include the urban degradation and lack of formal urban and social service provision, and the resulting health and environmental problems that are prominent in *Lagoas do Norte*. The Project includes activities intended to provide TA and investments to help the low-income population of the region cope with the daily challenges directly affecting them, and to contribute to improving the social status and quality of life of the resident population, including: (i) resettlement of the population at risk and those living in areas affected by the improvement works; (ii) provision of urban and social services; (iii) provision of new housing and programs for improving existing housing; and (iv) economic and social development programs aimed at supporting the generation of employment and income, as well as social promotion activities.

56. One of the economic activities in the Project area is clay extraction for the production of bricks and tiles undertaken in one of the lagoons in the region. The potters' work is seasonal, providing subsistence living for four months of the year, and is in decline owing to the exhaustion of the clay deposits and the deterioration in their quality, and the declining profit margins (the bricks produced are of poor quality and the product has difficulty finding a market). The clay extraction process is causing intense environmental degradation. Furthermore, the activity is irregular from a legal point of view since it does not conform to labor, mining nor environmental legislation. The Project will undertake the following activities to assist the potters: (i) professional training for employment in activities with market demand; (ii) training of entrepreneurs and the creation of small businesses; (iii) support for cooperative ventures; (iv) support for upgrading the quality of ceramic products; and (v) support for the legal regularization of the pottery activities and the identification of new deposits. Further details on these and the other aspects of the social analysis are presented in Annex 10.

5. Environment

57. **Environmental Impact Assessment** The environmental impacts of the Project are overwhelmingly positive, as would be expected of a Project whose main outcomes include: (i) the collection and treatment of 100 percent of the wastewater in the *Lagoas do Norte* region of the city; (ii) the recuperation of the quality of the water of all of the lagoons in the *Lagoas do Norte* region of the city – reducing the wastewater, solid waste and sediment pollution loads entering the lagoons; (iii) the recuperation and optimization of the micro- and macro-drainage system in *Lagoas do Norte* such that flood events are minimized; (iv) the recuperation of natural vegetation along the banks of the lagoons and the adjacent rivers; (v) improving the immediate local environment of families through new housing and improvements to existing housing; and (vi) the recuperation and construction of green spaces, parks and other community leisure equipment in the region. In accordance with Bank Safeguard Policy OP4.01, the Project has been classified as Category 'A' for environmental and safeguard impacts. An environmental assessment (EA) has been carried-out for the Project in order to identify potential environmental impacts, recommend mitigation and compensatory measures of the negative impacts and maximize the largely positive environmental impacts expected of the Project. Included in the EA report is a proposed Environmental Management Plan, which is fully incorporated into the

Project design. In addition to the EA, the project triggered the safeguards related to Natural Habitats, Safety of Dams, Protection of Physical Cultural Resources, and Involuntary Resettlement, which were adequately addressed in the course of Project preparation, as described in Annex 10, and as reflected in the Project design.

58. **Resettlement:** A Resettlement Policy Framework (RPF) has been prepared and can be found in the Project Files and is summarized in Annex 10. The RPF sets forth the policies and guidelines that will be put into practice as regards the resettlement of families that will be required during the course of Project implementation. No resettlement will take place during the first year of implementation, during which the detailed engineering designs and their respective Involuntary Resettlement Plans (IRPs) will be prepared based on the RPF. Each IRP will be reviewed and cleared by the Bank before related works can commence.

59. **Public Consultations** were carried out involving the population who will be directly affected by the interventions, the communities that would be subject to resettlement and the entities involved in undertaking Project interventions. These consultations have fed into the design of the Project components. In order to undertake the public consultation exercise and disseminate information about the Project, PMT undertook a series of public meetings: twelve meetings took place with a wide range of members of the public and of civil society – ranging from community leaders to local and state politicians. At all these events a video presentation of the proposed Project was shown and a description given of its various components, together with details of all proposed interventions and activities to be implemented. The questions raised and suggestions made by the audiences were taken into account in the Project design and summarized in the EAR. Records of the meetings (attendance lists, publicity material, documentation, photographs, summaries of debates, etc) are held on file in PMT's PMU.

60. In terms of the environmental and social impacts, a ‘without project’ scenario was considered: If the Project were not to go ahead, the *Lagoas do Norte* region will continue to deteriorate environmentally and the lagoons will be fully transformed into a depository for wastewater and garbage, full of disease-causing organisms and disease-carrying vectors; the population living at the edges of the lagoons (and actually within them) will continue to suffer periodic floods and risks to their homes, health, lives, livelihoods and quality of life, and will continue to have no access to alternative employment and income opportunities – effectively, they would continue to live in a situation of social exclusion. In this respect, the *Lagoas do Norte* region would become even more isolated from the rest of the city, with limited public sector intervention available to improve the quality of urban life and of the local environment. The Project triggers and addresses the following Bank safeguard policies:

61. **Environmental Assessment (OP 4.01):** Brazilian legislation requires a three-stage environmental licensing process with licenses issued at the preliminary, implementation and operation stages of any intervention. In addition to these requirements, an EA was prepared in compliance with the Bank policy and standards.

62. **Natural Habitats (OP 4.04):** This safeguard was triggered for the Project's proposed interventions in the lagoon and river ecosystems (the group of lagoons and their areas of permanent preservation, APPs, as protected by law). These interventions will consist of activities to revitalize the natural environments, mainly be recovering the water quality of the heavily-

polluted lagoons and re-establishing lagoon-and river-side flora. Families living around the banks of the lagoons subject to perennial flood risks will be resettled, enabling the surrounding lagoon habitats, including the water bodies themselves, to be rehabilitated.

63. **Involuntary Resettlement (OP 4.12):** Families living in APPs and in areas of permanent flood risk around the lagoons and alongside the rivers will be resettled – currently totaling some 1,288 families. A smaller number of families, 302, will also need to be resettled or compensated for in areas where the road system will be improved and where wastewater pumping stations constructed. The Project's most substantial intervention (construction of the ETE wastewater treatment plant) will be built on vacant land and will therefore not require any resettlement.

64. **Safety of Dams (OP 4.37):** Even though the existing flood control dikes lining the rivers Parnaiba and Poti in the region are low-lying structures, the Safety of Dams safeguard was nonetheless triggered. The dikes safety assessment report can be found in Project files, the main conclusion of which is that, given the stability of the slopes of the dikes, the risks of rupture are nonexistent.

65. **Protection of Physical Cultural Resources (OP 11.03):** Restoration of the '*Teatro do Boi*' theater forms part of the Project as does the integration and enhancement of the '*Parque Cabeca de Cuia*' municipal park located at the confluence of the Poti and Parnaiba Rivers. The activities and works foreshadowed in the Project will not interfere with any archaeological sites. Chance find procedures will be included in the instructions to contractors under all civil works bidding and contractual documentation.

66. **Project Disclosure:** In addition to the public consultations described above and undertaken as part of the Project preparation process, the relevant safeguard policy documents related to the Project (EA report and EMP, and the RPF) were sent to the Bank's InfoShop for the requisite disclosure on March 30, 2007. Furthermore, these same documents were simultaneously disclosed by PMT in Portuguese in a public place in Teresina (in the offices of SEMPLAN and on PMT's website) as part of the in-country disclosure of this material

6. Safeguard policies

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (<u>OP/BP/GP 4.01</u>)	[X]	[]
Natural Habitats (<u>OP/BP 4.04</u>)	[X]	[]
Pest Management (<u>OP 4.09</u>)	[]	[X]
Protection of Physical Cultural Resources (<u>OPN 11.03</u> , being revised as OP 4.11)	[X]	[]
Involuntary Resettlement (<u>OP/BP 4.12</u>)	[X]	[]
Indigenous Peoples (<u>OD 4.20</u> , being revised as OP 4.10)	[]	[X]
Forests (<u>OP/BP 4.36</u>)	[]	[X]
Safety of Dams (<u>OP/BP 4.37</u>)	[X]	[]
Projects in Disputed Areas (<u>OP/BP/GP 7.60</u>)*	[]	[X]
Projects on International Waterways (<u>OP/BP/GP 7.50</u>)	[]	[X]

Note that the dam, originally in the project design, was eliminated during project preparation.

7. Policy Exceptions and Readiness

No policy exceptions are anticipated.

* By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas

Annex 1: Country and Sector or Project Background

Teresina – Lagoas do Norte

The Brazil Municipal Lending Program Horizontal APL The Municipality of Teresina's proposed *Lagoas do Norte* Project is one of eight proposed municipal loans in Brazil that are being presented by the Bank under a broader Adaptable Program Loan (APL) instrument. This proposed operation, known as the **Brazil Municipal Lending Program** (BMLP), represents a pooled, direct-lending program of municipal support developed in line with the Bank's Municipal and City Strategy for Brazil. As a combined municipal lending program, the eight projects represent a total loan amount of some US\$240 M and a total municipal population of over five million people. The objectives of the BMLP are to: (i) improve the living conditions of the urban poor; (ii) promote innovation and improvement in the delivery of urban services, local governance and municipal management; (iii) facilitate local economic development; and (iv) foster stronger fiscal discipline – while serving as a vehicle for inter-municipal and intergovernmental knowledge sharing.

The Horizontal APL approach aims to draw on the comparative experiences and integrate the municipal portfolio under one thematic umbrella concept. While each loan is prepared individually, efficiency gains are achieved by preparing the operations with common teams, themes, and methodological and analytical approaches. The BMLP is designed in a phased manner, corresponding to the anticipated degree of readiness of the preparation of each project and to the timing with which the federal government releases each package for negotiation, with each loan being individually appraised and negotiated. A horizontal learning and knowledge-sharing component is being developed for implementation in parallel with the execution of the loans. The first of the loans under the BMLP, Uberaba, was presented to the Board together with the APL Project Document on March 21, 2007; the BMLP's second loan for Recife was approved on December 20, 2007. On this occasion the Board provided its approval of the overall Horizontal APL concept and of the first loan of the lending program (Uberaba), and gave its authorization to devolve approval of all subsequent loans under the Horizontal APL (up to a ceiling of US\$240 million) to the Regional Vice Presidency for Latin America and the Caribbean. The remaining operations under the BMLP, including the proposed Teresina Lagoas do Norte Project, will be approved by the LAC Regional Vice Presidency following established approval procedures for Horizontal APLs. A summary of the operations under the BMLP is found in the Umbrella PAD.

Teresina Background: Teresina is the capital of Piauí state in the semi-arid Northeast of Brazil – the country's poorest and least-developed region. The state lies on Brazil's northern coast, at the point of transition between the semi-arid *sertão* to its east in the states of Ceará, Pernambuco and Bahia, and the more humid *cerrado* to its south and west in the states of Tocantins and Maranhão. Piauí is perhaps best known for being Brazil's poorest state, although by per-capita income measures it no longer deserves this tag, having surpassed neighboring Maranhão during the 1980s. As well as poor, Piauí is also very unequal in its income distribution: in 2001 it ranked fifth among Brazilian states for income inequality behind Acre, Pernambuco, Ceará, and Alagoas. These factors conspire to give Piauí possibly the deepest poverty problem of any of the Brazilian states. In 2001 only Maranhão and Alagoas had higher poverty headcount ratios than Piauí, but the poverty gap, and other measures sensitive to the depth of poverty, places the state

at the bottom of the league. Piauí is ranked third from bottom nationally in terms of its human development index (HDI).

With some 800,000 residents, or a quarter of the state's population, Teresina has the lowest per capita income level of all Brazil's state capitals: in 2000 the average per capita income in the city was R\$ 3,008, compared to an average of R\$ 3,805 for the capitals of the Northeast states and R\$ 5,033 for all state capitals. Teresina nevertheless accounts for approximately two thirds of the GDP of Piauí. The municipality's HDI reflects that of the state: infant mortality is above the national average; income distribution is the fourth-worst of all Brazil's capitals; and some 52 percent of Teresina's children come from families with income levels of less than half a minimum salary, being the second-worst incidence among state capitals.

As a result of its strategic geographic location, the city not only attracts migrants from throughout the region but also exercises an important economic influence on the whole of Piauí, the eastern part of Maranhão, and the western reaches of Ceará and Pernambuco. The 2000 census shows Teresina's annual population growth rate to be 2.03%, compared with 1.09% for the state of Piauí, 1.31% for the Northeast, and 1.64% for the whole of Brazil. The historic response of local government to this urban influx has been inadequate, leading to disorderly occupations by poor populations who establish themselves in the peripheral areas of the city where basic urban services are at best precarious and, at worst, absent. Quality of life for these peri-urban inhabitants is very poor, and the lack of basic urban infrastructure, such as water supply, wastewater collection and treatment, drainage and solid waste collection, also has a negative impact on the local environment.

The municipality's urban growth has been particularly accentuated since the 1970s, with the then-population of around 200,000 having nearly quadrupled to 788,000 by 2005. Over this period, the city expanded significantly in all directions. The urban area now corresponds to 95 percent of the municipal territory, with an average density of around 2,780 inhabitants per km². The municipality today occupies 1,672.5 km², of which some 275 km² are classified as urban. The results of Teresina's explosive growth can be seen in the disorderly expansion and organization of the urban space and land-use activities. 'Islands of wealth' in eastern Teresina and on the left bank of the River Poti contrast with the city's peripheral settlements, which are inhabited by low-income populations lacking basic urban infrastructure and other public services. The city growth has exceeded the capacity of PMT to attend to the infrastructure and social needs of its inhabitants. Recent surveys have identified 150 slums and other substandard settlements in the city containing nearly 40,000 households. Estimates of the city's housing shortage vary between 20,000 units (*Observatório das Metrópoles*, IPPUR/UFRJ) and 60,000 units (Federation of Neighborhood Associations and Community Councils, FAMCC, Teresina).

In 2000 Teresina recorded the following indices related to water supply, wastewater and garbage disposal: water supply coverage reached 94 percent of all households through the formal reticulated system, sewerage 14 percent, and regular garbage collection 85 percent. The concession for water supply and wastewater services, previously held by AGESPISA, has not been renewed by PMT since it expired in 1997. This impasse, together with the overall inefficiency of AGESPISA, has impeded the expansion and improvement of the services.

Despite these challenges, the city displays a number of more optimistic socio-economic trends: The municipal-disaggregated HDI increased from 0.688 in 1991 to 0.767 in 2000. Child mortality rates are currently 19.1 per thousand live births, better in comparison to a number of other capitals in the Northeast region. The illiteracy rate remains at some 13 percent (2000), while the Family Health Program covers 79 percent of the population. Today Teresina plays host to a significant number of 'first-line' state hospitals, together with modern laboratories and clinics offering an array of specialized medical services. Over recent years, the availability of technologically advanced medical, hospital and laboratory equipment has increased substantially, to the point where Teresina is now considered a *Regional Health Hub*. FMS, the local management body for the National Health System, is responsible for prevention and health promotion policies in Teresina. The public health network, together with private healthcare facilities, is extensive.

The following indicators apply to the education system in Teresina. Virtually the entire eligible population is served by Primary Education schools (nearly 99 percent), with a low level of non-attendance (under 0.5 percent in 2003), a high pass rate (81 percent) and a relatively low proportion of pupils studying in grades incompatible with their ages (some 17 percent in 2003). The illiteracy rate remains at around 13 percent. IBGE data confirms that the literate population over the last 30 years has increased substantially – from 55 percent in 1970 to 80 percent in 2000. Nevertheless, the performance of PMT, through its three secretariats responsible for Primary Education (SEMEC, SEMCAD and SEMTCAS), is lagging.

The Municipal Secretariat for Employment, Citizenship and Social Assistance (SEMTCAS) is responsible for managing welfare activities in Teresina aimed at combating the poverty and social exclusion suffered by a significant percentage of the population. SEMTCAS undertakes a series of policy actions designed to attend to individuals or families living in extreme poverty or considered to be living in situations of social risk. Welfare services are provided directly by SEMTCAS or by the social assistance services network comprising governmental and non-governmental organizations. The new guidelines of the National Social Assistance Policy, approved in September 2004, aim to reorganize the programs, projects, services and benefits through the implementation of the Single Social Assistance System (SUAS). These services are coordinated and organized by the Social Assistance Reference Centre (CRAS), a municipal government body with a presence in socially-vulnerable areas. In 2005, SEMTCAS initiated the implementation of CRAS throughout the city with the aim of decentralizing the municipality's various welfare services.

PMT is the biggest employer in the city, with over 11,000 employees. Of these some 3,700 (with university level education) occupy technical posts. PMT is involved in a number of initiatives to modernize its management capabilities. In 2001 it undertook an administrative reform and decentralized certain sectors that were previously the responsibility of municipal secretariats, while creating three 'Urban and Environmental Development Superintendencies' (SDUs) and one Rural Development Superintendency.

Despite the traditionally inadequate response to the disorderly expansion, PMT and other actors have promoted some important recent developments with regard to planning the city's

development. Firstly, in 2001, the *Integrated Development Region of Greater Teresina* was first proposed, encompassing 13 municipalities in Piauí and one in neighboring Maranhão (with a total population in excess of one million), with a view to better articulating local government interventions within the area of influence of the state capital. Secondly, in mid-2001, through its '*Congresso da Cidade*' (city congress), PMT and civil society embarked upon a participatory process to define an '*Agenda Teresina 2015*' – a development vision for the city. Otherwise known as '*Agenda 2015*' the twelve month process defined 17 development themes, taking into account the city's socio-economic development potential, trends and vocations.

The *Agenda 21* strategy focused on development issues that reflect the aptitudes, trends and potentialities of Teresina. Two development scenarios were proposed for the city over the 13 year design horizon: (i) an *Inertia Scenario*, assuming a population of 715,000 inhabitants (year 2000), with an annual 2.2 percent growth rate, viewed the prospects for the city in the event of the absence of the necessary and desirable interventions; and (ii) a *Desirable Scenario*, which described what the city's inhabitants requests and demands. The strengths and weaknesses of the many aspects considered important for improving the quality of life of the population – with emphasis on the strategies and macro-objectives needed to attain the *Desirable Scenario* – were thoroughly examined by PMT which, as a result of this process, decided to prioritize three strategic areas of action: (i) economic aptitudes and employment; (ii) the spatial aspects of Teresina; and (iii) social integration.

Following its incorporation into Brazil's road network, the capital of Piauí increased its area of influence in terms of education and health services provision and, to a lesser extent, on account of the growth of commercial activity in the city. In due course the city held influence over a broader area comprising not only the municipalities of the state of Piauí but also those belonging to other states, especially neighboring Maranhão. With the aim of consolidating the capital's area of influence the *Integrated Development Region of Greater Teresina* was established by Federal Law in 2001. In addition, the core of PMT's 2005-2008 *multi-year investment plan* consists of a group of policies designed to accelerate economic development and reduce the poverty and inequality affecting a substantial section of the population. Priorities have been established which involve making concerted efforts to promote the sustainable development of the municipality. These priorities are grouped into the following five component parts.

The **Human and Social Development** component relates to poverty reduction and social inclusion policies that combine economic efficiency with social equity. These involve PMT fostering the integration of its own sectoral activities with other levels of government and with civil society organizations, and establishing the concept of people as agents, and not mere beneficiaries, of the development process.

The **Urban Development** component is concerned more than with just the construction of physical spaces. The aim is to provide opportunities for inculcating values that constitute the 'soul' of a city. PMT is committed, *inter alia*, to taking steps to make Teresina a greener and more amenable place where people can meet in congenial surroundings.

The **Economic Growth** component is based on a dual approach: one objective is to attract investment; the other is to encourage entrepreneurial skills among the city's residents by

strengthening the links between the economic activities of the city and those of the outlying rural areas. The city needs to evolve as a major regional economic centre and PMT intends to take every opportunity to liaise with the federal and state governments, and with civil society, to boost economic growth in the municipality, particularly in the sectors for which Teresina is best known, such as small businesses and services.

The **Special Areas Integrated Action** component covers four major programs: the proposed Bank-financed Lagoas do Norte Project; the Health Hub (*Pólo de Saúde*) program; the program for revitalizing the city centre; and the *Vila-Bairro* program. The latter program was initiated by PMT in 1996 and still under implementation in some areas of the city, is designed to integrate peri-urban areas into the city's infrastructure and socio-economic fabric through cross-sectoral interventions – designed in a participatory way – in urban upgrading, basic service provision, and social inclusion and employment creation activities. This program has been recognized, both nationally and internationally, for its innovative and integrated approach to urban upgrading. The proposed Bank Lagoas do Norte Project would build on this experience, and scale it up, so that an entire region of the city benefits from better quality of life and inclusion within the dynamics of the city as a whole.

Finally, the **Municipal Management Modernization and Governance** component aims to: (i) strengthen PMT's capacity and reformulate its priorities; (ii) encourage more participation by citizens in the decision-making process through, for example, improvements in the existing 'participatory councils' mechanism; and (iii) improve PMT's accountability to the people it serves. PMT has made headway over the last few years in the areas of municipal management modernization and city development, with financial assistance provided by the BNDES under the federal Tax Administration Modernization program (PMAT), providing, for example, training and orientation for staff capacity building. The proposed Bank-financed Project is also designed to complement these PMT initiatives with actions focused on institutional strengthening.

The Lagoas do Norte Region: As part of its strategic planning process, PMT has focused efforts on Lagoas do Norte – an environmentally and socially vulnerable region of the city requiring special interventions. The frequent flooding and social exclusion that affect the lagoons area in the northern part of Teresina have resulted in the need to design and implement an investment program specifically for this region, which suffers from housing, health, environmental, cultural, social and economic problems that set it apart from the rest of the city. The *Lagoas do Norte* region consists of 13 neighborhoods⁶ covering an area of some 1,311 km². According to 2005 data, 104,000 people live in the region, and population density varies between 200 inhabitants per hectare in the São Francisco neighborhood and 18 inhabitants per hectare in Olarias.

The Lagoas do Norte region, located at the confluence of the Poti and Parnaíba Rivers, is highly vulnerable from an environmental point of view as a result of the combination of: (i) a high incidence of fluvial-lacustral sediments; (ii) a large flat, low-lying, flood-prone area; (iii) permeable sandy soils; and (iv) large and shallow water bodies forming an interlinked series of lagoons. The region used to contain some 34 lagoons formed by the '*paleocanals*' of the Parnaíba River, with the Mocambinho lagoon area forming an independent superficial drainage

⁶ São Francisco, Mocambinho, Poti Velho, Olarias, Alto Alegre, Itaperu, Mafrense, São Joaquim, Nova Brasília, Aeroporto, Alvorada, Matadouro and Acarape.

system. Today, however, the majority of these lagoons have been filled in as a result of unplanned and unauthorized activities by the region's residents creating new housing plots or extending the areas of their existing plots. Smaller lagoons are now reduced to pools, surrounded by housing and generally empty during the dry season. Other lagoons have undergone changes as the result of excavations. A dozen lagoons remain, with varying sizes and depths – these will be subject to a number of the key urban-environmental interventions under the proposed Lagoas do Norte Project to improve the associated environmental, urban and social conditions.

The rainy season normally causes a sharp rise in the level of the Parnaíba and Poti rivers, particularly during April when torrential rains are frequent. This rise in the water levels causes the rivers to overflow and flood the plain where the rivers meet, precisely where the lagoon systems is located. Much interference to the natural drainage systems, the flow processes and the ecological role of the lagoons and interlinking canal systems, has occurred over the years as a result of the disorderly urban occupation. This in turn has had a negative effect on the safety and quality of life of the local population from the point of view of perennial flood damage and from the high level of contamination in the lagoons caused by the uncontrolled discharge of domestic wastewater and garbage. In 1960 and 1970 flooding was recorded throughout the entire Lagoas do Norte region, but the flood damage was limited given the low population density of the region at the time. After the 1970 floods, DNOS constructed the Boa Esperança protection dike in the region with a height varying between 59.3 and 60.1 meters above sea level. In April 1985 the Parnaíba and Poti Rivers simultaneously experienced particularly high flood levels, resulting in the Poti overflowing at a point unprotected by the Boa Esperança dike. The flooding of the region had serious consequences for the resident population. It was subsequently established that this flood level could be reached or breached every 44 years in the Parnaíba River and every 40 years in the Poti. The 1985 floods thus led to: (i) the extension of the Boa Esperança dike as far as Mocambinho; (ii) the upgrading of the communication drainage channels between a number of the lagoons; and (iii) the installation of pumping systems in the Oleiros and Mocambinho lagoons, respectively.

The flow communication channels between the lagoons are a preferential route for stormwater flow in the lagoon series. This system consisted of canals or channels linking various lagoons with the São Joaquim lagoon (where a high-water level of 55 m is maintained), and thence from the São Joaquim lagoon to the Oleiros lagoon, from where the water is pumped to the Parnaíba River. The pumping system currently in operation aims to maintain the level of the Oleiros lagoon between 53 m and 56 m above sea level, with the pumps coming into operation (with a capacity of about $1 \text{ m}^3/\text{s}$) when the level reaches 54 m. Given that flooding can affect a number of dwellings in the Oleiros lagoon at a level of 56 m above sea level, the water level in this lagoon currently needs to be maintained at around 55 m. This lagoon/channel/pumping system was designed to avoid the accumulation of excess water volumes flowing from the other lagoons, and to create a larger buffer in the final lagoon for receiving water during the rainy season.

However, the system also results in a considerable outflow from the larger lagoons during the dry seasons (which last for some nine months a year) and thus leads to a fresh spate of disorderly occupation. Land with levels of around 56 m (where flooding recurrence is expected every 10 years) has been occupied, with irregular housing encroaching on and around the lagoons and negatively affecting the flood buffer zones. The additional drainage achieved via the pumping

systems exposes more of the lagoon beds for longer periods of the year, facilitating the informal, rudimentary extraction of clay for ceramic production (bricks and handicrafts), especially in the Oleiros lagoon, as well as the harvesting of pebbles in the small lagoons which form a belt to the south.

The majority of the lagoons are now grossly polluted due to the uncontrolled human occupation of the surrounding areas, the lack of basic services, and the consequent dumping of garbage and wastewater into the lagoons. This has reduced the storage and flow capacities of the entire lagoon-channel system and has transformed the lagoons into a major source of disease and nuisance for the surrounding population. In 1995, heavy rain over a short period resulted in another flooding incident which reached the 57 m water level and made some 2,000 families homeless (the risk of a recurrence of floods of this size is now estimated at once every 16 years). The latest floods occurred at the beginning of 2004 with disastrous results: some 3,000 families were made homeless, receiving assistance by PMT's welfare services through temporary housing in public shelters or in the homes of relatives and friends.

Urban expansion and housing: The empty spaces between the lagoons in the region have been gradually occupied over the years, with drainage channels being covered over and new landfills created. In the Poti Velho area, for example, COHAB constructed nine popular housing units during the 1970s and 80s, comprising over 6,500 residential units. With the property value appreciation in the south and east of Teresina, the lower-income population began to irregularly occupy low-lying northern area (most of the corresponding land belonging to PMT) that had effectively been protected since the 1970s by the Boa Esperança dike. Occupation of the area was accelerated by a large numbers migrating from the interior of Piauí, resulting in a high population density, with families generally living in precarious wood-and-mud dwellings. As is the case for the city of Teresina as a whole, according to the most recent census data, the neighborhoods in the Lagoas do Norte region present an average of over 4.3 people per household. The highest figures are recorded for the Poti Velho and Mafrense neighborhoods – 4.75 and 4.58 per household, respectively. Although residential occupation statistics show 85 percent being owner-occupied, 16 percent of all homes in the region are nevertheless registered as being located in low income settlements/slums.

Road system: The road system in the region occupies the non-floodable strips between the natural and artificial lagoons and the areas between the lagoons filled in by both regular and substandard settlements. Difficulties are encountered by traffic heading for the northern area of Teresina on account of the incomplete/piecemeal road system (mainly affecting the roads used for public transport). Few transversal link roads exist, the roads themselves are in an unsatisfactory physical state (inappropriate width, poor maintenance) and intense bicycle traffic clogs the main roads on the North-South axis. Given the above problems, journey times are seriously affected, vehicles are subject to wear and tear, and cyclists run an ever-present risk of accidents. Without systematic interventions, these problems will tend to worsen since, with the proposed construction of a new bridge and a new link road (located beyond the confluence of the rivers) to serve the northern area of the city, traffic will increase. A number of localities in this area presently lack any access roads, principally on the East-West axis. The absence of a properly organized road network, based on an orderly pattern of interlinked roads and streets, makes access difficult and prevents the easy movement of people, products and services, contributing to the isolation of the region from the rest of the city.

Water supply, wastewater and solid waste: According to IBGE, the access to public service in the Lagoas do Norte region is comparable with the averages for the city as a whole, with the clear exception of the lack of internal household sanitary fittings and the lack of sewerage. The latter is available to only 10 percent of households in Lagoas do Norte, and a similar number of homes have no bathrooms or lavatories whatsoever – below the average recorded for the city as a whole. The situation is of greatest concern in Olarias, where around 65 percent of homes possess neither bathroom nor lavatory and, in 2000, only a single household was connected to the wastewater network. In the Lagoas do Norte region, as for the rest of the city, water supply and sewerage services are provided by the Piauí state water company, AGESPISA. Around 96 percent of all residences in the region receive treated water. However, problems related to the operation and management of the system – and the associated provision of water supplies of an acceptable standard (frequency, pressure, physico-chemical and bacteriological water quality, etc) – affect the northern region as they do the rest of the city.

The sanitation solution generally adopted by households in the lagoons region consists of the use of septic tanks or dry pits (both liable to cause problems in areas with high water tables) or the disposal of wastewater to the ground, to streets and their drains, or directly into the lagoons. Wastewater also flows into the communication channels linking the lagoons that were originally designed as part of the flood control system. Given the associated increasing amounts of organic and other pollution loads reaching them, the lagoons suffer from gross pollution and saturation, with a low wastewater absorption and purification capacity. The water quality in the lagoons is undergoing significant changes, noticeable mainly from the increasing odor nuisance in the vicinity. Since the drainage system of most of the region caters for stormwater, wastewater and graywater, the lagoons are currently a source of serious environmental and health problems. The disorderly occupation of the lagoon banks and the indiscriminate disposal of domestic solid waste only exacerbate the situation. The lagoons can thus be characterized as suffering from an advanced process of environmental degradation with accompanying serious public health risks. The frequent overflow of the lagoon waters during the rainy season causes floods and epidemics.

The solid waste produced in the region is considered to be of poor quality, given its low quantity of organic material (under 10 percent). According to the Municipal Cleansing Department, the average per capita production of garbage is around 0.5 kg/inhabitant/day. The garbage collection service covers on average 92 percent of the homes in the region, from where it is taken to the municipal dump. This incidence is reduced to 77 percent in Alto Alegre, 67 percent in Nova Brasília, and 55 percent in Olarias.

Social features: The majority of the neighborhoods in the northern region have populations of under 10,000, with the exception of Mocambinho and São Joaquim which together account for over 40 percent of the region's population. The demographic profile of the municipality shows a broad-based age pyramid and the predominance of females, representing nearly 53 percent of the total. This accounts for the prevalence of women seeking professional training and jobs. In addition to the large number of females in the population, the region contains many young people: the 0-14 age range represents over one third of all the inhabitants. Conversely, the population in the over-64 age bracket resident in the region represents just under 4 percent of the total population, which is higher than the 3 percent incidence of the senior urban population in Teresina overall.

Basic social services: During a recent PMT administration reform, four superintendencies were established to cover each of the administrative areas of the city (Centre-North, South, East and South-West), with the dual aim of bringing PMT services closer to the population and decentralizing the municipal bodies responsible for providing urbanization and environmental services,. A series of modifications have been gradually introduced since 2001 in terms of the operational approaches adopted, particularly regarding the health, education, social assistance and special protection systems, which are all being gradually reorganized in terms of hierarchy and regionalization with a view to improving articulation between the different services, and bringing them into line with consolidated municipal policies.

Health: Two hospitals and five health centers are located in the northern area of the city. The hospitals deal with more complex cases, providing outpatient treatment, accident and emergency services, obstetrics and neonatology, while the health centers deal with outpatients and primary care. Under the PSF, and in conjunction with the Community Health Agents Program (PACS), 27 teams operate in the neighborhoods covered by the proposed Lagoas do Norte Project. The health units are each divided into four specialties: primary care, actions related to special central government health programs, epidemiology, and zoonosis. In May 2005, the health units in the northern area of the city received nearly 80,000 patients – corresponding to over 75 percent of the region's population. The shortfall in attendance was accounted for mainly by (i) a number of units lacking appropriate physical space to accommodate new PSF teams, and (ii) a lack of health reference units in some of the neighborhoods. Despite the social benefits achieved following the initiation of the SUS and PSF programs, the number of epidemiological events recorded in the lagoons region indicates that the health of the population is at risk, primarily because of the poor sanitary conditions associated with the physical characteristics of the region. The incidence of dengue and meningitis, for example, highlights the need for scaling up urban-environmental interventions in this respect.

Education: The low indices of literacy and years of schooling for the Lagoas do Norte region demonstrate the underachievement of the population in educational terms. One result of this is that people in the region tend to lack the basic qualifications required for the local employment market. Given that sufficient places exist in the schools to meet demand at the basic education level, school coverage in the region can be considered ample. The majority of neighborhoods in the region also boast a number of private schools for this age group. The Lagoas do Norte region has eight public (municipal) primary schools. All the schools were built some years ago and their premises are in need of rehabilitation. Investment in the expansion of primary school coverage is urgently needed in order to satisfy growing demand in this age range. While basic education coverage is adequate, the primary level lags behind in the region (as in Teresina as a whole). In Lagoas do Norte, the 18 primary schools in operation registered 3,008 pupils in 2004, accounting for only one quarter of the children in this age range resident in the region. Partnerships between PMT, Piauí State Government and NGOs have been established over the last few years in an effort to increase the availability of primary school places (and to comply with federal constitutional requirements). The shortage of financial resources has led PMT to seek new partnerships in an effort to overcome the primary education funding problem.

Social assistance: The precarious socio-economic conditions in the lagoons region result in a huge demand for social assistance services. These services are provided primarily on the basis of partnerships between PMT and community/civil society organizations. In the Lagoas do Norte region, 45 NGOs (senior citizens groups, youth groups, mothers groups, etc) – all partners of SEMTCAS – are listed and registered with the Municipal Council for Social Assistance providing, *inter alia*, crèches, shelters, services for handicapped people, and activities aimed at child labor eradication. Establishment of the first CRAS in the Lagoas do Norte region is planned for the near future (in Mafrense).

Culture, leisure, and environmental conservation: The hot climate of the city has always induced the public authorities and the population to seek ways of lessening its effects. Over the last few decades, people living in Teresina have benefited from the greening of residential areas and from the presence of sandbanks in the rivers for leisure use during the summer. Given its natural environmental features, the environmental appeal of the lagoons region possesses considerable development potential. The strong and still-intact cultural features of the region, associated with a number of economic activities distinct from those in the rest of the city, reinforce this little explored aspect of the region. Sports, culture, leisure and environmental conservation facilities are available in the region, although their improved maintenance is needed. The proposed Project intends to maximize this cultural, leisure, sport and environmental conservation potential of the Lagoas do Norte region.

Community organization: A high level of organization and politicization of the population is evident in the region. This took root in the 1980s as the result of the precarious housing conditions and the constant flooding of the mostly substandard homes located on the banks of the rivers and lagoons. The 70 organizations representing the region's neighborhoods (the majority registered with the Municipal Social Assistance Council) mainly concern themselves with drawing attention to the difficult local urban-environmental-social conditions. These associations also play a role in the municipal social assistance network and in child/adolescent care. Three trade associations also operate in the region.

Employment and income: The economic profile of the lagoons region is not significantly different from that of the capital as a whole, with a substantial concentration of economic activity in the services sector. Services in the region account for almost 60 percent of all economic activity, with the commercial/trade sector representing over 35 percent. The industrial sector is a weak third, representing only around 5 percent of the region's economic activity. The Mocambinho and Aeroporto neighborhoods possess the largest number of businesses in the three sectors. There are no records of any formal economic activity in Olarias.

Although there is no specific analysis on the informal employment sector in Lagoas do Norte, information about the local situation can be deduced from the results of two recent city surveys:(the *Survey on the Impacts of the Employment and Income Generation Fund* and the *Socio-Economic Profile of Informal Trade Activity for the Central Area of Teresina*). These indicate that despite the predominance of females in the population, the workforce is predominantly male, most of the workers are from rural areas, educational levels are low, monthly income does not exceed two minimum salaries, and the lack of opportunities in the job market and shortage of capital, drive many workers into the informal sector. The most common activities in informal employment include: (i) production of handmade ceramic items throughout the year (water filters, pots, jars, handicrafts, etc); (ii) clothing production; (iii) manufacture of tiles and bricks during the summer, using rudimentary techniques (the producers – the *oleiros* – are organized in a cooperative system that operates sporadically; there are concerns about the exhaustion of the clay deposits in Olarias where clay extraction/pottery activities currently take place); (iv) small-scale fishing, almost entirely for domestic subsistence, accounts for a small portion of family income (this activity is undertaken more intensively during the periods when tile and brick production comes to a halt – when the clay extraction areas are flooded); and (v) seasonal production of rice, corn, beans, etc, in the flooded lowlands near the rivers.

Income data for Teresina indicate that some 65 percent of the population has an income of three minimum salaries, 5 percent have no income, and around 30 percent earn over three minimum salaries, resulting in average incomes of just over R\$ 670/month and a median of R\$ 295/month. In the region, individuals earning fewer than three minimum salaries represent nearly 65 percent of the total, while those earning over three minimum salaries account for some 35 percent; just over 1 percent of families have no stated income. This situation approximates that of the city as a whole, where most people earn between three-quarters and one minimum salary. In the area of influence of Lagoas do Norte, the main potential sources of income are: the manufacture and marketing of ceramic handicrafts; clothing production; local and weekend tourism focused on the main attraction (the meeting of the waters located in an environmental park) and the fact that the city was founded in this region, the prospective establishment of the Northern Business Hub (*Pólo Empresarial Norte*); handmade tiles and bricks; and the possibility of fishing in the rivers and lagoons as a profitable economic activity (the sale of fish or remunerated leisure fishing trips).

Water supply and wastewater services in Teresina: In Piauí, the state water and sewerage company AGESPISA is responsible for water supply in 139 of the state's 221 municipalities but provides wastewater services to only three municipalities. Of the total number of municipalities served in 2001, the company had regular concession contracts with 82. In 24 municipalities the

contracts had expired and, in the remaining 33, contracts were nonexistent (including in the state capital, the company's biggest client). The AGESPISA model was developed during the PLANASA program (the *Plano Nacional de Saneamento*, or National Sanitation Plan) at the beginning of the 1970s. The model is based on state service providers with a common statewide tariff, offering the possibility of 'cross subsidies' through which the largest and richest cities subsidize the smaller and less viable systems. Unfortunately this system has shown to not always provide incentives for efficiency and, in the case of Piauí, highly penalizes the capital city of Teresina. In practice, AGESPISA has used the relative economic strength of Teresina to develop unsustainable administrative overheads and, rather than providing a 'cross subsidy' to consumers in smaller municipalities of the state interior, is, instead, only proving to be an economic and operational burden for the customers in the capital. Because of the delicate financial situation of AGESPISA, an its inherent financial and operational inefficiencies, and despite the economic strength and privileged situation of the capital, in terms of abundant water resources availability, the quality of WSS in Teresina is far from satisfactory.

Teresina presents many pressing WSS investment and operation challenges. The water supply system of Teresina serves approximately 95 percent of the population. Supply in some areas of the city is intermittent and is absent in a number of others, the standard of services (pressure, physico-chemical and bacteriological quality, etc) is generally poor throughout the city – this situation is due to problems of a technical, administrative and/or operational nature, which also cause high levels of wastage and loss. Further problems include the precarious state of repair of some of the production units, pumping stations and reservoirs, and the high average tariffs. Fewer than 50 percent of households with a monthly income of up to two minimum salaries are supplied with water. Meanwhile, wastewater collection is confined to under 15 percent of homes. Septic tanks, pit latrines and other rudimentary on-site solutions are common throughout the municipality, with nearly 75 percent of all households possessing some kind of sanitation solution.

AGESPISA is in a critical situation of pre-bankruptcy – its current operating losses are the result of a combination of two main factors: (i) the average revenue per customer of AGESPISA is 16 percent lower than the average for water companies in the Northeast region, despite the fact that it charges an average water tariff that is only 11 percent lower than the average in this region; (ii) the sum of the salary and external services costs is nearly 85 percent of the revenue, whereas the average value for the Northeast is 48 percent – this is the result of a higher number of staff and higher unit salary costs when compared to the other regional state water companies. According to recent analyses, even under the optimistic assumption of rapid and dramatic operating efficiency gains, the capacity of AGESPISA and/or the state government to finance new investment is extremely limited. GEPI has recently bailed out AGESPISA's accumulated debt for 2006 to the tune of R\$ 160 M – this approach is liable to be repeated as AGESPISA's financial situation only appears to deteriorate each year; such an arrangement complicates GEPI's own fiscal and debt-capacity situation. Despite this deteriorating financial situation, AGESPISA's unions have just successfully secured through the local courts an increase in their salaries. The weak and deteriorating financial situation of AGESPISA, and the absence of a significant proposal to reverse this situation on the part of its major shareholder, the state government, have led PMT to reevaluate the institutional model for WSS service provision in their city.

The recently approved federal law for water supply and sanitation⁷ brings long-awaited clarity to the institutional, regulatory, planning and service provision aspects of the sector. The law requires, *inter alia*, that states and municipalities formalize contractual arrangements between service providers and local governments, introduce regulatory and watchdog mechanisms, and prepare WSS plans. PMT is currently preparing the WSS plan for the municipality, and has recently created a municipal regulatory agency for WSS services (*Agência Municipal de Regulação de Serviços Públicos de Teresina*, ARSETE; municipal law 3.600, December 22, 2006) and a municipal public entity to assume legal title of WSS services and ownership of the related assets for Teresina (*Serviço Municipal de Águas e Esgotos*, SEMAE; municipal law 3.620, March 28, 2007). In addition, PMT has been investigating alternative WSS service delivery models for Teresina that will allow for operational and financial efficiency gains and for the leveraging of much-needed investment resources for the provision of universal services throughout the municipality within an acceptable timeframe. Furthermore, the federal and state *Ministério Público* presented a joint recommendation to PMT a couple of years ago requesting that PMT initiate a process to formalize and regularize, via a bidding process, the WSS service provision situation in the municipality stating that the status quo of poor service delivery and an informal relationship with AGESPISA cannot continue indefinitely. Under the federal government PAC initiative there is much FGTS financing available for WSS investment in Teresina – credit that could be borrowed by GEPI and/or AGESPISA. However, even if GEPI or AGESPISA had debt capacity, without first having a formal contractual arrangement for WSS service provision in place, the city would remain ineligible for such financing.

The diagnosis and prognosis of the restructuring of the Teresina WSS service delivery model has been undertaken with the support of the Project preparation PHRD grant that has financed a series of related technical, financial and legal studies. In addition, the Bank-financed PMSS project has been assisting GEPI in recent years with initiatives to restructure AGEPISA (with very limited results) as well to structure alternative service provision arrangements, utilizing the recently-approved consortia law, for the interior of the state (thus providing an institutional solution for WSS services in the interior should Teresina be removed from AGESPISA's responsibility). Under these studies, alternative structures were identified, based on the assumption that PMT would create a local public entity, the Municipal Entity for Water and Sanitation Services (*Serviço Autônomo de Águas e Esgotos*, SEMAE) for Teresina, which would assume the legal title of WSS services and ownership of the related assets. The SEMAE would then either: (i) sign a *program contract* with the incumbent state water company, AGESPISA (an arrangement known as '*contrato de programa*'); (ii) have the SEMAE staffed-up to provide WSS services itself; (iii) sign a performance-based *service contract*, with limited investment requirements, with a competitively selected operator (the arrangement known as '*contrato de gestão e operação*'); or (iv) sign a *concession contract* with a competitively selected operator (under federal law known as a '*concessão PPP patrocinada*'). PMT currently regards the latter municipalization/PPP arrangement as the most attractive and most viable for leveraging the necessary investment resources needed to provide universal service coverage within a reasonable horizon. The detailed studies undertaken as preparation of the PPP model, and further descriptions of this and the other alternatives considered by PMT, are in the Project Files.

⁷ Federal law 11.445, January 5, 2007

The federal law gives municipal governments until the end of 2009 to formalize their contractual service delivery arrangements. Given the situation described above, PMT recently signed an interim legal agreement (*autorização precária*) with AGESPISA that grants the latter permission to continue operating the Teresina WSS system until January 31, 2010. The signing of this agreement allowed GOB to provide grant and financing resources to GEPI for AGESPISA to invest in the expansion and improvement of WSS in Teresina in the short term. The Bank Project will support PMT in its continued efforts to identify the most viable service delivery arrangement for Teresina so that, by January 2010, it will be in full compliance with the requirements of the new law and with the demands of the *Ministério Público*.

PMT's financial and budget management: A robust public financial management system is essential for the implementation of policies and the achievement of municipal developmental objectives as it supports aggregate fiscal discipline, strategic allocation of resources, and efficient service delivery. To assess the quality of PMT's financial and budget management capacity and to establish a baseline against which future progress can be ascertained, PMT used the PHRD to conduct a detailed assessment of such management quality using a methodology developed by the Bank's Public Expenditure and Financial Accountability (PEFA) Secretariat⁸. This was the first application of the PEFA method in Brazil, and is thought to be one of the first applications of the PEFA evaluation framework for a municipal administration worldwide. The same framework will be used to reassess PMT's financial and budget management performance during and after Project implementation to track improvements that are expected to result from Project interventions. A demonstration of how this work is being considered a priority for the PMT is that several activities recommended by the diagnostic are already being implemented before project approval. For instance, in the area of financial management, PMT has already undertaken the following activities as recommended by the PEFA consultancy: (i) purchased and implemented an MIS integrating budget, fiscal and financial data for the municipality; (ii) created a tax revenue recovery program; (iii) updated its real estate inventory; and (iv) contracted a consultancy to reorganize PMT's administrative and human resources structure.

The PEFA framework is a tool that allows public financial management (PFM) performance measurement and provides reliable information of PFM systems, processes and institutions over time. An open and orderly PFM system is one of the enabling elements for the following desired budgetary outcomes: (i) effective controls of the budget totals and management of fiscal risks, to help maintain aggregate fiscal discipline; (ii) planning and executing the budget in line with PMT priorities contributes to the implementation of government objectives; and (iii) managing the use of budgeted resources contributes to efficient service delivery and value for money. The performance measurement framework identified the following critical performance dimensions of an open and orderly PFM system: (a) budget credibility; (b) budget comprehensiveness and transparency; (iii) policy-based budgeting; (iv) predictability and control in budget execution; (v) accounting, recording and reporting; and (vi) external scrutiny and audit. According to the PMT diagnosis, there are fragilities in the municipality's PFM system regarding budget formulation, execution and control of revenues and expenditures, lack of transparency, and legislation gaps. The report in the project files presents the key findings from the PEFA analysis.

⁸ *Public Financial Management Performance Measurement Framework* (June 2005).

Education services in Teresina As in other Brazilian municipalities, in recent years Teresina has experienced dramatic changes in the structure of its education sector. Three of these changes have been especially important: (i) the sharp decline in enrollment in *Ensino Fundamental* (targeted at students aged 7-14), which has been accompanied by a geographical redistribution of demand within the municipality; (ii) the pressure for a significant rise in the coverage of pre-school education (usually comprising children aged 4-6) by the municipal school network; and (iii) the opportunity to improve the use of existing physical and human resources by sharing the education market with GEPI, by concentrating PMT activities in pre-school and 1st to 4th grades, while leaving students in 5th to 8th grades and in *Ensino Médio* (ideally, youngsters aged 15-17) to be attended by state schools. Enrollment in pre-school remained relatively stable in 2000-2004, expanding by five percent against a much larger rise (nearly 30 percent) in the rest of the country. Behind this lackluster performance was an eight percent reduction in the number of children enrolled in private schools, which partly offset the large rise in municipal pre-school enrollment (which, at 45 percent, was well above the national average of 22 percent). The private sector nevertheless accounts for 60 percent of total enrollment in pre-school in Teresina, while PMT schools respond to the remaining 40 percent. Enrollment in *Ensino Fundamental* has shrunk significantly (36 percent between 2001 and 2004) as a result of a falling birth rate and the adoption of acceleration classes and other programs aimed at reducing age-grade distortion. *Ensino Fundamental* represented 65 percent of total Basic Education enrollment in 2000, but just 50 percent in 2004 – a declining trend which is expected to continue for a few years more.

The municipal network is facing a decline in demand (16 percent between 2000 and 2004), raising the municipal system's idle capacity. This process is particularly intense in urban areas with old schools. Peri-urban areas with high population growth as well as rural areas still have high demand for fundamental education. Hence, the rate of capacity utilization of municipal schools is not only relatively low but also not uniform across different neighborhoods. A redistribution of enrollment across schools, or a change in the type of use they are given (e.g., by transferring them to GEPI for use as *Ensino Médio* schools) could allow for a better use of these facilities. Alternatively, they could be transformed into pre-schools, allowing the PMT to expand the provision of *Educação Infantil*, without a need for new infrastructure investment. A similar argument is valid for the allocation of teachers and other school personnel. The state school network has also experienced a reduction in demand for *Ensino Fundamental*, but has managed to use most of the non-occupied installations to meet the rising demand for *Ensino Médio*. The state and municipal networks have started a *de facto* market specialization, as the former withdrew from *Educação Infantil* and the latter is not operating on *Ensino Médio* anymore. Both networks are providing *Ensino Fundamental*, with a continuous decline in the number of students attended since 2001.

About 10 percent of municipal teachers are allocated outside SEMEC, in other secretariats, and another 10 percent are in SEMEC but not occupying teaching positions, being instead in managerial and administrative functions. This means that 20 percent of the teacher contingent could be mobilized to expand SEMEC's teaching activities. Also, there has been a systematic increase in personnel, in spite of the decrease in enrollment, which has raised the secretariat's costs per student. SEMEC is also hiring teachers on contracts (*tercerizados*), whose share in the total number of teachers increased from 7 percent in 1998 to 30 percent in 2004. The increased reliance on contract teachers might weaken professionalism. Hence, there is considerable room

for improvement of education performance in Teresina through the adoption of better management processes to organize and control personnel allocation, particularly at school level, where there has been a loss in efficiency.

The PHRD diagnosis undertaken during Project preparation shows that PMT has been unable to deal efficiently with the challenges posed by these changes. Two main managerial problems are described in the study. Firstly, SEMEC lacks proper management tools to optimize the use of its resources. For instance, PMT has been expanding its school network and the number of teachers in *Ensino Fundamental* despite dropping enrollment figures. This expansion has also been taking place without accurate information on local needs and alternative forms of supply. Secondly, the different secretariats involved in supplying pre-school education are not coordinating their activities adequately. The multiplicity of agents involved, and the diversity of their actions, negatively impact the efficiency of PMT's direct and indirect services. Another related issue is the wide variation in the per-student cost of each of these suppliers of pre-school services. There is thus an opportunity to improve the allocation of human and infrastructure resources by improving PMT's management practices, tools and inter-secretariat coordination in the education sector.

Annex 2: Major Related Projects Financed by the Bank and/or other Agencies

Teresina – Lagoas do Norte

Sector Issues	Projects	Latest Supervision (ISR/ICR) Ratings ⁹	
		Implementation Progress	Development Objective
Bank Financed Projects			
Water Supply & Sanitation	BR-P006541 São Paulo, Paraná and Federal Water Quality Projects	S (ICR rating)	S (ICR rating)
	BR-P006368 First Water Sector Modernization Project	S (ICR rating)	S (ICR rating)
	BR-P043420 Second Water Sector Modernization Project	S	S
	BR-P082328 Betim Municipal Integrated Project	HS	S
	BR-P039199 Prosanear Technical Assistance Loan	MS	S
	BR—PE-089440 Brasília Environmentally Sustainable Project	MS	MS
Urban & Municipal Development	BR-P006436 Ceará Urban Development and Water Resources Management Project	S – Urban component (ICR rating)	S – Urban component (ICR rating)
	BR-P006524 Minas Gerais Municipal Development Project	S (ICR rating)	S (ICR rating)
	BR-P006562 Bahia Municipal Infrastructure Development and Management Project	S (ICR rating)	S (ICR rating)
	BR-P049265 Recife Urban Upgrading Project	MS	S
Other Development Agencies			
	BR- Municipality of Juiz de Fora Urban Environmental Rehabilitation (IDB)		
	BR- Municipality of Belo Horizonte DRENURBS (IDB)		
	BR- Municipality of Porto Alegre Environmental Rehabilitation (IDB)		
	BR- Municipality of Rio de Janeiro <i>Favela Bairro</i> (IDB)		
	BR- Municipality of São Paulo <i>Pro-Centro</i> (IDB)		
	BR- State of Amazonas: Manaus <i>Projecta Iguaçipes</i> (IDB)		

⁹ Provide for Bank-financed projects only

Annex 3: Results Framework and Monitoring

Teresina – Lagoas do Norte

Results Framework		
PDO	Outcome Indicators	Use of Outcome Information
<p>1. To modernize and improve the management capacity of Teresina Municipal Government in the financial, urban, environmental, service-delivery, and economic development fields</p> <p>2. To improve the quality of life of the low-income population of the <i>Lagoas do Norte</i> region of the city.</p>	<p>1. Municipal modernization</p> <p>1.1 Financial management: improve the municipality's aggregate PEFA¹⁰ score¹¹.</p> <p>1.2 Urban management:</p> <p>1.2.1 Urban legislation updated</p> <p>1.3 Environmental management:</p> <p>(i) Conclusion of regional environmental strategic evaluation disseminated and environmental legislation updated</p> <p>1.4 Service delivery management:</p> <p>(i) PMT compliance with new federal WSS law including:</p> <p>(a) preparation of municipal WSS plan</p> <p>(b) creation and strengthening of municipal WSS regulating body</p> <p>(c) formalization of WSS service delivery contractual arrangement</p> <p>(ii) implementation of new primary education policy</p> <p>2. Quality of Life in 'Lagoas do Norte'</p> <p>2.1 Increase in PMT's Standard Urbanization Indicator (IPMU¹²).</p> <p>2.2 Property values (hedonic pricing) in the <i>Lagoas do Norte</i> project area increase by 30% due to project investments.</p> <p>2.3 Increase in the percentage of the population reporting improvements in/satisfaction with: (i) urban services (WSS, drainage, solid waste management, public lighting, local transport, etc.); (ii) social services (health, education, job and training programs, etc), and (iii) quality of the local environment.</p> <p>2.4. Increase coverage of <i>Bolsa Família</i> Program from 85% to 95% of eligible families from Lagoas do Norte region</p> <p>2.5 Increase coverage from Family Health Program from 79% to 95%</p>	<p>1.1 Financial management indicators to accompany PMT's fiscal/budget management to correct/improve its current fiscal adjustment efforts.</p> <p>1.2 & 1.3 Urban/environmental management indicators to monitor and evaluate appropriateness and efficiency of PMT's public policies in these fields.</p> <p>1.4.1 WSS service delivery indicators to be used by new municipal regulating entity to verify that new service delivery consistent with contractual obligations</p> <p>1.4.2 use of indicator of new primary education policy.</p> <p>2.1 & 2.2 IEMU and hedonic pricing methodologies to determine impact of investments on property values and on quality of life in the target region (to be compared with control groups).</p> <p>2.3 Satisfaction levels in target region will be assessed pre- and post-project to determine perceived benefits. A household survey will be applied to assess impacts of investments and improved services, verify baseline, and final indicators.</p> <p>2.4-2.11 socio-economic development indicators to monitor and evaluate appropriateness and efficiency of PMT's public policies in these fields.</p> <ul style="list-style-type: none"> - social services delivery and social inclusion interventions. - income and employment generation interventions.

¹⁰ 'Public Financial Management Performance Measurement Framework' (June 2005) – The Public Expenditure and Financial Accountability (PEFA) Secretariat, World Bank.

¹¹ The PEFA aggregate score is calculated from an average of the 27 specific PEFA indicators, the letter scores of these being attributed the following weightings (A=5, B+=4.5, B=4, C+=3.5, C=3, D+=2.5, D=2, E+=1.5, E=1).

¹² PMT's '*Índice de Padrão Mínimo de Urbanização*' (IPMU)

PDO	Outcome Indicators	Use of Outcome Information
	<p>2.6 Increase from 90% to 95% the population with personal and work identification documents (around 5.000 people)</p> <p>2.7 Increase by 200% access to income and work generation programs (<i>Banco Popular</i>, micro-credit operations in the North region of Teresina).</p> <p>2.8 > 600 people benefited with technical training</p> <p>2.9 100% of brick makers working informally reinserted in the formal work market</p> <p>2.10 >100 new business started</p> <p>2.11 25% of 0-6 year-old children receiving pre-school education.</p>	
Intermediate Results One per Component	Results Indicators for Each Component	Use of Results Monitoring
Component 1: Municipal Management Modernization, City Development, and Project Management	<p>1.1 <u>Municipal mgt modernization:</u></p> <ul style="list-style-type: none"> 1.1.1 Financial mgt modernization: improve the following PEFA indicators: <ul style="list-style-type: none"> • budget credibility (PI-2) • budget comprehensiveness and transparency (PI-9, PI-10) • policy-based budgeting (PI-12) • predictability and control in budget execution (PI-14, PI-16, PI-18, PI-20, PI-21) 1.1.2 Urban management modernization: <ul style="list-style-type: none"> • Municipal urban master plan completed • Municipal drainage master plan completed • Municipal solid waste management master plan completed • Urban legislation updated on demand 1.1.3 Environmental mgt. modernization: <ul style="list-style-type: none"> • Average time required to obtain environmental approvals by PMT decreased by 80% • Regional environmental evaluation report 1.1.4 Service delivery mgt modernization: <p>Implementation of formalized WSS delivery model:</p> <ul style="list-style-type: none"> ○ revenues > costs ○ >90% of micro-metering ○ >20 hours service/day ○ water supply coverage at 98% ○ Water quality complying with Health Ministry Regulation 518 ○ sanitation coverage at 25% • Implementation of new pre-school education policy <p>1.2 <u>City Development:</u></p> <p>1.2.1 LED strategy elaborated in participatory manner and implementation of resulting Projects initiated</p>	<p>To demonstrate success and impacts of:</p> <ul style="list-style-type: none"> - financial/budget management interventions - urban management interventions - environmental management interventions - service delivery models, especially for WSS and pre-school education - city development strategy development - capacity building interventions - project management

Intermediate Results One per Component	Results Indicators for Each Component	Use of Results Monitoring
	<p>1.3 Project management:</p> <p>1.3.1 PMU unit in place and functioning (PMU staff nominated/contracted, MIS in place, M&E system in place, etc.)</p> <ul style="list-style-type: none"> • 1.3.2 100% of PMU staff and municipal line entities project staff undergone training in core material (procurement, financial management, M&E, etc.) 	
<p><i>Component 2: Integrated Urban-Environmental Development in the Lagoas do Norte region</i></p> <p>Improved urban/environmental quality of life in the <i>Lagoas do Norte</i> region</p> <p>Reduced risk of flooding</p>	<ul style="list-style-type: none"> • All families (1,288) living in areas subject to a 1 in 80 year flood resettled to new housing • 422 families benefiting from improved housing • Increase in coverage of water supply (96% to 100%), sewerage (9.5% to 90%) for Areas 1, 2, 3 and 4 of the region • Reduction in the incidence of water- and excreta-related disease transmission (indicator used by Family Health Program) • Reduction in the pollution levels of the lagoon water (BOD, fecal coliforms, phosphorous, nitrate) • Reduction in travel time between the centre of the city and the Lagoas region. • 70% reduction in the number of road accidents in the region • Improvement in water supply services: <ul style="list-style-type: none"> ◦ Improvement in continuity ◦ Improvement in pressure ◦ Improvement in water quality • Increase in green and leisure space (from 1.32 to 5.43 m²/habitant) 	<ul style="list-style-type: none"> - To demonstrate success and impacts of: <ul style="list-style-type: none"> - urbanization interventions - urban service delivery interventions - resettlement policy and methodology, for families subject to flood risk and for other families - environmental improvements - traffic flow and control mechanisms - green and leisure areas
<p><i>Component 3: Social and Economic Development in the Lagoas do Norte region</i></p>	<ul style="list-style-type: none"> • Percentage increase in eligible families registered in municipal income transfer Projects: <ul style="list-style-type: none"> ◦ PSF from 79 to 95% ◦ PT Renda from 85 to 95% • Percentage increase in population with personal employment documentation (from 90% to 95%, an increase of ~5000 people) • Percentage increase (>200%) in access of population to municipal job and income creation Project (<i>Banco Popular</i> micro credit) • > 600 working-age adults benefiting from work skills training Project • 100% of irregular clay workers (<i>oleiros</i>) reinserted in regular work market • >100 new small businesses set up 25% of children attending pre-school • 25% of children attending pre-school • 50% increase in sales of ornamental and utilitarian ceramic 	<p>To demonstrate success and impacts of:</p> <ul style="list-style-type: none"> - social service delivery and inclusion interventions - job and income creation interventions

Arrangements for Results Monitoring

Outcome Indicators	Baseline	Target Values			Data Collection and Reporting			Responsibility for Data Collection
		YR1	YR2	YR3	YR4	YR5	Frequency and Reports	
1.1 Financial management: improve the municipality's aggregate PEFA score	C+ (2005)		B		B+		Project implementation in progress reports, MTR report and Borrower's final report	PMU/PMT
1.2 Urban management:							Consultant analysis/survey	
1.3 Environmental management:							Consultant analysis/survey/ audit	
1.4 Service delivery management:							Consultant analysis	
1.4. Compliance with new federal WSS law: (i) Municipal WSS plan prepared (ii) Municipal WSS regulatory body functioning (iii) WSS service delivery contractual arrangement formalized	no no no	yes yes no	yes no	yes no			IPMU expected (all Areas)	PMU/PMT
1.4.2 implementation of new primary education policy:		no new policy		new policy developed			IPMU records / project MIS	
2.1 Increase in PMT's Standard Urbanization Indicator (IPMU).		IPMU low to medium					+10%	
2.2 increase in property values (hedonic pricing) in Lagoas do Norte		WTP survey 07/2005					+30%	Household price survey

Results Indicators for Each Component	Baseline	YR1	YR2	YR3	YR4	YR5	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
completed - Municipal drainage master plan completed - Municipal solid waste management master plan completed - Urban legislation updated on demand - Decrease in time to obtain PMT environ. approvals (% cf baseline)	No No Yes		Yes Yes Yes		Yes Yes Yes	Yes Yes Yes	Mid term Mid term Mid term	PMT Annual Report PMT Annual Report PMT Annual Report	PMU PMU PMU
Financial and operational efficiency of new WSS services: - revenues > costs >90% of micro-metering >20 hours service/day - water quality complying with Health Ministry Regulation 518	No No No No	Yes No No No	Yes Yes No No	Yes Yes Yes Yes	Yes Yes Yes Yes	Yes Yes Yes Yes	SEMAE Annual Report	PMT Annual Report	PMU
Implementation of new pre-school education policy - LED strategy elaborated - LED strategy implementation initiated	No No No	No No Yes	No No Yes	No No Yes	No No Yes	Yes Yes Yes	Implement'd Yes Yes	PMT Annual Report PMU Report	PMU PMU
PMU unit in place and functioning (PMU staff nominated/contracted, MIS in place, M&E system in place, etc.) PMU/municipal line entity project staff trained	No	Yes	Yes	Yes	Yes	Yes	Yes	PMU Report	PMU
<i>Component 2: Integrated Urban-Environmental Development in the Lagoas do Norte region</i> All families (1,288) living in areas subject to a 1 in 80 year flood resettled to new housing	0	156	445	609	1,116	1,288		PMU Report	PMU

Results Indicators for Each Component	Baseline	YR1	YR2	YR3	YR4	YRS	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
422 families benefiting from improved housing	0	50	107	373	422	422		PMU Report	PMU
Increase in coverage of water supply (WS), sewerage (S)	WS: 96% S: 9.5%	WS: 96% S: 9.5%	WS: 97% S: 12%	WS: 97% S: 15%	WS: 98% S: 20%	WS: 98% S: 25%		SEMAE/PMU Report	PMU
Reduction in the incidence of water- and excreta-related disease transmission (episodes/year)	501 (2005)	50%	60%	70%	80%	95%		PMU Report	PMU
Reduction in the pollution levels of the lagoon water: -BOD ₅ (mg/l)	Areas 1-4: 5.7 – 44 .8			Area 1: 0.05 – 3.3	Areas 1-4: 0.05 – 3.3			SEMAE/PMU Report	PMU
- fecal coliforms (per 100ml)	2.04x10 ⁵ – 2.03x10 ⁷			195 – 3.19x10 ⁵	195 – 3.19x10 ⁵				
- Phosphorous (mg/l)	0.07 – 2.16			0.00003 – 0.13	0.00003 – 0.13				
- Nitrate (mg/l)	1.0 – 19.5			0.002 – 0.43	0.002 – 0.43				
- dissolved oxygen (mg/l)	0.20 – 4.34			4.98 – 7.58	4.98 – 7.58				
Reduction in travel time between the city center and the region	TBD	TBD	TBD	TBD	TBD	TBD		STRANS/PMU Annual Report	
Reduction in the number of road accidents in the region (per year, cf. baseline)	211 (2005)			40%		70%			
Improvement in water supply services:									
- Improvement in continuity	TBD	TBD	TBD	TBD	TBD	TBD		SEMAE/PMU Report	
- Improvement in pressure	TBD	TBD	TBD	TBD	TBD	TBD			
- Improvement in water quality	TBD	TBD	TBD	TBD	TBD	TBD			
Increase in green and leisure space (m ² /habitant)	1.3			3.5 (Areas 1, 2)	5.43 (Areas 1- 4)				

Results Indicators for Each Component	Baseline	YR1	YR2	YR3	YR4	YR5	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
<i>Component 3: Social and Economic Development in the Lagoas do Norte region</i>									
Increase in eligible families registered in income transfer Projects (%): - PSF - PT Renda	79% 85%								
Increase in population with personal employment documentation (%)	90%								
Access to job/income creation Project (% increase)	1,236 operations/ yr	0	28%	44%	62%	89%			
Working-age adults benefiting from work skills training (#)	0 (2005)	0	180	360	540	720			
Clay workers (<i>oleiros</i>) reinserted in regular work market (%)	0	0	0	0	30%	100%			
New small businesses set up (#)									
Children attending pre-school (%)	22%			25%		25%			
Increase handicraft sales (%)		10%	20%	30%	40%	50%			

Annex 4: Detailed Project Description

Teresina – Lagoas do Norte

The identification of the Project's interventions, while based on the objectives and description provided in PMT's *Carta Consulta*, were refined as a result of the detailed discussion between PMT and the Bank during Project preparation. As a result of this process, the following Project Development Objective (PDO) was developed '*to (i) modernize and improve the management capacity of Teresina Municipal Government in the financial, urban, environmental, service-delivery, and economic development fields; and (ii) improve the quality of life of the low-income population of the Lagoas do Norte region of the city*', and the Project was divided into the following three components: (i) Component 1, Municipal Management Modernization, City Development, and Project Management; (ii) Component 2, Integrated Urban-Environmental Development in *Lagoas do Norte*; and (iii) Component 3, Social and Economic Development in *Lagoas do Norte*.

Component 1 groups the Project activities that are directly related to the first part of the PDO, modernization of municipal administration, while Components 2 and 3 encompass activities directly related to the second sub-objective, improving the quality of life in the *Lagoas do Norte* region of the city. Nevertheless, the ambitious, integrated investment program that the Project will support under Components 2 and 3 in the *Lagoas do Norte* region, with the overarching objective of transforming the quality of life in this area, will also bring much valuable experience to the municipal government on how to work in an integrated manner – with numerous entities within the municipal administration as well as with civil society and the private sector – in the improvement of municipal service provision and outreach to disadvantaged communities, the lessons learned from which will themselves make important contributions to the process of municipal modernization and management improvement.

Component 1: Municipal Management Modernization, City Development, and Project Management This component includes activities to consolidate PMT's recent efforts to improve its financial and budget management processes and capacity, to improve service delivery (in WSS and in education, among others), to improve urban and environmental management capacity and processes, and to lead the process and dialogue of the city's local economic and social development vision and strategy.

1.1 Financial and budget management modernization This sub-component is designed to improve the efficiency of financial and budget management and planning in order to improve PMT's allocation of resources. The support that the Project will bring to central planning, budgeting and financial management (under this sub-component) and to education services management (under sub-component 1.3) were identified by PMT as two areas of great relevance for more strategic decision-making about the utilization of scarce resources in the municipality. A diagnostic study was undertaken during Project preparation to provide better understanding and to guide prioritization of the most suitable activities that need to be implemented to tackle financial and budget management weaknesses in the municipal administration. The activities included in the Project under this subcomponent are as follows:

Implementation of an integrated system for planning and budget, financial management, accounting and administration: This activity is important since it supports budget formulation and execution, and encompasses: (i) tax administration; (ii) budget and financial administration; (iii) human resources; (iv) '*ouvidoria*' (ombudsman); (v) procurement and stock control; (vi) protocol and process control; (vii) management information; and (viii) legislation.

Definition and implementation of an internal control system: PMT's internal control is not performing well due to the absence of established common procedures to be followed by staff. This activity consists of designing an Internal Control System model and defining rules to be followed by staff.

TA for budget elaboration: TA for SEMPLAN, in coordination with SEMF and PMT's Financial Units, to fine-tune approaches to fiscal policy, LDO and LOA preparation, PPA review, etc. It is important that PMT agency heads participate in this process, which should encompass the following actions: (i) decisions to define PMT fiscal policy with estimation of revenues and expenditure aggregates, multiyear projections, estimation of fiscal results, definition of sector priorities, estimation of funds for the Secretariats; (ii) meetings between the Mayor and the Secretaries/Agencies to present the planning process, in order to foster their involvement; (iii) review of current programs/projects, taking into account an analysis of the reality of challenges facing PMT when considering Teresina's economic and social development; (iv) review of the 2006-2009 PPA and preparation of the LDO bill for 2007, 2008 and 2009; (v) establishment of sector ceilings ('*cotas*') and TA activities for Financial Units in the design of budget proposals, especially in sectors with large budget allocations (Health and Education, for example); and (vi) creation of platforms for monitoring and subsequent reporting of budget execution.

TA for budget execution: These activities should solve the fragilities that affect the efficiency of the planning and budgeting process in PMT, and include (i) TA for SEMF to produce a decree to establish rules and guidelines for budget execution (personnel hiring, deadlines and criteria for additional credits, rules for arrears, past year expenditures, among others); (ii) TA for SEMF, in coordination with Financial Units, to implement a Municipal Treasury Single Account and to rationalize budget execution to improve financial management and to reduce flows of documents and checks; and (iii) TA for the Treasury Department, in coordination with the Budget and Management Department, to: (a) review the approved budget and adopt procedures for controlling budget execution to meet fiscal targets; (b) set limits for commitments (*empenhos*); (c) design procedures for debt management and control; and (d) adopt fiscal risk management.

Municipal financial and budget management capacity building: Courses will be designed and implemented to explain to PMT participants the technical and legal requisites of processes that must be developed within the planning and budget, financial administration, accounting, and internal control systems to enable public service delivery with high standards of efficiency, efficacy and transparency. The following issues will be addressed: taxation and tax administration; planning and budget formulation; legislative analysis and legal approval; budget execution; accounting; internal and external control; as well issues concerning the institutional environment such as legal basis, public administration organization, human resources, and information systems.

Implementation of staff cadastre and staff re-registration: Consultant support will be provided under the Project to assist SEMA in undertaking this activity. SEMA will coordinate this work through the constitution of a special committee responsible for the definition of criteria and procedures to be used in the registration of staff, and will update staff information and control the new General Cadastre (to be transformed into safe database for efficient payroll control).

Update of general cadastres for tax administration: This activity consists of (i) updating the real estate inventory to incorporate changes and cover new areas; (ii) updating the *Planta Générica de Valores*; (iii) economic reregistering (*'recadastramento'*) and implementation of the National Classification of Economic Activities (CNAE-fiscal); (iv) a survey and register of the credits included and not included in active debt; and (v) implementation of a systematic approach to control tax credits and design of a strategy to intensify debts tracking.

1.2 Water supply and sanitation service delivery modernization The diagnosis and prognosis of the restructuring of the Teresina WSS service delivery model has been undertaken with the support of the PHRD grant that has financed a series of technical, financial and legal studies. In addition, the Bank-financed PMSS project has been assisting GEPI in recent years with initiatives to restructure AGEPISA (with very limited positive results) and to structure alternative service provision arrangements, utilizing the recently-approved consortia law, for the interior of the state (thus providing an institutional solution for WSS services in the interior should Teresina be removed from AGESPISA's responsibility). Under these studies, alternative structures were identified, with PMT subsequently creating a local public entity, the Municipal Entity for Water and Sanitation Services (*Serviço Municipal de Águas e Esgotos*, SEMAE) for Teresina, which will assume the legal title of WSS services and ownership of the related assets. The SEMAE would then either: (i) sign a *program contract* with the incumbent state water company, AGESPISA (an arrangement known as '*contrato de programa*'); (ii) have the SEMAE staffed-up to provide WSS services directly itself; (iii) sign a performance-based *service contract*, with limited investment requirements, with a competitively selected operator (the arrangement known as '*contrato de gestão e operação*'); or (iv) sign a *concession contract* with a competitively selected operator (known under federal law as a '*concessão PPP patrocinada*').

The new federal WSS law gives municipal governments until the end of 2009 to formalize their contractual service delivery arrangements. The Bank Project will support PMT in its continued efforts to identify the most feasible service delivery arrangement for Teresina within this timeframe, thus bringing it into line with the requirements of the new law and with the demands of the *Ministério Público* that a formal contractual arrangement for WSS service provision be developed in Teresina following a competitive bidding process. The Bank team, with EXTD support, has been providing PMT with assistance on how best to communicate to the general public, civil society, decision-makers, and other interested parties, the implications of municipalizing and contracting out the service. PMT intends to position itself well with regard to communicating the reality of the situation, and the implications of the new possible models. EXCD's global experience of effective communication on such issues is highly appreciated by PMT and, at their request, will be further drawn upon during implementation as appropriate.

This sub-component will assist PMT as it advances to comply with the new federal WSS law, including: (i) technical assistance in the preparation, discussion, finalization and dissemination of an integrated municipal WSS plan (to include water supply, sanitation, solid waste management, and drainage); (ii) the creation and strengthening of a municipal WSS regulating body; and (iii) the formalization of a service delivery mechanism consistent with federal law.

1.3 Education management modernization Education Policy was identified by PMT as a priority sector given its relevance for economic growth in the municipality, given the large share of the municipal budget that the education sector consumes, and given the fact that education has been historically managed in the municipality with no data analysis and tracking. To improve sector efficiency and service provision, and improve SEMEC's management capabilities, the following set of actions, structured in three groups, have been identified for implementation:

Institutional development: (i) contracting of specialist TA; (ii) establishment of an Education Strategic Planning Unit (UPEE); (iii) design and specification of methodologies, tools and standards for effectively implementing school autonomy; and (iv) implementation of the Education Evaluation System (SAETer).

Human Resources Development: Including activities aimed at building both managerial capacity and technical-operational skills in SEMEC: (i) capacity building in management for the staff working at the central offices of SEMEC; (ii) capacity building in management for school principals (directors and secretaries); (iii) TA for transfer of technical-operational expertise to the staff who will be in charge of implementing network planning; and (iv) capacity building activities for SIGET users.

1.4 Urban and environmental management modernization: This sub-component will assist PMT in its planning and control of the urban and environmental sectors in Teresina. In the urban management field the Project will provide support for the preparation of the city's municipal urban master plan, municipal transport master plan, municipal drainage master plan, and municipal solid waste management master plan. It will also assist PMT in elaborating the new or updated laws to accompany the finalization of these different urban planning instruments. The Project will provide PMT with TA in its diagnoses for identifying carbon credit opportunities in the municipality, principally related to the appropriate closing of the existing controlled solid waste landfill and the operationalization of a new sanitary landfill.

The sub-component will also provide TA to the municipal government to undertake diagnoses of PMT's current approaches to land, urban and housing regularization in slum and other low-income areas – and will bring best-practice experience from elsewhere in Brazil, including the involvement of the private sector in this process, in order to modernize approaches and bring more efficiency to the regularization process. The sub-component will undertake diagnoses and provide TA to assist PMT in fully understanding the dynamics of its local housing market, by analyzing demand for new land and housing, and thus support PMT's efforts to 'get ahead of the curve' with regard to the provision of new plots of land (with and without 'sites and services') and new housing stock. The specific experiences and lessons-learned that the Project will bring concerning the scaling-up of upgrading interventions in slum and low-income areas in the *Lagoas do Norte* region of the city will be analyzed, consolidated and expanded to other areas of

the city with the support of this sub-component. In sum, the sub-component will provide analytical and TA support to PMT to assist in developing consolidated strategies for: (i) enforcing existing legal and administrative mechanisms required to regularize slums and other irregular settlements; (ii) facilitating access to land by creating a local regulatory environment that promotes, rather than hinders, land development accessible for all segments of society; and (iii) putting in-place the institutional framework to implement the federal government's housing and urban development programs.

With regard to environmental management, the sub-component will seek to increase the institutional capacity of the environmental management divisions of PMT's Urban and Rural Development Superintendencies (SDU and SDR), prioritizing the '*GMA Centro-Norte*' within whose area the Project's physical interventions will fall. The support will comprise (i) human resources training; (ii) purchase and installation of equipment; and (iii) introduction of an environmental licensing and enforcement/inspection control system. Two of the objectives of these activities are to (i) decrease the time to obtain PMT environmental licenses; and (ii) increase the number of environmental licenses issued by PMT.

1.5 Local economic development strategy This sub-component will assist PMT in the development and implementation of local economic development (LED) strategy for Greater Teresina, using as a starting point the economic and social development recommendations that were established in PMT's '*Teresina – Agenda 2015*' visioning exercise that was undertaken previously. It is proposed that the elaboration of the LED strategy follows the Bank 'LED Primer' methodology and includes: (i) the creation of Executive Secretariat in PMT's Secretary of Planning to coordinate the elaboration and execution of the LED strategy; (ii) the creation of an LED Steering Committee with full stakeholder participation; (iii) the collection and consolidation of existing data on business profile of city; (iv) the undertaking of an assessment of the local economy (a local business enabling environment survey); (v) the consolidation and presentation of the above findings to the LED Steering Committee; (vi) the development of the LED strategy itself (vision, goals, programs, projects, M&E indicators) with the LED Steering Committee; (vii) the implementation of the LED strategy; and (viii) the periodic review of the implementation progress of the LED strategy.

1.6 Project management This sub-component will support PMT in the structuring and the operationalization of the PMU. It will finance the costs of selected individual consultants in the Bank specialization areas of procurement, financial management, safeguards, etc, on an as-needed basis. It will also finance key consultancies for assisting in the Project's monitoring and evaluation, and will finance the annual Project audits.

Component 2: Integrated Urban-Environmental Development in *Lagoas do Norte*

This Component will undertake the physical interventions aimed at improving the delivery of basic urban services for the 100,000 or so residents in the Lagoas do Norte region, and is designed to improve the environmental conditions in this region. The component will undertake the following specific interventions: For operational reasons, implementation of the physical interventions will be carried out on the basis of spatial units defined by the limits of the region's hydrographic sub-basins (that coincide with area's neighborhood boundaries). The interventions

have been designed so that they can be phased in time and geographically in a series of technically linked packages.

The 13 neighborhoods of the Project's area of intervention are grouped into four distinct sub-areas. (i) *Area 1*, 'Canal do Pe. Eduardo' formed by the Acarape, Matadouro, Alvorada, São Joaquim neighborhoods and a small section of the southern part of Olarias; (ii) *Area 2*, 'Lagoa dos Oleiros-São Joaquim' formed by the Nova Brasília, Poti Velho, in Mafrense and Olarias; (iii) *Area 3*, 'Alto Alegre-Aeroporto' comprising Aeroporto, Itaperu and Alto Alegre; and (iv) *Area 4*, "Mocambinho" comprising São Francisco and Mocambinho. For the four areas, reference cards (*fichas de projeto*) have been prepared summarizing the urbanistic layout of each of the areas and containing key data related to the socio-economic and environmental aspects of the sub-region, as well as to the respective costs of the interventions as detailed in the components and subcomponents. The reference cards also indicate additional sources of financing and/or planned interventions underway or being implemented by PMT or by third parties (including proposed PAC counterpart financing from the federal government). The interventions in the four areas differ in scope and size and will be undertaken in stages, based on an exercise that identified and ranked interventions on a prioritization scale. Component actions in Areas 1 and 2 will include for comprehensive, integrated interventions. Area 3 will prioritize implementation of the wastewater system and the resettlement of families at risk. In Area 4 (Mocambinho), financing will be directed to the installation of macrodrainage and the resettlement of at-risk families. This subdivision respects the implementation modules of the macro-drainage and wastewater systems, and – while following the implementation 'lead' of these key macro infrastructure interventions – allows the complementary urban upgrading infrastructure (roads and access ways, micro-drainage, water supply, housing and other urban upgrading, green and leisure spaces, etc) to be simultaneously rolled-out.

The urbanistic layouts designs for the Lagoas do Norte region is presented in the related reports in Project Files. The reference cards (see Project Files) detail and complement the information on the area interventions. The map details the macrodrainage interventions aimed at establishing a permanent stretch of water in all the lagoons based upon a high water level of 55 m above sea level. Around the lagoons a 30 m buffer strip from the 55 m high water level will be established and kept free of human occupation. This will also present a buffer in the case of rising water levels in the rainy seasons as well as representing a permanent preservation area (APP) as required under federal environmental law, and will be replanted and landscaped. Wherever necessary, local streets and cycle ways will run between the boundaries of the occupied areas and this buffer strip/APP.

Intervention on the banks of the lagoons will involve the resettlement of 1,280 at-risk families that are currently occupying land below the 55 m level. The urbanistic layout contains the locations for the resettlement of around 691 families in the Lagoas do Norte region itself; new homes will also be made available in housing units for around 600 families in the vicinity of the region to the east of the Aeroporto neighborhood. The urbanistic layout design includes the establishment of sports and leisure facilities and the revegetation/landscaping of the banks of the lagoons. In the Picarreira lagoon, decks and kiosks will be installed to create leisure facilities for the population of the area as well as for visitors from elsewhere. Cycle routes and pedestrian paths will facilitate travel along the edges of the lagoons and will further stimulate leisure

activity in the region. The public areas will be fitted with appropriate lighting. Other main intervention elements under this Component are: (i) **Water supply** – Optimization of the existing water supply system in the region, and expansion of services for those that have none at present, including: improving and expanding mains and distribution networks; installing micro and macro meters; improving storage capacity and quality; etc. (ii) **Wastewater management** – Providing universal coverage of wastewater collection in the *Lagoas do Norte* region of the city, and transportation of the wastewater, via pumping stations as needed, to the existing wastewater treatment works for part of the region, and to a new first-phase wastewater treatment works (also to be financed under the Project) north of the Poti River to serve the majority of the *Lagoas do Norte* households. (iii) **Drainage** – Macro and micro drainage interventions will be provided in order to improve the performance of the existing lagoon-canal drainage system, including upgrading of the existing pumping systems and associated sluice gates, and reinforcement/improvement to dike security and maintenance, with a view to minimizing the occurrence of flooding events in the region. (iv) **Roadway improvements** – Improvements to the region's roadways will be undertaken to improve traffic flow and accessibility, cater better for the commonplace use of bicycles in the region, and increase the safety aspects of the roads. (v) **Housing resettlement and housing improvements** – All the costs of the resettlement of those families affected in this way from the interventions in the *Lagoas do Norte* region will be included under this component. Furthermore, for those families not being resettled, but identified as beneficiaries of the housing improvement activities, this sub-component will provide material to eligible householders for undertaking basic improvements to their houses, including: construction of an internal bathroom; provision of cement floors, and plastered walls and ceilings; provision of acceptable roofing, etc. (vi) **Urban upgrading and community equipment** – This sub-component includes the costs of undertaking urban upgrading and landscaping of the *Lagoas do Norte* region, including the recuperation of vegetation along the banks of the lagoons and rivers, recuperation and expansion of existing parks and green spaces, construction of sports and leisure areas, etc.

Component 3: Social and Economic Development in *Lagoas do Norte* This component comprises complementary interventions to Component 2 in the *Lagoas do Norte* region, including: (i) Actions to strengthen community associations and other community groups in order to improve the access of eligible families to the Project's social programs, crèches, basic health and education services, etc. (ii) The undertaking of environmental and sanitary education and promotion activities in the region. (iii) The promotion of employment and income creation programs locally through (a) professional training in activities for which there is market-demand; (b) training support and other TA for entrepreneurs and for setting up small businesses; (c) support for the creation and strengthening of cooperatives; (d) support for upgrading the quality and market of the region's ceramic products; (e) support for regulating existing ceramic activities and identifying new clay deposits; and (f) support for the establishment of community horticultural plots. (iv) Renovation/expansion and construction of community facilities (health posts, schools, etc) as integral part of the urban upgrading interventions under Component 2. (v) Analysis of, and support to, 'social control' of public service provision (a 'watchdog' function) in *Lagoas do Norte*, including community mobilization and participation for works interventions.

Annex 5: Project Costs

Project Cost By Component and/or Activity	Local US \$million	Foreign US \$million	Total US \$million
1. Municipal Management Modernization, City Development, and Project Management	4.37		4.37
Financial management modernization	0.45		0.45
WSS service delivery modernization	0.37		0.37
Education sector modernization	0.58		0.58
Flood early warning system	0.42		0.42
LED strategy development and implementation	0.16		0.16
Studies and master plans	0.42		0.42
Institutional capacity building – urban & environmental	0.33		0.33
Monitoring and evaluation of public services	0.10		0.10
Project management (including M&E)	1.45		1.45
Project audits	0.09		0.09
2. Integrated Urban-Environmental Development in Lagoas do Norte	36.07		36.07
Urbanization	5.53		5.53
Resettlement	6.64		6.64
Housing improvements	1.26		1.26
Land acquisition	1.42		1.42
Macro-infrastructure	20.72		20.72
- macrodrainage	3.27		3.27
- road system	1.34		1.34
- dike security and reinforcement	1.20		1.20
- water supply improvement	2.61		2.61
- wastewater system	12.30		12.30
Engineering designs	0.50		0.50
3. Social and Economic Development in Lagoas do Norte	1.91		1.91
Social outreach, environmental education, <i>etc</i>	0.57		0.57
Employment and income generation support	0.56		0.56
Economic and social development interventions	0.73		0.73
Engineering designs	0.05		0.05
Total Baseline Cost	42.35		42.35
Physical Contingencies	1.27		1.27
Price Contingencies	0.85		0.85
Total Project Costs¹	44.47		44.47
Interest during construction			
Front-end Fee		0.31	
Total Financing Required	44.47	0.31	44.47

¹Identifiable taxes and duties are US\$8.13 M, and the total project cost, net of taxes, is US\$36.3 M. Therefore, the share of project cost net of taxes is 18.3%.

Annex 6: Implementation Arrangements Teresina – Lagoas do Norte

The implementation arrangements for the Project are organized around three levels: (i) strategic decision-making; (ii) operational coordination; and (iii) execution. The main functions of each of the bodies involved at the different levels are detailed below. The execution arrangements will utilize the following entities to handle Project coordination and participation, linked to each of these three levels:

Project Steering Committee (*Conselho de Acompanhamento*): members will include the Mayor (*Prefeito*) and the Municipal Secretaries for Planning and Coordination, Finance, Education, and Health, as well as the Coordinating Unit (*Coordenação*) of the PMU. The Steering Committee will meet quarterly to review progress generally and implementation of the *Annual Operative Plan* (AOP), specifically, to approve reports to be submitted to the Bank (financial management reports and implementation progress reports), to take strategic decisions regarding Project progress, to release resources from the municipal budget (replenishment of the designated account), etc.

At the local level, in all the areas of Project intervention, *Community Fora* will be established to allow the local population to accompany Project execution. The Fora will be organized by the Project's social outreach team (responsible for social and community development, resettlement planning and implementation, accompaniment, etc) and will include representatives of: (i) the municipality's Urban and Environmental Development Superintendency for the Centre/North region (SDU-C/N) responsible for civil works execution and supervision; (ii) those Municipal Secretariats involved in the implementation of local Project actions within their competence; and (iii) community representatives and civil society, and members of NGOs that provide social services in the areas of Project intervention. The monitoring of Project implementation progress, discussed at regular Forum meetings, will help in the drawing-up of the AOP for the subsequent financial year. The Community Fora will be the best-placed entities to encourage co-responsibility of the interested parties – a vital element for the eventual success and sustainability of Project interventions. It will also help to ensure an effective 'watchdog' (*controle social*) function of regarding PMT's Project implementation performance. Furthermore, it will serve as an important link between the population and the PMT, enabling social input into component design and execution, and immediate feedback from those living in the areas of intervention.

The following alternative arrangements for Project implementation were considered by PMT: (i) a Project Management Unit (*Unidade de Gestão do Projeto*), PMU, linked to the Mayor's office – the Project thereby being denominated a 'Special Project' (*Projeto Especial*); (ii) a PMU created within the Municipal Secretariat of Planning, SEMPLAN; and (iii) creation of an 'OSCIP', a temporary management entity independent of the structure and routine work of the municipal government, contracted via a management contract with PMT. Based on PMT's ongoing rich and successful experience of preparing the Project, involving the use of a PHRD grant which was expended according to Bank procurement and financial management arrangements, the mayor and his team selected the second approach of creating a dedicated PMU within SEMPLAN as the best alternative for Project implementation. Under this institutional arrangement, the Project is to be implemented by a PMU which is an integral part of the

Municipal Secretariat of Planning, SEMPLAN. The PMU will be headed by a permanent PMT staff member and staffed with PMT civil servants, and executive coordination will be provided by the municipal secretary of finances. The PMU will be fully aligned with SEMPLAN's day-to-day *modus operandi* and with those of the other municipal implementing agencies. Decisions relevant to Project implementation will be considered at two levels – at a first instance, in SEMPLAN and, for decisions needing a higher instance, in the mayor's office. This implementation model has been successfully employed by PMT during Project preparation and in the execution of the accompanying PHRD grant.

Bidding and other tender documents for civil works, goods, consultant services and other procurement activities will be prepared by the PMU. The execution of Project procurement, in accordance with Bank guidelines, will be the responsibility of a Special Procurement Commission (*Comissão Especial de Licitações*). All procurement contracts will be signed by SEMPLAN in its role as executing unit, pending favorable opinions from the municipality's Solicitor-General (*Procurador Geral do Município*) of the Municipality. The SDU-C/N will have responsibility, on the basis of a specific agreement signed with SEMPLAN, for supervising the provision of civil works, goods and services (with the exception of consultancy services) in the *Lagoas do Norte* area of intervention. SEMPLAN will have the responsibility of supervising all other procurement contracts, including consultancy services. SDU-C/N will also undertake measurements of civil works contracts, and will provide certification of the execution of the other contracts under its responsibility.

The PMU will supervise all Project activities and will prepare payment requests based upon invoices submitted by suppliers, contractors and consultants. Payments will be made following release of funds by PMT's Accounts Control Division and authorization by the Secretary of SEMPLAN, base on the documentation prepared by the PMU. The Secretary of SEMPLAN and the PMU Coordinating Office will send out checks to effect payments. SEMPLAN will administer the Project Operational Account. Details of the flow of funds are given in Annex 7. Individual consultants will be contracted on an as-needed basis to support implementation in areas of Bank specialization such as procurement, financial management, safeguards, etc., and will thus help further strengthen the implementation capacity of CEL, SEMPLAN, SDU-C/N and the other implementing agencies.

Organizational Structure (main functions of entities involved)

Entity	Principal responsibilities
Steering Committee (<i>Conselho de Acompanhamento</i>)	<ul style="list-style-type: none"> • Approval of Annual Operative Plan (OAP) and the Project Budget; • Making adjustments in the planning and execution of the Project; • Global evaluation of the Project; • Political liaison on behalf of the Project.
Community Forum	Consensualization and intermediation of the interests of the Project with representative bodies within the community (the Forum to act as an agent of social control and co-responsibility).
Municipal Finance Secretariat <i>SEMF</i>	<ul style="list-style-type: none"> • Responsible for handling the Project designated account; internalization of loan funds; • Effecting the deposit of counterpart funds.
Municipal Planning Secretariat <i>SEMPLAN</i>	<ul style="list-style-type: none"> • Drawing up agreements with PMT secretariats, departments, divisions, and with other organizations as necessary; • Drawing up an agreement with the Urban and Environmental Superintendency - SDU / Center-North region (SDU-C/N) for inspection/supervision/verification of the Project works; • Contracting works, goods and services;

Entity	Principal responsibilities
	<ul style="list-style-type: none"> • Issuing Administrative Orders ('Ordem de Serviço'); • Committing counterpart expenditure and handling Project Operational Account (initiating expenditure); • Authorizing and releasing payments; • Requesting SEMF replenishment of counterpart funds; • Requesting replenishment of designated account; • Dispatching accounts documentation and other documents (IFR, SOE, etc) to the Bank; • Official communicating with the Bank; • Presidency of the Project's Technical Coordination Group.
Project Management Unit (PMU) <i>UG-PLN</i>	<ul style="list-style-type: none"> • Organizing and guiding the tasks of the Technical Coordination Group on a daily basis; • Technical and operational supervision of Project interventions: elaboration of the AOP, Procurements Plans, etc. • Technical support on procurement processes (preparation of RFPs, TORs, legal opinions, etc.) for works, goods and services; • Preparation of agreements and contracts, including contracting of evaluation and audit specialists; • Physical, financial and accounting Project management; organization and maintenance of accounting, asset and contract record keeping, etc.; preparation of payments; • Entering relevant data into computer-based Management Information System (MIS); issuing progress reports, IFRs, and other reports; • Undertaking physical and financial Project monitoring; • Supervision of works and inspection/supervision of consultancy services; • Ensuring necessary permits (licenses) are obtained for civil works interventions (environmental licenses, etc); • Operation and maintenance of MIS and of other management instruments (Operations Manual, Specifications Sheets, technical documentation, etc); • Preparation of material for social communication of Project (media material, outreach material, etc); • Communicating with the Bank on technical matters on a daily basis; • Negotiation and capture of complementary investment resources; • Coordination of services to support Project management (firms, individual consultants, seconded staff, etc.).
Special Procurement Commission <i>CEL</i>	<ul style="list-style-type: none"> • Undertaking of procurement processes (works, goods and services); publishing of announcements calling for tenders/bids/RFEOLs; invitations/calls for bids; liaising with interested parties; • Evaluating bids; obtaining legal opinions; issuing technical and final evaluation reports; • Entering data into MIS.
Urban and Environmental Superintendency Center- North region <i>SDU-C/N</i>	<ul style="list-style-type: none"> • Inspecting works and services (except consultancies); • Measuring and issuing certification for works and services; • Undertaking activities related to environmental education and community/social development within context of Community Forum; • Local support for execution of Project Resettlement Framework/Policy; • Entering data into MIS.

Management instruments: The implementation of the *Lagoas do Norte* Project will employ Project Cycle Management (PCM) methodologies and instruments. In practice this means management is based on a series of planning and execution stages involving a number of different practitioners. Actions involving three levels of responsibility and management objectives will be taken into account: (i) *Financing Source* (IBRD) level activities will be undertaken by representatives of the Bank. These will include negotiations and revisions of the loan agreement and related documentation as well as supervision and inspection of the two functional levels below. (ii) *Executor and Borrower* (PMT) level, management responsibilities

will concern bidding/tendering procedures (RFPs, TORs, specifications for studies, plans, basic and detailed engineering designs), and supervision of services provided by consultants, of works undertaken, of goods supplied, and of operational processes. (iii) *Supplier* level, the execution of works and supply of goods and consultancy services will be inspected/verified by the PMT (PMU, SDU-C/N), and will be reviewed by the Bank on either an *ex-ante* or an *ex-post* basis as defined in the Loan Agreement. The main management instruments for assisting Project implementation are the following:

PLN Management Information System: The computer-based MIS is a tool for managing the activities of the Project in the most efficient and effective way. The system will provide timely information about the progress and execution of the Project, enabling users to take rapid decisions covering not only qualitative and quantitative technical aspects of sub-projects but also contractual, operational, bidding, administrative, accounting and financial matters concerned with the execution of the Project. The internal structure of the system comprises three levels: Components, Sub-components, and Actions. The system will be centralized in the PMU given that the bids and contracts will be generated there. The system is organized in the following modules, and each of the modules is linked to groups of interrelated routines, activities and operations (or with similar characteristics): (i) planning and control module; (ii) financial module; (iii) accounts module; (iv) physical module; (v) management module; and (v) management of users and 'permissions' module. Further details on the MIS and other aspects of project implementation are found in the Project Files.

PLN Operations Manual: The Project Operations Manual contains the norms, procedures and guidelines agreed to by PMT and the Bank, to be followed during the Project implementation. The purpose of the Manual is to guide and instruct management and ensure good performance by executing bodies. It aims to provide a clear view of the whole implementation process in order to ensure compliance with the norms, procedures, guidelines and requirements relating to execution of the Loan. The Manual describes the Project concept, scope, objectives, components, funding, etc. In addition, it contains an overall implementation schedule, organizational details (management structure and responsibilities), a review of administrative and financial procedures and instruments to be adopted in the planning, execution and monitoring and evaluation of the works and actions and, finally, a summary of instructions for operating the MIS in support of management activities.

Annual Operative Plan (AOP): The AOP will be a key instrument for Project management and implementation; it is a work-plan elaborated on an annual basis, mapping out how resources will be applied in the coming year, with two areas of focus: technical and financial.

Procurement Plan: The Procurement Plan (PP) contains basic information and a forecast of the procurement for all civil works, goods, and consultant and other services, processes, in accordance with the relevant Bank Guidelines. The PP also contains information about the objective of each procurement process, cost estimates, method of procurement, review by the Bank, and the key dates for following-up on the bidding processes such as: announcements of calls for tenders/RFOEs, opening of bids, presentation of evaluation reports, and signature of contracts. The PP has been reviewed and approved by the Bank.

Annex 7: Financial Management and Disbursement Arrangements

Teresina – Lagoas do Norte

Financial Management Assessment

Scope of Assessment: A financial management (FM) risk assessment of the Teresina Municipal Project was initially carried out in July 2004 in accordance with OP/BP 10.02 and the Financial Management Practices in World Bank Financed Investment Operations Manual issued by the Financial Management Sector Board on November 3, 2005. The Project will be implemented by a PMU within the Municipality of Teresina, linked to the *Secretaria Municipal de Planejamento e Coordenação* (SEMPLAN). The overall objective of the assessment was to determine whether the Borrower and its PMU has, or will have, acceptable financial management and disbursements arrangements in place by Loan effectiveness. These include, but are not limited to, capacity to (i) properly manage and account for all the Project's proceeds, expenditures and transactions, (ii) produce timely, accurate and reliable financial statements and reports, including Interim Unaudited Financial Reports (IFRs), for general and Bank's special purposes, (iii) safeguard Project's assets, (iv) timely engagement of independent auditors acceptable to the Bank, and (v) disburse Bank funds in the most efficient way, in accordance to applicable Bank rules and procedures. In July 2004 a FM Assessment was carried out for the Grant. Most of the financial management arrangements as described in Part B below were applicable to the PHRD Grant and will also be used, with the necessary adaptations, for the Project to be partially financed by the Bank. The FM assessment was subsequently updated for the loan in October 2006 and February 2007.

The assessment was carried out on site and included meetings and work sessions with the PMU staff members and other officials from PMT who are involved in Project implementation. It also included: (i) assessment of the financial management system to be used for Project accounting, financial administration, controlling, and reporting; (ii) analysis of the financial staff manpower and organization, including training and qualification requirements; (iii) review of funds flow mechanisms; (iv) review of existing internal control mechanisms and administrative procedures; (v) review of disbursement methodology; (vi) discussions with regard to reporting requirements, including frequency, format and contents of IFRs; (vii) review of internal audit procedures; and (viii) review of external audit arrangements, and submission of yearly audited financial statements.

Conclusions of Assessment: The conclusion of the FM assessment is that the financial management arrangements of PMT for the Project as set out in this Report, will satisfy the Bank's minimum requirements, and that financial management systems are or will be in place that can effectively control and monitor the Project, and provide, with reasonable assurance, accurate and timely information on its implementation status.

Risk Analysis: A risk assessment questionnaire was filled in on the basis of the observations made and is filed together with the financial management assessment work papers. The Financial Management risk associated with this Project is rated as substantial, and adequate mitigating measures will be implemented. The Risk Assessment Matrix below summarizes the degree of risk of each of the items related to the Financial Management of the Project.

Project implementation will have to be closely monitored in order to mitigate FM risks. PMT staff seem to be engaged and committed to the Project, and have good experience in implementing the Project preparation PHRD Grant and the BNDES-financed *Vila-Bairro* Project. The lack of reliable audit firms with good professional standards in Teresina is another risk and the contracting of auditors will thus have to be closely monitored. Audit TOR and auditor short list will be carefully reviewed by the Bank. Financial Reporting will be done via the MIS. PMT's budgeting and financial system (GFR) can be mentioned as one of the strengths of its Public Financial Management system.

Risk Assessment Matrix

Risk	H	S	M	L	Comments
Inherent risk					
* Municipality specific	X				1 st .Project financed by the Bank
* Entity specific	X				Idem
* Project specific			X		
Control risk					
1. Implementing Entity			X		The PMU has acquired some experience with implementation of the PHRD Grant and has good experience with the <i>Vila-Bairro</i> Project financed by BNDES.
2. Funds Flow		X			
3. Staffing			X		PMT professional staff seem to be engaged and committed to the Project.
4. Acc. Policies and Procedures			X		Reasonable procedures in place in the Municipality.
5. Internal Audit				X	Internal audit in place.
6. External Audit		X			Low quality Audit Firms and with low technical background available in Teresina.
7. Reporting and Monitoring		X			
8. Information Systems			X		

H – High

S – Substantial

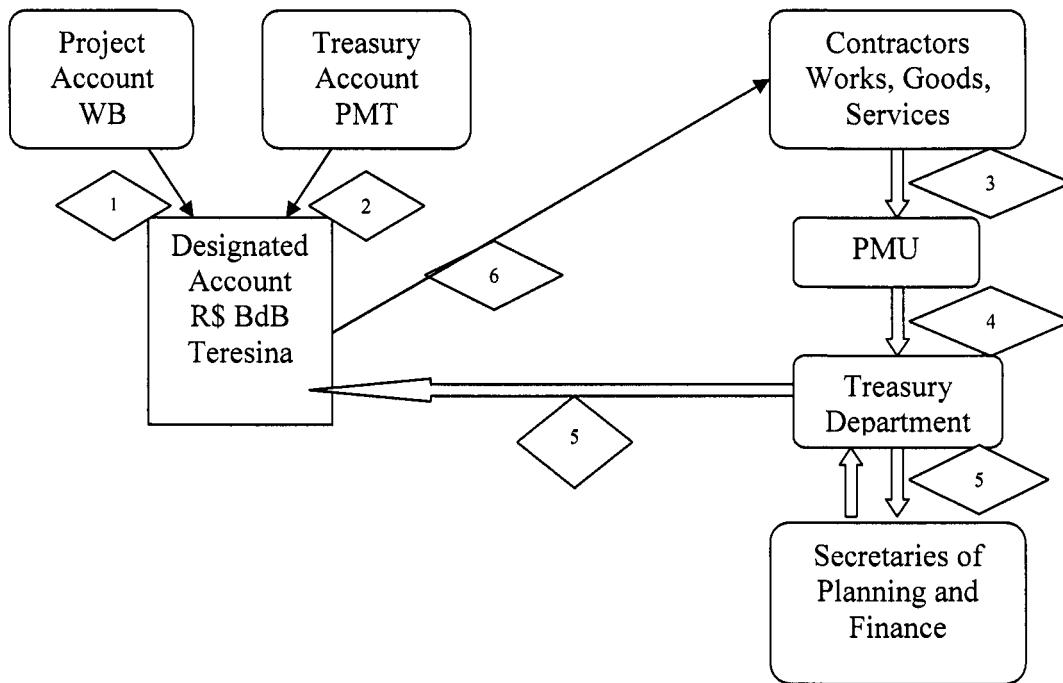
M – Moderate

L – Low or negligible

Financial Management Arrangements

Project Management Unit and Staffing: Through Mayoral Decree N° 6.028 dated July 2, 2004 a PMU was constituted within the Municipality structure. The PMU is linked to the Planning and Coordination Secretariat (SEMPLAN). The PMU staff is composed of a Technical Coordinator, three civil engineers, two architects, two social assistants, and two financial analysts. This staff will coordinate and supervise Project implementation including financial management aspects. The PMU will have full support from PMT in terms of accounting, budgeting, funds flow, payments, and procurement. The Project Coordinator will liaise with all pertinent Municipal Departments and will oversee all financial administration. All the staff were recruited from the Municipality statutory manpower (civil servants), with full qualification and required experience to carry on the relevant responsibilities. A Technical Note was prepared describing in detail all positions, functions and responsibilities. Workshops will be scheduled in due course, to train the PMU staff, and other PMT staff as necessary, in Bank procurement and FM procedures.

Flow of Funds and Disbursement: Flow of Funds mechanisms for the Project will be very simple and essentially will entail the opening of an operational bank account (designated account) at Banco do Brasil (BdB) in Reais in Teresina, to where the Project funds will flow directly from the Bank loan account. The BdB designated account will be exclusive to the Project and will be controlled by the PMU. Checks for payment of goods, works and services will be prepared by the Treasury Division of the Finance Secretariat upon PMU's request, withdrawing from the designated account, and will be signed jointly by the Secretaries of Planning and Finance. Counterpart contributions will be deposited in this same account directly from Municipal Treasury funds. The PMU will exercise control over the counterpart contributions proportional to the Project Funds (*pari passu*) as per the Loan Agreement, and will reconcile in the BdB account the statement of funds received from the Bank and from the Municipality, on a monthly basis. The flow of funds for this Project would be as follows:



1. Initial deposit and replenishments through Withdrawal Applications supported by SOEs
2. Counterpart deposits
3. Contractors present bills for payment
4. PMU approves bills and requests payment to Treasury Department of the Finance Secretariat
5. Treasury Department issues checks drawing from the operational account; checks are signed by Secretaries of Finance and Planning
6. Checks are sent to contractors/suppliers/consultants

The PMU will prepare a Technical Note detailing the funds flow which will be included further in the Operational Manual. The Project will disburse on the basis of SOEs. An initial deposit shall be made in the operational account equivalent to 10% to 20% of the total Project amount.

Accounting Policies and Procedures, FM System, Internal Controls: Project accounting will be done through a system – SPGP (*Sistema de Gerenciamento e Gestão de Programas*) which was acquired and already installed in the PMU. SPGP is being used to record and monitor Grant Implementation. SPGP was developed by a software house and will control and monitor Project's financial execution, physical progress and Procurement. The system was designed to reproduce the official accounts, which data is imported automatically, and states the current situation of the municipality's budgeting categories (program, components, sub-components, groups and actions). It also provides information regarding disbursements categories and procurement compliance. The financial monitoring module is operational and integrated to budget and physical implementation progress module. SPGP has a reporting module to produce IFRs and SOEs as well as other financial statement report for auditing purposes.

SIOP¹³ is the official budgeting and financial execution system used by PMT. SIOP has all modules necessary for PMT and includes: budgeting, revenues, expenses, treasury, accounting, financial administration, and reports. Once the municipal budget is approved each year by the Municipal Legislature (*Camara dos Vereadores*), it is recorded in SIOP and, from then on, all commitments and/or payments can only be made through SIOP and for a program or activity included in the budget and previously recorded. Any subsequent alteration in the budget can only be undertaken, and recorded in SIOP, upon a proposal from the Mayor with approval by the municipal legislature. A Financial Manual will be prepared as part of the Operational Manual. All the fixed assets to be acquired with Project funds will be registered in the PMT's Fixed Assets inventory system. As part of the internal control procedures, all payment processes are checked by a Control Coordination Unit attached to PMT's Executive Secretariat. This Unit can also act at any moment to check Project transactions at the request of the Mayor, the Executive Secretary, or the Project Coordinator.

Financial Reporting (IFR) and Supervision: For the financial reporting/monitoring of the Project, four financial report models, in IFR format, and substance were designed during the FMA mission and agreed with the PMU: (i) RSF1¹⁴ – Sources and Applications (by cost categories) of Funds; (ii) RSF2 – Project expenditures by component/activities; (iii) RSF3 – Operational Bank Account reconciliation; (iv) RSF4 – Reconciliation of Project accounts with Bank Client Connection. All RSF reports will be presented in Reais and prepared on a quarterly basis, and will contain figures for each quarter and accumulated for the year. The year-end reports (IFRs) will also serve for external audit purposes. It is recommended that at least one FM supervision mission be carried out during Project implementation.

External Audit and Audit Reports: External audits will follow Bank audit policy and guidelines, as issued by the FMSB on June 30, 2003. Project accounts and Financial Statements will be audited by an independent audit firm, selected from a short list of a minimum of six candidate firms, and under Terms of Reference previously reviewed and approved by the Bank. It is recommended that the hiring process starts right after the signature of the Loan Agreement. Each audit report will contain, as a minimum: (i) auditor's single opinion on Project financial statements; (ii) financial statements prepared by the PMU; (iii) explanatory notes; and (iv) management letter.

¹³ SIOP – ‘Sistema Integrado de Orçamento Público’ (Integrated Public Budget System)

¹⁴ RSF – *Relatório de Situação Financeira* (= Financial Management Report, IFR)

Annex 8: Procurement Arrangements

Teresina – Lagoas do Norte

General

Procurement for the proposed project would be carried out in accordance with the World Bank's "Guidelines: Procurement under IBRD Loans and IDA Credits" dated May 2004; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004, and the provisions stipulated in the Legal Agreement. The general description of various items under different expenditure category is described below. For each contract to be financed by the Loan, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and time frame, are agreed between the Borrower and the Bank project team in the Procurement Plan. The Procurement Plan will be updated at least annually, or as required, to reflect the actual project implementation needs and improvements in institutional capacity.

Procurement of civil works: Works procured under the Project, will include the following: The proposed Project will consist mainly of infrastructure works contracts for human resettlement, road paving and improvements, drainage, water supply and sanitation/sewerage, construction of houses and small buildings, implementation and rehabilitation of green and leisure spaces. The procurement will be done using the Bank's Standard Bidding Documents (SBD) for all ICB and National SBD agreed with (or satisfactory to) the Bank. Contracts identified as Obr-009 to Obr-018 indicated in the Procurement Plan, referring to housing improvements, will be done through various shopping processes rather than through a single contract. Actually, the Bank will not finance works in these contracts but rather the goods and materials that will be used by communities to do small works improvement for various houses. All procurement for these contracts will follow shopping procedures. The same applies to contract Obr-019 to Obr-024 shown in the Procurement Plan for construction, expansion and restoration of health units, schools, and a public market at São Joaquim.

Procurement of goods: Goods procured under the Project will include the following: procurement of goods is expected to be of very small amounts and a small number of contracts. The Project will mainly finance furniture and equipment for the UGP as well as software and equipment for the flood warning system. The procurement will be done using Bank's SBD for all ICB and National SBD agreed with (or satisfactory to) the Bank. As indicated above, procurement of materials to carry out small improvement works on houses, health centers, schools, etc., will follow shopping procedures but the actual construction services will be done by communities themselves. Procurement of goods may also be carried out in accordance with the method known as "*pregão eletrônico*", as provided in the Brazil's Pregão Law No. 10,520, of July 17, 2002, under "*COMPRASNET*", the procurement portal of the Federal Government, for contracts estimated to cost less than US\$500,000. Scattered printing services, small technical services, computer equipment and peripherals, office equipment and furniture, sundry items, air tickets and logistics for training events and workshops have been identified to be procured under this method.

Procurement of non-consulting services: Non-consulting services procured under this project would include logistics and transportation for seminars and workshops, printing services, training material, video production, and communication campaigns. The procurement would be done using the SEAIN's SBD agreed with the Bank. Also, the Procurement Plan foresees employment of a firm to carry out an update of databases, courses and learning activities for SEMPLAN staff. These services shall be hired based on the lowest evaluated price. amongst qualified firms that offer courses covering the required content.

Selection of Consultants: The proposed Project is expected to finance services related to engineering designs of all infrastructure investments, master plan preparation, and expert advice on the WSS PPP contract. M&E, social work with resettled families, the LED process, etc. The selection and employment of consultants will be carried out under arrangements acceptable to the Bank using the Bank's Standard Forms and Contracts. Short lists of consultants for services estimated to cost less than US\$500,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines and all consultancy services estimated to cost above US\$100,000 per contract will be subject to prior review by the Bank. Consulting services estimated to cost US\$200,000 or more would follow QCBS procedures. Single source selection could be used in exceptional circumstances, as provided for in the Guidelines and as approved by the Bank.

Action	Timeframe
1 Design of the entire procurement cycle and arrangements including clearances and approvals and description of the roles of all participant agencies. This document shall be agreed with, and approved by the relevant municipal authority, possibly the City Mayor.	Before appraisal.
2 Employment of at least three staff/consultants dedicated to procurement: one procurement coordinator, one senior procurement specialist with large experience on Bank-financed contracts, and one assistant. The latter function might be absorbed by an existing PMU staff member, if possible. TORS for the first two positions will be provided for review by the Client.	One month after effectiveness.
3 Purchase of equipment for the procurement staff of UGP, including: (i) computer equipment with internet access; (ii) printer; (iii) necessary software; and (iv) office furniture.	Before negotiations.
4 Purchase of filing materials for the procurement documents, including necessary space.	Before negotiations
5 Finalize the procurement plan for at least the first eighteen months of project implementation and put in place a computerized procurement management system that shall be able to produce reports, including the procurement plan.	Before negotiations
6 Development of a procurement management computer system that shall be able to produce reports, including the Procurement Plan.	Before negotiations
7 Training of PMU staff in Bank procurement policies.	Two months after effectiveness

Assessment of PMT's Capacity to Implement Procurement: Procurement activities will be carried out by PMT's *Secretaria Municipal de Planejamento e Coordenação* (SEMPLAN). The two Procurement units are staffed by five procurement officers. Procurement monitoring and supervision will be done by the PMU, which was created for management of project implementation. An assessment of the capacity of the Implementing Agency to implement

procurement actions for the project was carried out by the Bank in October 2004 and a revision took place in June 2007. The assessments reviewed the organizational structure for implementing the Project and the interaction between the Project staff responsible for procurement and Semplan's relevant central unit for administration and finance. Most of the issues/risks concerning procurement for Project implementation have been identified, and include significant investment in organizational structuring, human resources and equipment for the PMU. The corrective measures which have been agreed are summarized in the action plan below: The overall risk assessment for the municipality is rated as high. Remedial actions have been identified in the above Action Plan, and these were to be made to mitigate procurement risks.

The following key issues and risks concerning the procurement component for implementation of the Project have been identified:

- **Procurement Cycle Management:** The technical team for the project is located in PMT. Once the technical documents (technical specs and/or TORs) are ready they will be sent to the UGP bidding committee (*Comissão de Licitações*), which prepares the bidding documents. The Municipality does not have standard bidding documents for each procurement method. For project's implementation, the *Comissão de Licitações* and the UGP staff will therefore have to be trained in preparing procurement plans.
- **Support and Control Systems:** Neither the PIU or PMT has adequate information systems that can easily be adapted to produce procurement reports. In any case, the 'adaptation' and/or improvement of the municipal systems is be required.
- **Record-keeping:** The team noted that the availability, quality, security and completeness of procurement records and files do not meet good standards. Activity 3 of the Action Plan list the required actions in this respect.
- **Procurement Information System:** There is a need to upgrade the existing client information system in order to include a module for reporting on the procurement plan and other procurement actions.
- **Staffing:** There is no procurement staff assigned to the Project (Activity 2).

Procurement Plan: The Borrower has prepared a Procurement Plan (PP) for Project implementation which describes the procurement methods to be employed. The PP was reviewed by the Borrower and agreed by the Bank on February 21, 2008 (during Project negotiations), and is available at SEMPLAN. It will also be available in the Project database and on the Bank's external website. The PP should consist of: (i) goods, works and non-consulting services, including contract packaging, applicable procedures and process scheduling; and (ii) a consultant and training provider's selection process plan for the projects' training and consultant services, including contract packaging, applicable procedures, and selection criteria. The procurement and consultant selection process plan will be updated periodically, and shall be submitted to the Bank in the first quarter of December of each year. Such updating shall include the (i) list of contracts completed, under execution, under procurement, to be procured in the upcoming calendar semester and, tentatively in the subsequent semester; (ii) costs of completed and under execution

contracts, estimated costs for upcoming contracts; (iii) schedule of bidding; and (iv) particular methods of procurement of goods, works and non-consulting services or selection of consultants in accordance to a format agreed with the Bank. The working instructions shall be detailed in the Operational Manual indicating the standard bidding documents and request for proposals to be used, the samples for reporting on procurement, forms of contract, timetables, model of TOR and any other relevant information related to procurement for each particular operation.

Procurement Reviews: The Bank's review of selection of consultants will be in accordance with Appendix 1 of the *Guidelines for Selection and Employment of Consultants* and the provisions stipulated in the Loan Agreement. The size of the sample for post-review will be 1 in 5 in all cases. This ratio may be adjusted during project implementation depending on the performance of the municipality and the results of the reviews. The procurement supervision plan should recommend that independent post reviews of procurement be carried out, if appropriate, giving the number and scope of such reviews, and propose whether the supervision plan should include special missions for procurement supervision at critical points of project implementation. Post-review audits in the Municipality are conducted by the *Tribunal de Contas do Município*. However, these audits focus primarily on financial management issues.

Prior Review: The Bank's regulations establish that a high risk agency should not have thresholds exceeding US\$250,000 for goods, US\$1 million for works, US\$250,000 for consulting services with firms and US\$50,000 with individual consultants. This assessment proposes the following thresholds for prior review by the Bank. In all cases of single-source selection (contracts with firms or with individual consultants) the Bank should give the "no objection" to the proposed assignment.

Table 8.1: Thresholds Summary

<i>Expenditure category</i>	<i>Contract value threshold (US\$ thousands)</i>	<i>Procurement method</i>	<i>Contracts subject to prior review</i>
Works	>10,000	ICB	All processes
	>500 <10,000	NCB	First one and all processes above \$1,000,000
	<500	Shopping	First three processes
Goods	>500	ICB	All processes
	>100 <500	NCB	First one and all processes above \$250,000
	<100	Shopping	First three processes
Non-consulting services (incl. training, communication)	>500	ICB	All processes
	>100 <500	NCB	First one and all processes above \$250,000
	<100	Shopping	First three processes
Consulting (firms)	>100	QCBS/ QBS/ LCS/ CQS	All processes
	<100	QCBS/ QBS/ LCS/ CQS	First two processes for each selection method.
Consulting (individual)		Section V in the Guidelines	All processes above \$50,000
Direct contracting			All cases regardless of the amounts involved

Advertising: A General Procurement Notice for hiring of consultant services, and the ICB for goods and works should be published in the United Nations Development Business-UNDB and dgMarket. Specific Procurement Notices and Request for Expressions of Interest would be advertised in accordance with the provisions of the Guidelines.

Frequency of Procurement Supervision In addition to the prior review supervision to be carried out from Bank offices, the capacity assessment of the Implementing Agency has recommended two post-review missions for the first two years of Project implementation, and annual post-review missions thereafter.

Ex-Post Reviews: All bidding processes regardless of their value are subject to ex-post procurement review. All documentation included but not limited to: terms of reference, bidding documents and request for proposals, bids or proposal received, correspondence on all bids either prior or following of award of contract and any subsequent amendments should be maintained until at least two years following the closing of the projects. The Bank's review of selection of consultants will be in accordance with Appendix 1 of the *Guidelines for Selection and Employment of Consultants* and the provisions stipulated in the Loan Agreement. Consultant contract documents to be reviewed will include TORs, shortlists, evaluation reports, and contract forms. A review process similar to individual consultants, will apply to training and workshops.

Annex 9: Economic, Financial, and Fiscal Analysis

Teresina – Lagoas do Norte

1. Economic Analysis

The objectives of the project are to (i) modernize and improve the management capacity of Teresina Municipal Government in the financial, urban, environmental, service-delivery, and economic development fields; and (ii) improve the quality of life of the low-income population of the *Lagoas do Norte* region of the city. The second objective will be attained from the preparation and implementation of physical, environmental, social and service delivery activities in the low-income *Lagoas do Norte* region of the city.

The entire city population of almost 800,000 residents will benefit directly from the improved WSS service delivery arrangements that the Project is supporting, and from the new consolidated education policy and strategy that will be rolled out with the Project's support. The city population will also benefit indirectly from the elaboration and implementation of the LED strategy as this is designed to promote the city's economic growth in the medium- to long-term. The approximately 100,000 inhabitants of the *Lagoas do Norte* region – one of the poorest and least-served areas of Teresina – will be direct beneficiaries of the Project's urban, environmental, social and economic interventions in that region of the city, specifically (i) urban services (WSS, drainage, solid waste management, public lighting, local transport,); (ii) social services (health, education, job and training programs, etc), and (iii) quality of the local environment.

Beneficiary Population: The ‘Demographic Components Method’ was used to estimate population growth rates. This involves approaching the population from a number of different demographic perspectives: fertility, mortality and migratory movements occurring within a given population segment identified by age group and gender. For a particular group of people of the same gender and age, a given migratory behavior pattern exists, as well as a pattern of reproduction and a history of survival rates. Quantification of each demographic component can be expressed by indicators such as survival rates by age, births according to mothers' age groups (TEF), Total Fertility Rates (TFR), and the extent of immigration/ emigration (Migratory Balance) by the ages of those concerned. A detailed analysis of the beneficiary families was conducted during project preparation. This description was based upon field research.

The following are the main problems reported by the expected direct beneficiaries of the project: (i) animals in the streets; (ii) pollution of watercourses; (iii) poor education; (iv) lack of potable water; (v) lack of sewerage; (vi) transport; (vii) dirt in the streets; (viii) safety; (ix) lack of leisure areas; (x) poor health; (xi) garbage in the street; (xii) dust; (xiii) poor public lighting installations; (xiv) dirty water; (xv) lack of electricity, blackouts; (xvi) poor/lack of sidewalks; (xvii) poor/lack of street paving; (xviii) noise; and (xix) flooding. Of these, safety, lack of sewerage, lack of public lighting, and flooding were perceived as the most important problems in the community. Health related problems, solid waste problems in the streets and lack of recreational areas were also considered as secondary problems.

Main expected benefits: The following are the main benefits expected to be attained from the Project: (i) integration and enhanced socialization within local communities; (ii) integration of

the lagoons/city and promotion of environmental education; (iii) incentives to be provided for cultural events to contribute to the appreciation and dissemination of culture in the city; (iv) integrated sanitation to be available together with improved living conditions for the poor; (v) removal of sewage from the vicinity of houses, public areas and environmentally valuable spaces, thereby reducing problems with smells and waterborne diseases; (vi) upgraded urban and natural environment; (vii) increased property prices (real estate) in the area of influence of the project; (viii) improved health of the population; (ix) promotion of environmental health and education for the population; (x) improved, continuous water supply for the population; (xi) relocation of families living in areas prone to flooding; (xii) reduction of floods and flooding; (xiii) reduction of soil erosion; (xiv) improved maintenance of the lagoons; (xv) improved sanitary and environmental conditions; (xvi) reduction of the urban areas subject to flooding (risk areas); (xvii) improvements to the main arterial road layout to improve traffic movement in the region, and improved safety as a result of improved local street layouts; (xviii) improved public transport as a result of paved and otherwise improved streets, main thoroughfares, and roundabouts, reducing travel times; (xix) lower transport costs; and (xx) better outlook for social and economic development.

Economic Benefits: The economic analysis of each of the project components was the result of analyses undertaken of incremental costs and benefits, that resulted by comparing ‘with’ and ‘without’ project scenarios, with the objective of maximizing the social impacts from the investments, *i.e.* the Present Value of the total benefits generated by the Project should exceed the Present Value of all the necessary costs involved in the Project’s implementation and subsequent operation, with both values discounted at the opportunity cost of capital in Brazil. In this respect, the total cost and economic benefit flows were estimated for each of the components and the following indicators were estimated: Net Present Value, Cost/Benefit ratio, and the Economic Internal Rate of Return. The projection for costs and benefits for the assessments was calculated on the basis of a 20-year period, discounted at a rate of 12% per year (taken as a *proxy* of the opportunity cost of capital in the country). In order to quantify the direct and indirect benefits, it was necessary to decide in advance the kinds of benefits that implementation of the project would produce, as well as to quantify the number of people who are expected to derive benefit from each of the interventions. After all the localities and communities likely to receive the benefits were identified, the size of the present population targeted by the projects was calculated using appropriate statistical models. The future population figures were then projected in accordance with the timescale of the project.

Contingent valuation: Benefits related to implementation of the wastewater treatment component were estimated using Contingent Valuation Method. For the application of that methodology, surveys were applied to elicit the ‘willingness to pay’ (WTP) for the given benefit, from identified potential beneficiaries. The econometric method used for obtaining data on WTP is based upon the bounded logit parametric model which consists of calculating WTP by relating the probability of an affirmative response to the value amount presented (maximum likelihood estimation), with selected variables and a variable relating this sum to actual income. The WTP measure is calculated for the value which represents the median of the dependent variable (see detailed report in Project Files). The bounded logit model utilizes endogenous control of consistency between income and the presented value insofar as calculation of the WTP median is defined solely for positive values and family income and utilized as an asymptotic estimator for

providing the WTP result. In the case of this model, in the absence of an analytical formula for obtaining the standard WTP deviation, the confidence interval is obtained by the bootstrapping procedure, which utilizes the Monte Carlo method to simulate the value of the WTP estimates based upon random generation of the function parameters (employing the co-variation matrix of the same). A WTP confidence interval is thus obtained.

Hedonic pricing: The quantification of the benefits generated by implementing sub-projects related to wastewater collection, upgrading streets, drainage, and related activities, was estimated by applying the Hedonic Price Method. This method is based upon identifying the attributes or characteristics which permit measurement of the market price of properties or gauging the implicit prices of urban amenities. In economic theory, properties are frequently considered to be a ‘durable good’, consisting of the various features of the properties in question that can be independently analyzed and valued. By using a ‘hedonic price function’, properties can be classified as ‘heterogeneous goods with particular features’ such as location, size, type of construction, etc. Demand for properties can therefore depend on the different attributes or characteristics responsible for the market value of the same. In order to arrive at an estimate of the benefits through this method, a ‘hedonic price function’ able to estimate the price of properties affected by the project was drawn up on the basis of the following; $P = f(C)$ (*Hedonic Function*), where P is the price of the property and C is a vector comprising attributes that determine its market value. A survey was carried out to obtain data on the properties in the *Lagoas do Norte* areas that will be affected by the intervention. The interviewees gave information about the value of the rents they were paying for properties (if there were tenants) and the sale price of properties (in the case of owner-occupiers). The questionnaire also contained questions about the presence or absence of certain features and access to urban services in the properties. These questions were useful for assessing the impact of such features on the current value of the homes: (i) number of floors; (ii) number of rooms; (iii) type of building materials used (brickwork, timber, etc); (iv) use (residence, mixed use, etc); (v) class of occupation (owner-occupied, rented, etc); (vi) officially regularized plot (yes/no); (vii) wastewater disposal (sewage network, septic tank, open air discharge); (viii) garbage disposal (door-to-door collection, specific place for dumping); (ix) water supply (network with meter, network without meter, well, clandestine connections); (x) toilet/bathroom arrangements (internal, external, collective); (xi) micro-drainage (gutter or surface drainage); (xii) paving (asphalt, stone, etc); and (xiii) proximity to public services (school, health post, police post, etc).

Hedonic Regression: The survey generated a database containing details about the properties and their different attributes. This data was analyzed through regression analysis – in effect relating the prices of the properties to their main features. The result of the regression indicated how much or how little the value of the properties would be affected by the interventions proposed by the Project. Based on this comparison, an estimate emerged of the benefits that might accrue from implementation of the Project. The primary results obtained from the research were submitted for consistency analysis to eliminate inconsistent responses from interviewees.

Avoided damages and losses: The field studies revealed that possible benefits could arise from ‘avoided costs’, such as those related to reduced flooding or to health costs, those associated with improved water supply, sewerage and solid waste services, and those related to pollution control in the area (with attendant costs). These hazards are expected to be diminished with project

implementation. The benefits arising from avoided damages and losses, as a result of the interventions, regarding flooding were allocated to the drainage component, while the avoided damages and losses for the health costs were divided in the following way: 50% to the drainage component, and 50% to the sewerage component.

Other methods used: The main benefits to be secured from interventions in the *water supply systems* would be (i) increased availability of water for users of the system and (ii) increased financial resources for the water utility as a result of reducing illegal connections. These benefits were estimated by analyzing the incremental impact of reduction of illegal connections to the utility, and the additional water available for distribution as a result of reduced physical losses. For the estimation of economic benefit associated to the *road component*, the following approach was taken: the sub-component was divided into two activities, given that different benefits and methodologies were applied to each: (i) increased safety; and (ii) improved accessibility and local mobility. The first activity was dealt with using secondary data obtained from the research carried out by the Institute of Applied Economic Research (IPEA) in 2003, which quantified the cost involved in accidents in metropolitan areas (see Annex 1 of full economic analysis report in Project Files for this Survey). These costs were corrected to reflect current prices using IPCA. The second subcomponent concerned the benefits to be obtained on the basis of the Hedonic price function generated by regression on the basis of the **access** variable.

Economic Costs: All the costs of the Project components were included in the analyses, including activities related to urban infrastructure, institutional strengthening, management support, civil works supervision, and other subsidiary activities. Conversion factors were used to convert market prices into economic prices. The conversion factors used in the economic assessment study carried out under the Bank's *Water Sector Modernization Project* (PMSS) were adopted. The standard conversion factor (FCP) was applied to land, materials, equipment, chemical and other products. The investments and operating costs, plus the costs involved in management and maintenance (to ensure that the proposed interventions would produce the desired benefits), were disaggregated into 'unqualified labor, qualified labor, materials and equipments, and BDI (local administration tax).' The electricity costs were inserted as part of the overall 'operating costs.'

Results of the Cost-Benefit Analysis

Component	Present Value of Benefits	Present Value of Investments	Present Value of Recurrent Costs	Net Present Value of Benefits	Benefit Cost Ratio (CBR)	Internal Rate of Return (IRR)
Drainage	81.27	12.149	7.776	61.345	1,88	23,19%
Streets and Paving (1)	39.395	3.995	2.557	32.843	2,76	31,06%
Streets and Paving (2)	9.721	2.632	1.684	5.405	1,08	13,38%
Sewerage	46.019	7.546	4.83	33.643	1,85	24,88%
Wastewater treatment	5.45	2.264	1.449	1.737	1,26	22,46%
Water	9.492	2.179	1.297	6.016	1,47	20,26%
Total	191.347	30.766	19.592	140.988	1,85	23,99%

Sensitivity Analysis: Some uncertainty arises from employing the variables in the economic/financial assessment. It is therefore important to assess the impact that some of the

variables will have on the Project feasibility results. Given the fact that assumptions contained in the analysis might need to be revised when the Project is brought on stream, the expected yield of the Project might be put at risk. If the main variables that impact most on the NPV, CBR and the IRR are identified in advance, it is possible to secure better control over these variables in order to achieve the desired results. The variable ‘benefits’ was identified as possessing the most significant impact on the result of the interventions. The Project team therefore carried out a switching values simulations so that NPV was equal to 0 (zero) and the C/B ratio was 1 (one), and the IRR 12%. The following are the results obtained, with the percentages of benefits considered in the light of the requirements of the above-mentioned cost benefit analysis. The results show that the results of the analysis are robust. It is unlikely that benefits will be reduced a rates above 35% risking the economic feasibility of the proposed investments. According to the results the riskier components are the paving and drainage components and the least riskier is the wastewater treatment component.

Results of the Sensitivity Analysis

Component	Reduction in benefits for a feasible project	Present Value of Benefits	Present Value of Investments	Present Value of Recurrent Costs	Net Present Value of Benefits	Benefit Cost Ratio (CBR)	Internal Rate of Return (IRR)
Drainage	54%	43.886	12.149	7.776	23.961	1,01	12,22%
Streets and Paving (1)	37%	14.576	3.995	2.557	8.024	1,02	12,32%
Streets and Paving (2)	65%	9.026	2.632	1.684	4.71	1,00	12,08%
Sewerage	54%	24.85	7.546	4.83	12.474	1,00	12,03%
Wastewater treatment (ETE)	80%	4.36	2.264	1.449	647	1,01	12,30%
Water	68%	6.455	2.179	1.297	2.979	1,00	12,00%
Total		103.153	30.766	19.592	52.795	1,01	12,17%

2. Financial Analysis

The main aim of the financial feasibility analysis is to examine strategies and propose efficient mechanisms for ensuring the financial sustainability of the systems to be implanted, while taking into consideration the potential incremental resources that could be generated. The financial assessment takes into consideration incremental income and expenditure accruing from project implementation. The capacity for recovering the costs of interventions, in particular identifying specific revenue that could be generated by each component, was taken into account in the course of this task. The implementation of suitable infrastructure as well as constraints on public sector investment capacity and the restricted capacity of the beneficiaries to pay rates, charges and taxes, are key elements in the analysis. These variables effectively define the issues of financial viability and sustainability of the activities to be undertaken and it was obvious that the constraints imposed by current laws concerning payment of rates, taxes and utility charges by the population needed to be taken into consideration. The maintenance and operating costs of the proposed interventions provide a base for calculating the resources required for the sustainability of the project. Some of these resources must be contributed by the beneficiaries through the payment of tariffs and taxes, if there's adequate payment capacity.

The municipal tax regimes, as defined by the Federal Constitution, consist basically of (i) the Urban and Property Tax (IPTU); (ii) the General Services Tax (ISS); and (iii) the ITBI (*Imposto sobre Transmissão "Inter Vivos", a Qualquer Título, por Ato Oneroso, de Bens Imóveis, por Natureza ou Acessão Física, e de Direitos Reais sobre Imóveis*). The sources of financial income form the proposed Project were: (i) IPTU; (ii) ITBI; and (iii) water supply and sewerage tariffs (as currently charged by AGESPISA, the state water company). PMT also collects taxes for cleansing, street maintenance, public lighting, etc. Frequently, significantly lower charges than those enshrined in the municipal budgets are demanded, resulting in vital services not being provided. The minimum tariffs, according to the AGESPISA tariff structure, were used in the analysis for the WSS infrastructure interventions. A simulation was made of the IPTU tariff based upon the expanded new infrastructure as a result of the proposed interventions. It can be observed that under one-third of the dwellings in the area in fact pay IPTU, and in view of the numerous exemptions and waivers (immunities), this results in a considerable loss of municipal revenue.

3. Fiscal Analysis

In 2005 and 2006, Teresina has maintained the sound fiscal behavior exhibited in the previous years already analyzed in this annex. The municipal fiscal balances have improved as a consequence of the combination of the control of current expenditures and the good revenue performance. Primary balance strongly grew from 2.6 percent of net current revenue in 2004 to more than 10 percent of net current revenue in 2005. Figures until October 2006 indicate that the primary surplus in 2006 should be higher than the observed in 2005. As a result of its sound fiscal performance, Teresina's Fiscal Responsibility Law (FRL) indicators improved substantially. The acceleration of financial assets accumulation resulted in a strong reduction of net consolidated debt which has turned negative passing from 10 percent of net current revenue in 2004 to -4 percent of net current revenue in 2005 and to -72 percent of net current revenue in October 2006. Therefore, Teresina has increased the space for further indebtedness. Personnel expenditures were kept under control and maintained around 40 percent of net current revenue (against 60 percent of the FRL). Other FRL indicators have been maintained well below the legal ceilings. The substantial primary balances obtained over the past few years and the impressive reduction of net debt, together with projections for fiscal balances based on realistic assumptions, indicate that Teresina has sufficient capacity to repay and contract new debt.

PMT exhibited very responsible fiscal performance in the period 2000 to 2004. Preliminary figures for 2005 indicate the continuity of the prudent fiscal stance. The net total balance was positive throughout the period. Both the primary balance and the nominal balance have been positive since 2001. PMT was able to generate increasing current savings during the last five years which allowed it to finance a large part of its investment expenditures. As a result of its prudent fiscal management, Teresina has complied with all the FRL requirements since its enactment in 2000. Net consolidated debt, used for compliance of the FRL, has followed a decreasing path, falling from 18% in 2000 to 10% of net current revenue (NCR) in 2004, far below the legal ceiling of 120%. Personnel expenditures averaged 40% of net current revenue, against the ceiling of 60% of NCR. Other FRL indicators are well below the legal limits: credit

operations represented less than 1% of NCR while the FRL ceiling is set at 16% of NCR. Debt service payments averaged 3% against the FRL ceiling of 11.5% of NCR.

Furthermore, this sound fiscal performance by PMT has occurred in the context of economic stagnation that led to a poor revenue performance at least until 2003. Between 2000 and 2003, total revenue fell by 2.5% with tax revenues falling by 5%. Transfers from federal and state governments also had a disappointing performance falling by 1% during this period. Other current revenues grew by 33% but, given their low weight on municipal revenues, this increase could not avoid the overall poor performance of revenues. The revenue performance reflected the economic downturn of the Brazilian economy during the first years of the current decade, as well as the strong fiscal adjustment that the federal and state government governments have implemented in recent years which constrained transfers to the municipality.

The detailed economic, financial and fiscal analyses reports are each available in Project Files.

Annex 10: Safeguard Policy Issues

Teresina – Lagoas do Norte

Environmental Analysis

Background: The following safeguard policies have been triggered for this Project: Environmental Assessment (OP 4.01); Natural Habitats (OP 4.04); Dam Safety (OP 4.37); Protection of Physical Cultural Resources (OP 11.03); and Involuntary Resettlement (OP 4.12). This annex presents a summary of the results of the safeguard policy analyses, and the related technical and social analyses, that are being undertaken during Project preparation in compliance with Bank policies. The full environmental impact assessment report, together with the resettlement framework and policy, can be found in the Project files.

Positive Environmental Impacts of Project: The environmental impacts of the Project are overwhelmingly positive in nature, as would be expected of a project whose main outcomes include: (i) the collection and treatment of 100 percent of the wastewater in the *Lagoas do Norte* region of the city; (ii) the recuperation of the quality of the water of all of the lagoons in the *Lagoas do Norte* region of the city – reducing the wastewater, solid waste and sediment pollution loads entering the lagoons; (iii) the recuperation and optimization of the micro and macro drainage system in *Lagoas do Norte* such that flood events are minimized; (iv) the recuperation of natural vegetation along the banks of the lagoons and the adjacent rivers; (v) improving the immediate local environment of families through new housing and improvements to existing housing; and (vi) the recuperation and construction of green spaces, parks and other community leisure equipment in the region.

The Project was subjected to an Environmental Assessment in conformity with Bank guidelines for projects classified as Category ‘A.’ The Project envisages interventions in (i) municipal management modernization, including in the field of environmental management and service delivery; (ii) integrated urban and environmental improvements of the local and supra-local environment in the *Lagoas do Norte* region of the city; and (iii) activities concerning social inclusion (health and education service provision; job and income creation initiatives, etc) also in the *Lagoas do Norte* region. Mitigating measures of potentially negative impacts are included in the Environmental Management Plan (EMP) which contains the EMP’s costs, implementation responsibilities, and timeframes. The Project’s perceived positive and negative environmental impacts, and the measures proposed to maximize the former and mitigate the latter, have been presented in the environmental assessment report (EAR) together with all relevant issues related to the other bank safeguards triggered by the Project. The EAR, which contains the EMP, is summarized below.

Summary of Safeguard Issues

Environmental Assessment (OP 4.01): The overall environmental (and other safeguard-related) impacts of the proposed Project will be positive in nature since Project activities include: (i) capacity building for PMT’s regional environmental divisions within the Urban Development Superintendency (SDU) and the Regional Development Superintendency (SDR) such that it undertakes its role of environmental licensing, environmental control, and related activities, more

effectively and efficiently; (ii) support to help PMT comply with the requirements of the new federal WSS law; and (iii) urban-environmental interventions in the *Lagoas do Norte* region of city which are designed to improve the local environmental conditions of this region, and consequently improve the quality of life of its low-income residents, through integrated interventions in water supply, wastewater collection and treatment, drainage, housing improvements, road system improvements for better traffic flow, improved public transport circulation and improved cycle ways (for a city where many of the poor use this mode of transport), creation/rehabilitation of green and leisure spaces, as well as activities involving recovery of areas of permanent environmental preservation around the lagoons and along the adjacent river banks.

Public Consultations were carried out involving the population who will be directly affected by the interventions, the communities that would be subject to resettlement and the entities involved in undertaking Project interventions. These consultations have fed into the design of the Project components. In order to undertake the public consultation exercise and disseminate information about the Project, PMT undertook a series of public meetings: twelve meetings took place with a wide range of members of the public and of civil society – ranging from community leaders to local and state politicians. At all these events a video presentation of the proposed Project was shown and a description given of the various Project components, together with details of all the proposed interventions and activities to be implemented. The questions raised and suggestions made by the audiences were taken into account in the project design and summarized in the EAR. Records of the meetings (attendance lists, publicity material, documentation, photographs, summaries of debates, etc) are held on file in PMT's project preparation unit.

Natural habitats (OP 4.04): This safeguard was triggered for the Project's proposed interventions in the lagoon and river ecosystems (the group of lagoons and their areas of permanent preservation, APPs, protected by law). These interventions will consist of activities to revitalize the natural environments, mainly by recovering the water quality of the heavily-polluted lagoons and re-establishing lagoon- and river-side flora. Those families living around the banks of the lagoons – where they are subject to perennial flood risk – will be resettled, thus enabling the surrounding lagoon habitats, including the water bodies themselves, to be rehabilitated. The full rehabilitation of this and the other lagoons will be achieved through drainage interventions which will allow the lagoons to revert to their original, natural state, and wastewater and solid waste collection interventions which will minimize their pollution – thus allowing the lagoon environment to stabilize and improve, and allowing the reestablishment of a permanent stretch of water in each lagoon without overflow and flooding in the rainy season. The environmental control program related to the interventions, described in the EMP, will ensure that activities are undertaken in a way to secure maximum positive environmental impact for each of the lagoons.

Involuntary resettlement (OP 4.12): Families living in APPs and in areas of permanent flood risk around the lagoons and alongside the rivers will be resettled – currently some 1,288 families. A smaller number of families, 302, will also need to be resettled or compensated for in areas where the road system will be improved and where wastewater pumping stations constructed. The most substantial civil works intervention under the wastewater system, construction of the '*ETE Norte*' wastewater treatment plant, will be built on vacant land and will therefore not

require any resettlement. No resettlement will take place during the first year of Project implementation – during this first year the detailed engineering designs and their respective Involuntary Resettlement Plans (IRPs) will be prepared. Each IRP will be reviewed and cleared by the Bank before related works can commence. A Resettlement Policy Framework (RPF) has been prepared by PMT, which is summarized below, and can be found in the Project Files. The RPF has been developed so that the number of resettled families and businesses are kept to a minimum, thus promoting the preservation of the network of social, cultural and economic relationships that exist in affected areas, and so that essential urban and social services are provided for the relocated families in their new areas. The RPF will guide the preparation of the IRPs and the related engineering designs during sub-project preparation.

Safety of Dams (OP 4.37): Even though the flood control dikes lining the rivers Parnaíba and Poti in the *Lagoas do Norte* region are low-lying structures, the Dam Safety safeguard was nonetheless triggered. Furthermore, the drainage modeling analyses undertaken during Project preparation recommended that a safety assessment of the existing dikes be undertaken. The dikes safety assessment report can be found in Project files, the main conclusion of which is given the stability of the slopes of the dikes, the risks of rupture were nonexistent. During the elaboration of the study, maintenance works were being carried out by the Army Engineering Division and these were also taken into account. Short and medium-term measures were recommended such as: (i) modifying the municipal urban zoning law to prohibit occupation of the sloping side strips of the dikes; (ii) preparation of, *inter alia*, a physical registry; and (iii) preparation of an analysis of the costs for expropriating and relocating the homes situated near to the dikes.

Protection of Physical Cultural Resources (OP 11.03): Restoration of the *Teatro do Boi* theater forms part of the Project, as does the integration and enhancement of the *Parque Cabeça de Cuiá* municipal park located at the confluence of the Poti and Parnaíba Rivers. The activities and works proposed under the Project will not interfere with any archaeological sites.

EAR Executive Summary – highlights: The *Lagoas do Norte* region of the city is formed by a group of interlinked lagoons, located between the Parnaíba and Poti rivers. The disorderly and irregular housing occupation around the lagoons is a source of serious health risks for the approximately 100,000 resident population. Furthermore, the quality of occupation, and lack of essential infrastructure and basic services, does not contribute towards generating dynamic urban and economic growth and does not allow the population, living in an area so close to the center of town, to realize their potential and tie into the city's formal fabric. The area is currently occupied by low-income residents living in extremely precarious and insalubrious conditions, in homes that are at permanent risk of flooding and lacking WSS, drainage and other basic services. These, and the aforementioned degraded natural environments in and around the lagoons, are precisely the conditions that the Project aims to improve.

The *Lagoas do Norte* Project targets physical interventions in the northern sector of the city of Teresina, and the proposed group of coordinated activities has drawn on the development priorities identified in the '*Teresina-Agenda 2015*' planning exercise and contained in PMT's 2005-2008 government plan. The *Lagoas do Norte* area comprises 13 neighborhoods¹⁵ covering

¹⁵ Neighborhoods comprising the *Lagoas do Norte* region are: São Francisco, Mocambinho, Poti Velho, Olarias, Alto Alegre, Itaperu, Mafrense, São Joaquim, Nova Brasília, Aeroporto, Alvorada, Matadouro, and Acarape.

a total area of 1,310.85 ha. Population estimates for 2005 show that around 104,000 people live in the area. The area occupies land at the confluence of the Poti and Parnaíba rivers (forming the boundaries of the *Lagoas do Norte* area). In the 1960s the area suffered from serious flooding. Since at that time the area was not densely inhabited physical and economic damage was not significant. In the early 1970s, the ‘*Boa Esperança*’ protection dike was built to control floodwaters. As a result of the protection afforded by the dike, and rapid population growth in the east and south parts of the city, irregular expansion led by poorer people began to take place on the public land delineated by the dikes in this area of the city. The resulting settlements consisted mainly of adobe houses covered with straw or tile roofs.

In 1985, the Poti and Parnaíba rivers experienced particularly high flood levels and water flowed in from the Poti into part of the area not protected by the *Boa Esperança* dike. As a result the whole of the *Lagoas do Norte* area was flooded. Subsequent to this event, the *Boa Esperança* dike was extended up to the Mocambinho group of lagoons and two pump systems were installed in the lagoons to pump floodwater back into the rivers when needed – one pumping system in the Oleiros lagoon and the other in the Mocambinho lagoon. The canals linking the lagoons were also improved. The water level in the lagoons tends to increase during the rainy season due to the presence of clay, and slowly evaporates over a period of months during the dry season. When the water level in the lagoons is at a low level (for around nine months a year) people erect their shacks in parts of the area normally flooded during the rainy season. It is this cycle of irregular settlements in unsafe and insalubrious areas surrounding the lagoons that the Project intends to reverse and control, in order to correct negative impacts on the population and on the environment.

The *Lagoas do Norte* area presents a picture of striking environmental vulnerability, brought about by a combination of the following factors: (i) accelerated fluvio-lacustral sediments; (ii) a large, flat, flood-prone area; (iii) permeable sandy soils; and (iv) large, shallow water bodies forming an interlinked series of lagoons – twelve lagoons of varying size and depth which from the physical framework around which the proposed *Lagoas do Norte* project is designed.

The majority of the lagoons are totally polluted owing to the disorderly occupation of their banks and to the large quantity of wastewater, sediment and garbage dumped directly into them. The encroaching occupation, the sediment, and the large volume of solid waste conspire to restrict the flow capacity of the natural drainage system (comprising the lagoons themselves and the channels interlinking them) of the entire area, presenting perennial flooding risk. The wastewater and garbage serve to transform the lagoon system into a major source of disease and discomfort for the population. In 1995 heavy rains resulted in fresh flooding of the area (reaching the 57.0 m high water level above sea level) and leading to the evacuation of some 2,000 families. The most recent serious floods to reach this level occurred at the beginning of 2004: almost 3,000 families were left homeless and had to be accommodated by the PMT in public shelters or went to live with friends and relatives.

Project components: The interventions to be undertaken by the Project are divided into the three components as described in Annex 4. The technical studies and analyses that have been undertaken in order to properly design the Project elements related to drainage, WSS, road/street systems, green and leisure spaces, housing improvements, and urban upgrading were used to establish the size and scope of the interventions to be implemented. These interventions are mainly included in the Integrated Urban-Environmental Development component, which absorbs most of the Project's financial resources.

Drainage: The scenario developed through the detailed hydraulic modeling of the lagoons and their drainage water flows initially indicated the use of 56.0 m above sea level (asl) as the working water level for all the lagoons. However, this choice based on technical/hydraulic considerations would have required removing approximately 2,000 families, at costs far exceeding those available under the proposed Project. The alternative chosen from among the scenarios modeled established a working water level of 55.0 m asl for all the lagoons, with the exception of the *Cerâmica Poti* and *Cachorros* lagoons for which 56.0 m asl was established as the optimum working water level. This scenario takes into account proposed increased pumping capacity in the system and enhanced flows between the lagoons, which are critical factors for determining the adequate functioning of the drainage system as a whole. Using the chosen scenario as a basis, a 'high water line' (*mancha*) was drawn around all the lagoons within which future housing would not be allowed, and where present inhabitants would be eligible for resettlement and compensation.

Hydraulic engineering interventions are included in this sub-component, including improving the link canals between the lagoons and redesigning the flood gate (*comportas*) installations. The hydraulic solution to be implemented under the Project will ensure permanent 'bodies of water' (*espelhos de água*) in all of the lagoons comprising the drainage system of the *Lagoas do Norte* region. These measures will include positive impacts for the microclimate, for revegetation of the lagoon and river banks, and recovery of flora and fauna. Furthermore, they permanent water bodies in each lagoon will create barriers against further irregular occupation of the banks and the inner areas of the lagoons, as well as providing an attractive area for the city residents to visit.

Wastewater management: The wastewater collection, treatment and disposal analyses evaluated the impact of preliminary, primary and secondary treated wastewater effluent, respectively, on the quality of the River Parnaíba's water downstream of the proposed discharge point, and the implications for the river's environmental classification parameters (Class 2 of CONAMA resolution 357/05¹⁶). The combined wastewater treatment and receiving body water quality modeling analyses concentrated on two alternatives:

- **Alternative 1:** Collection and treatment of wastewater within the different sub-basins based on the installation of up flow anaerobic sludge blanket (UASB) reactors and final effluent disposal into the existing drainage canals and lagoons. The UASBs, designed to be located at

¹⁶ Classified as "waters that can be used for human supply after conventional treatment; protection of aquatic communities and fishing; recreation involving primary contact such as swimming, waterskiing and diving; and irrigating vegetables, fruit trees, parks, gardens, football fields and leisure areas, etc, with which the public can come into direct contact."

the lowest points of the sub-basins, were projected to achieve a wastewater purification rate of around 60 percent in terms of organic load reduction. This alternative was discarded given the low assimilation capacity of the lagoons as receiving bodies, especially during the dry season, and would have resulted in little improvement in the lagoons' water quality as compared to the present situation.

- **Alternative 2:** Collection and transfer of wastewater to a location outside the Project area, with final disposal in the Parnaíba River – in line with solutions previously examined by the Bank-financed PMSS project. The arrangements and implementation phases of this alternative were assessed on the basis of the volume of wastewater flowing into the wastewater treatment works (ETE) and the absorptive capacity of the receiving body. Two treatment implementation scenarios were considered: (i) preliminary and primary treatment (screening, grit removal, UASBs); and subsequently (ii) preliminary and primary treatment – as for (i) – followed by secondary treatment comprising facultative and maturation waste stabilization ponds.

Alternative 2 was adopted as the best solution for wastewater management. The first phase of Alternative 2 will be implemented under the Project, since the water quality modeling of this solution demonstrates the absence of deleterious impacts on the water quality of the Parnaíba River given the self-purifying capacity of the river stretch under consideration. The impact of the effluent discharge from the first phase intervention will, nevertheless, be monitored to verify the conclusions of the modeling exercise. There is adequate space available at the proposed ETE site for implementing the second phase of treatment should the monitoring demonstrate the need for it.

Water supply: The interventions in the water supply system are comparatively small in the overall context of the Project investments, but they will lead to gains in terms of the quality of service provided, the reduction of non-revenue water, and the reduction in wastewater generation. The improvements to be financed by the Project are designed to improve the efficient operation of the water reticulation systems in order to better and fully serve the intended beneficiary neighborhoods in the *Lagoas do Norte* region through reinforcing existing distribution mains and networks, creating new ring mains and ‘sectorization’ (district management) areas, and extending distribution networks to serve new areas where resettled families will reside.

Road system: The road system in the lagoons area suffers from a number of serious bottlenecks. Present traffic conditions and the physical state of the roads, together with heavy occupation by residential, commercial, industrial and service establishments along the sides of main roads, led to the conclusion that important improvements need to be considered regarding the operational quality of the roads. The roads of most concern in the *Lagoas do Norte* region are those that provide the main access routes to and from the city center as well on the main northerly road out of the city. The road system improvements proposed under the Project envisage interventions in the major thoroughfares and some of the transversal roads. This would improve the mobility of, and accessibility for, the population of the 13 benefited neighborhoods, especially from the point of view of easier access by the inhabitants to public transport.

Urban landscaping: The urban/landscaping interventions have been prepared by PMT in the form of a general plan and maps showing the groups of interventions proposed in the *Lagoas do Norte* region that the Project will support. All the interventions involving construction (for example the main road system) will respect a buffer/safety strip around the lagoon edges which will be maintained to ensure the protection of the banks and respect the areas of permanent environmental protection (APPs). With a view to facilitating the elaboration of preliminary engineering designs and the execution of the main civil works, PMT has divided the 13 neighborhoods targeted under the Project into four intervention areas, based upon the area's hydrographic sub-basins. This subdivision respects the implementation modules of the macro-drainage and wastewater systems, and – while following the implementation 'lead' of these key macro infrastructure interventions – allows the complementary urban upgrading infrastructure (roads and access ways, micro-drainage, water supply, housing and other urban upgrading, green and leisure spaces, etc) to be simultaneously rolled-out.

For the APPs along the banks of the rivers and lagoons, and for the other green spaces, the urban/landscaping design took into account both the issues of environmental protection and the provision of leisure space for the population – the proposed interventions provide many new leisure opportunities for the local population. The urban/landscaping design thus contributes to the development of the *Lagoas do Norte* region, marrying improvements in basic infrastructure and social services with enhancement of the local environment – with an additional overarching aim of making the region a more attractive place to visit for all the city's residents.

Summary of Project activities included to comply with Bank safeguards

Environmental Assessment (OP 4.01): (i) preparation of the EAR and the EMP and the undertaking of public consultations; (ii) institutional strengthening of environmental management, control and licensing activities for PMT's SDU and SDR; and (iii) environmental best-practice construction manual for civil works.

Natural Habitats (OP 4.04): (i) clearance of illegal settlements, occupations, activities within the lagoon complex's APPs; (ii) drainage works and improvements to rehabilitate the natural lagoon environment, establishing permanent water bodies (*espelhos de água*) within each lagoon; (iii) wastewater collection, transmission and treatment to improve the water quality of the lagoons;

Involuntary Resettlement (OP 4.12): (i) Involuntary Resettlement Policy Framework for those potentially affected by the Project prepared for Bank approval; and (ii) social outreach, retraining and job replacement programs for informal clay extractors/potters (*oleiros*).

Safety of Dams (OP 4.37): (i) study of the structural, geological and hydrological/hydrodynamic safety of the Poti and Parnaíba river dikes.

Protection of Physical Cultural Resources: (OP 11.03) (i) rehabilitation of the *Teatro do Boi* theater, and improvements made in the *Parque Cabeça de Cuia* park; and (ii) environmental best-practice construction manual for civil works.

Environmental Legislation and Institutional Capacity: Building In order to comply with Brazilian legislation, the environmental assessment terms of reference were reviewed and approved by the State Secretariat for Environment and Water Resources (SEMARH), which will facilitate the future environmental analysis and approval by SEMARH and its subsequent issuance of the necessary environmental licenses. It is anticipated that during Project implementation and operation, additional analyses may be requested by SEMARH for different civil works or infrastructure interventions (water supply, wastewater management, drainage, road system improvements, etc.).

In accordance with the rules of the National Environmental System, PMT created the appropriate municipal bodies for undertaking licensing and enforcement of activities that have potential impact on the environment. The *Municipal Environment Council* and the *Municipal Environment Fund* were thus created and now function independently of municipal executive secretariats, superintendencies and departments, with responsibility for environmental licensing and inspection/enforcement. Regional municipal bodies were also created to deal with environmental issues within the Urban Development and Environment Superintendency (SDU) and in the Rural Development Superintendency (SDR). The Environmental Management Division (GMA) is responsible for administering and executing environmental policy as well as for participating in the planning/execution of environmental licensing, monitoring and education with a view to preserving, conserving and upgrading the value of the environment and quality of life in the municipality. The Project will support organizational and capacity building initiatives for the PMT's different environmental bodies, including (i) introducing consistency into procedures, organizational structures, and distribution of functions among the different regional environmental bodies; (ii) improving the technical capacity and the number of staff allocated to these bodies; and (iii) improving supervision/control systems and equipment.

Summary of the Environmental Quality of the Project: The implementation and proper operation of urban-environmental infrastructure (water supply, wastewater management and treatment, and drainage) under the Project are designed to result in positive environmental and social benefits. The majority of the potential negative environmental impacts expected during the construction stage can be properly controlled through adherence by contractors to the best-practice environmental construction manual described in the EMP.

The main positive environmental impacts identified are: (i) reduction of flooding risks; (ii) improved accessibility of the *Lagoas do Norte* area; (iii) improved water supply and wastewater services; (iv) recovery of natural ecosystems systems (the lagoons and the surrounding APPs); (v) support for employment and income generation; (vi) improved health and pre-school education services; and (vii) increased PMT institutional capacity regarding environmental management and licensing.

The main negative environmental impacts identified are as follows: (The measures to mitigate the negative impacts are detailed in the EMP, as part of the EAR): (i) involuntary resettlement of families and businesses; (ii) interference with urban infrastructure during construction (roads, water and electricity networks, etc); (iii) disposal of excavated material; (iv)risks of accidents on the worksites (for the workers and the local population); (v) closing

down the clay extraction/pottery activities in the Oleiros Lagoon; (vi) temporary impediments to economic activities, and general nuisance, during construction

The current irregular and precarious urban occupation in the *Lagoas do Norte* region has resulted in the deterioration of natural environment, leading to additional environmental risks and deteriorating quality of life. The urban and environmental problems are effectively circular – with one problem contributing to the aggravation of the other. The natural drainage system, for example, is undermined by the irregular urban occupation - which itself leads to flooding and affects the population living precariously on the banks of the water bodies. This population in turn pollutes the water bodies with its liquid and solid wastes. The population that pollutes the waterways is the same group that survives precariously from the residual natural resources (through excavation, handicraft production, and small-scale subsistence fishing), but that does not enjoy the urban services (water supply, sewerage, garbage collection, access ways, etc) vital for improving living conditions in the respective lagoon basins. The picture of a fragile natural environment is not helped by an equally vulnerable population which has little idea of how to act in a less environmentally hazardous way, and which lacks opportunities for generating income and receives no environmental and health education and orientation. The *Lagoas do Norte* Project was conceived with the idea of intervening in the aforementioned scenario in order to bring order to the human occupation of the area, to increase the quality of life of the people living there, and to improve the local environment. The Project also aims to provide residents of the whole city with leisure and recreation opportunities in the *Lagoas do Norte* region. The infrastructure interventions are supplemented with income generation programs as well as those of a social and educational nature, with a view to improving the relationship between the residents and their work and home environments. The establishment of wastewater and drainage management systems, road system improvements, and the recovery of the banks of the lagoons and rives, will be accompanied by activities aimed at making the population aware of the need to conserve the infrastructure and services provided in order to live more harmoniously with the region's water resources.

The potential negative environmental impacts concern basically the implementation of the wastewater, drainage, road improvement and lagoon re-urbanization works, which will be minimized with the adoption of best-practice environmental and social guidelines for construction. Nevertheless, any temporary negative impacts during works implementation will be more than compensated for by the considerable improvements to the urban and environmental quality of the region post-implementation. As far as the negative social impacts are concerned, the most significant of these is the need to resettle a large number of families. Regardless of the improvements that the population can expect by moving into regular and urbanized localities, the problem exists of possible ruptures in the social fabric (involving work, social, neighborhood, family relations, etc). In order to minimize these impacts, PMT has developed a Resettlement Policy Framework (RFP) which will be followed for resettlement and compensation of affected families, existing businesses, land plots, etc. Specific health and environmental education programs will also be provided for these families, as well as activities that will help them to settle into their new homes.

Regarding the informal potters/clay workers ('oleiros') their activities should be allowed to continue until they come to their natural end in four or five years time, during which time the

Project will be under implementation. In the first four years of execution, the Project will finance the following activities to support the *oleiros*: (i) professional training in activities for which there are market-demand; (ii) training entrepreneurs and creating small businesses; (iii) creation and strengthening of cooperatives; (iv) improvements in the quality of ceramic products; and (v) regulating the *oleiros*' activities and identifying new clay deposits.

Another important positive impact of the Project will be the strengthening and capacity building of important areas within PMT, particularly those units and staff working on issues related to environmental management, WSS service provision, education, and finances and budget management.

Implementation of the Project is designed to reap the following benefits: (i) improvements in the urban-environmental conditions in the *Lagoas do Norte* region and reduced risks of flooding through investments in WSS, de-pollution of the lagoons, relocation of at-risk families, and macro-drainage interventions designed to maintain permanent, flood-risk-free bodies of water; (ii) better access by the population to social services and improved opportunities for generating employment and income, thereby reducing the social exclusion of poor families and providing stimuli for formal and informal small businesses; and (iii) priority areas of the municipal administration modernized and provided with tools to plan, implement, operate and maintain physical and service interventions that will contribute to the orderly development of the city.

It can be seen that the environmental and social impacts generated by the Project are mainly positive. The impacts associated with the infrastructure works have been identified and assessed and are mainly confined to the civil works implementation phases themselves. Given that the engineering works will utilize standard construction techniques, the reduction of negative environmental impacts to a minimum during construction will be achieved by following the best-practice construction manual, and by implementing the environmental and social programs contained in the Environmental Management Plan.

It is also worth considering the ‘without project’ scenario: If the Project does not go ahead, the *Lagoas do Norte* region will continue to deteriorate environmentally and the lagoons will be fully transformed into a depository for untreated wastewater and garbage, full of disease-causing organisms and disease-carrying vectors. The population living at the edges of the lagoons (or sometimes actually within them) will continue to suffer periodic floods and risks to their homes, health, lives, livelihoods and quality of life, and will continue to have no access to alternative employment and income opportunities. Effectively, they would continue to live in a situation of social exclusion. In this respect, the *Lagoas do Norte* region would become even more isolated from the rest of the city, with limited public sector intervention available to improve the quality of urban life and of the local environment.

Environmental Management Plan: As part of the environmental assessment exercise, an Environmental Management Plan (EMP) was developed by PMT, summarized below:

Management of the EMP: PMT's project management unit (PMU) will manage the implementation of the Project and, consequently, of the EMP itself. The PMU will act as the link between the PMT, the Bank and the public and private entities involved in Project execution.

The PMU will be responsible for obtaining the environmental licensing of the Project interventions, for coordination of the implementation of the activities contained in the EMP, and for compliance with the norms and guidelines contained in the environmental control program for civil works. There will be an environmental specialist appointed to the PMU who will coordinate these responsibilities, and a second specialist who will supervise the environmental impact questions concerning civil works interventions. (Costs included in the project management budget.)

Program for environmental control of works (PCAO): The PCAO covers a series of environmentally-sound procedures and construction techniques for the types of civil works activities anticipated during Project implementation. The aims of the PCAO are to: (i) do the utmost to preserve and improve the landscaping aspects of the areas around the works locations at every stage of the works; (ii) supply the construction company with the guidelines and environmental information that must be respected at the different stages of construction; and (iii) make available to the construction workers, the guidelines and environmental information so that they conduct themselves in an environmentally-correct way. The PCAO is divided into four sub-programs: (a) health and safety on the work site; (b) hygiene/sanitation on the worksites; (c) environmental education of the workers, (EAT); and (d) environmental control and the appropriate rehabilitation of quarries, worksites, disposal sites, etc (PRB). (Costs included in the civil works budgets.)

Social communication program (PCS): This program is designed to establish a link between the PMU and the general public and civil society. The program contains activities aimed at the population that is to be resettled, as well as for the citizens of Lagoas do Norte and Teresina more generally, designed to communicate and explain Project implementation progress, as well as for those directly affected by the civil works interventions. The objectives are to: (i) transmit a positive image of the Project to the general public; (ii) promote integration between the authorities carrying out the Project and the local community; (iii) promote participation of the communities directly and indirectly affected during all stages of implementation; and (iv) create channels of communication between the residents/civil society and the PMU/PMT in order to keep the population of the area abreast of the progress and impacts of the works. (US\$80,000).

Environmental education program (PEA): This comprises an integrated series of proposals, actions and methodologies aimed at local environmental education. Environmental education will be aimed at the population directly affected and those people living in adjoining neighborhoods. The main objective will be to transform 'environmental concern' into 'practical concern', addressing the problems lived and experienced by the local population in their daily lives. It will also make the population aware of the importance of the *Lagoas do Norte* Project, seeking to make the population a partner in the recovery, preservation and maintenance of this important urban and environmental space. Among the Project actions, those concerning involuntary resettlement will be dealt with through specific activities aimed at making people aware of the importance of preserving the environment in their new localities. The PEA is based upon the following interdependent and complementary actions, to be coordinated by the PMU: (i) local environmental education, aimed at the population that will be directly affected as well as those in adjoining neighborhoods; and (ii) the development of the health and environmental education program for the resettlement areas. (US\$320,000).

Training and institutional strengthening program for environmental matters (PCFI): This program will seek to increase the institutional capacity of the environmental management divisions of the Urban and Rural Development Superintendencies (SDU and SDR), prioritizing the ‘GMA Centro-Norte’ within whose area the Project’s physical interventions will fall. The program comprises: (i) human resources training; (ii) purchase and installation of critical equipment; and (iii) the introduction of an environmental licensing and enforcement/inspection control system. (US\$75,000 – not including equipment costs which are included under the Project’s capacity building budget.)

Program to monitor the quality of the lagoons, ‘ETE Norte’ and the Parnaíba River (PQA): The objectives of this program are to: (i) monitor improvements of the water quality of the lagoons in order to assess the benefits arising from Project interventions; (ii) provide data about the quality of the lagoon waters, with respect to their multiple uses; (iii) identify any problems in the wastewater collection system; (iv) systematically assemble data regarding the water quality of the lagoons in order to assist in any future studies of these water bodies; (iv) check the efficiency of, and identify possible operational problems with, the wastewater collection, transportation and treatment system; and (v) examine the effect of the treated wastewater effluent on the quality of the water in the Parnaíba River. (US\$32,000 per year).

Resettlement program for low income families and compensation for the affected population (PDR): This program, prepared in accordance with Bank safeguard OP 4.12, will serve an estimated 1,590 families. The design of the resettlement program aims to guarantee the quality of life of the families affected by the works both in the ‘physical’ sense (having lost their original homes) as well as in other aspects such as loss of income (interruption of productive activities), and disruption to social support networks and neighborhood relations. A number of criteria provide the basis for this program: (i) minimize the number of homes to be expropriated; (ii) guarantee that resettlement alternatives are provided; (iii) ensure improvements and maintenance of living conditions; (iv) guarantee the possibility of people maintaining their incomes (families whose productive activities are interrupted or reduced due to changes to the *status quo* that existed before the works interventions should be compensated for these losses so they can reestablish their lives as quickly as possible); (v) guarantee compensation payment for replacing dwellings, including all improvements made during occupation of the same; (vi) guarantee social services provision such as education, health, public transport, etc, in the areas to which families are resettled; (vii) make permanent efforts to minimize the social and/or environmental impacts on the population. (US\$6,180,000).

Environmental monitoring and assessment (PMA): During implementation of the Project this program will serve to confirm the appropriateness of the mitigating measures identified in the EAR/EMP, and/or to correct possible problems that were not been previously identified. Follow-up of the results will provide useful basic information for assessing the Project interventions as a whole, with a view to assisting in the management of environmental activities under the Project, as well as the planning and management of the Project itself. The PMA will be organized on the basis of two modules: (i) monitoring of environmental impacts during construction; and (ii) monitoring of environmental impacts during operation of the different interventions. The PMA will evaluate compliance with the Project’s environmental objectives and targets,

environmental improvements of the area, and progress made in the resettlement and compensation program. (US\$15,000)

B. Resettlement Analysis

Project activities entailing resettlement and land acquisition Component 2 (Integrated Urban-Environmental Improvement) includes all the following Project activities requiring population resettlement and land acquisition:

Rehabilitating the Lagoas do Norte macro-drainage system for flood control – reducing region-wide flooding events: The Project includes several activities aimed at rehabilitating the existing lagoons' macro-drainage system in order to reduce region-wide frequent and severe flooding events. This includes increasing the water level retained in the lagoons to an optimal operational level, according to technical studies carried out during Project preparation. In addition to technical criteria, these studies also took careful account of working water level alternatives that reduced to a maximum the number of households to be resettled from around the lagoons. Nevertheless, increasing the water levels in the lagoons will still require removing a large number of families that irregularly built their houses in low areas where flooding events will persist after the Project intervention.

Compliance with Brazilian environmental legislation/creating a safe buffer zone to the lagoons: The project will create a 30 m buffer zone around the perimeter of each lagoon to: (i) comply with Brazilian environmental legislation requirements; and (ii) create an 'urban development standard' of intervention that follows appropriate environmental, health and sanitation procedures, and that includes bicycle paths and recreational areas. These improvements will also require removing households, mainly those in lower areas also affected by flooding, and/or those living in areas deemed unhealthy or risky or where, given the high groundwater levels, sewerage and drainage interventions are difficult and costly. Existing urban areas which benefit from appropriate infrastructure, but which lay partially over the proposed buffer zone perimeter, will not be subject to removal and resettlement.

Wastewater collection and treatment infrastructure system: There are a few irregularly-settled households in three of the areas that are planned for the installation of wastewater pumping stations. These families will be resettled.

Urban road system: Improving the urban road system will require expropriating regular and irregular residential and commercial establishments and, in addition, the resettlement of some low-income families.

Resettlement and land acquisition: Based on feasibility technical studies and the social analyses carried out for preparing the Resettlement Policy Framework, the Project will require: (i) resettlement of about 1,590 families; (ii) expropriation of about 500 houses; and (iii) acquisition of thirteen urban titled areas for the construction of about 1,600 resettlement housing units.

Socio-economic characterization

Resettlement: The families to be resettled are in large part very poor (monthly family income below three minimum salaries, or some US\$1.5/person/day). The quality of their current housing is extremely precarious and insalubrious, and frequently affected by flooding. Most of the houses are built in unregulated settlements and are not titled. Families renting houses affected by resettlement will also be entitled to resettlement in new housing.

Cash Compensation: Poor families living in unregulated housing and land plots will also be entitled to cash compensation. This modality will also benefit the owners of unregulated rented houses.

Expropriation: Expropriation will apply to regular titled land.

Land Acquisition: Thirteen of the sixteen areas identified for constructing the new housing units for resettlement are regular titled private properties.

Why a Resettlement Framework? During Project preparation several technical pre-feasibility studies were carried out for determining the Project objective, concept, components, and the scope of TA and investments activities. These studies provided appropriate inputs for evaluating alternative designs and defining investments, for preparing the RPF and the EA, and for preparing the additional Project documentation as required. During the first year of Project implementation detailed engineering designs will be prepared for each civil works intervention. In parallel with the preparation of the engineering designs, and fully integrated with them, Resettlement Action Plans (RAPs) will be prepared for each set of discrete works interventions. During this first year, accurate information on land acquisition, the number of houses to be removed, and the number of families to be resettled will be obtained through the detailed engineering designs.

During implementation, specialists, including social workers, will be in the field interacting with the Project beneficiaries, including the families to be resettled, utilizing a fully participatory methodology. Through this participatory methodology, the final engineering designs will be defined in agreement with the community and, specifically, with the families to be resettled. In addition, during this process the social workers will develop a close dialogue with each of the families to be resettled in order to prepare the detailed RAPs. The first civil works interventions that will involve the resettlement of a first group of families are expected to be initiated in the second year of Project implementation.

Resettlement compensation alternatives: The following resettlement alternatives are proposed:

New housing units: The Project will build approximately 1,600 housing units to be offered at no cost to the families affected by resettlement. The areas are located within the neighborhoods from where the families will be resettled, meaning they are close to their respective areas of removal. Sixteen areas have been selected for the construction of approximately 1,500 housing units. Three of the sixteen areas are publicly owned, facilitating initiating the housing construction activities. Since the new housing units will have a market value significantly

superior to the value of the houses to be removed, it is expected that most of the families to be resettled will prefer this option.

Existing houses: Through a cash compensation mechanism, families benefit from a very favorable evaluation of the affected house value, including compensation for the land (even though the land is not titled). The families to be resettled will have the option of accessing the existing housing market. During this process, families will be carefully assisted by social worker in order to ensure that socially and financially appropriate solutions are found in each case.

Interchanging housing units: Based on best practice resettlement approaches used in other Bank-financed projects in Brazil, the families to be resettled will have the option of interchanging housing units with families that do want to move to a resettlement housing unit, although their houses will not be removed. This approach contributes to resettlement solutions that provide for flexible social arrangements. To be successful, this methodology requires close and careful assistance from social workers.

Cash compensation: This methodology will be available in the following situations: (i) to benefit those families living in unregulated settlements where land is not titled – although living in irregular conditions, the families will receive an amount corresponding to both the house construction and the land plot; and (ii) to constitute a mitigation alternative for some of the limited number of income generating activities currently found in areas to be affected by Project interventions, such as a small number of informal grocery shops and other types of informal commercial activities.

Areas selected for the construction of resettlement housing units

Area	Location	Property type	Area (hectares)	Number of units foreseen
1	Matadouro	Private	4,5	135
2	Nova Brasília	Private	0,8	186
3	Real Copagre	Private	0,5	15
4	Real Copagre	Private	2,8	84
5	Real Copagre	Private	0,9	27
6	Real Copagre	Private	2,7	51
7	Real Copagre	Private	1,4	81
8	Alto Alegre	Private	4,8	144
9	Poti Velho	Private	0,2	6
10	Poti Velho	Private	0,3	9
11	Buenos Aires	Private	2,6	78
	Agua Mineral	Private	0,1	3
12	Nova Brasília	Municipal	6,2	24
13	Real Copagre	Municipal	1,7	42
14	Real Copagre	State	2,8	84
15	Monte Verde	Municipal	13	390
16	Additional areas	Municipal	5	229
TOTAL HOUSING NUMBER				1,588

The housing units average estimated cost is R\$ 12,000 (approximately US\$6,000). Two, single-storey family housing models are foreseen: with one or two bedrooms, respectively, in addition to each model having kitchen, laundry, living room, and one full bathroom. The average house size is approximately 33 m², and the average land plot size approximately 160 m² (20x8m), thus allowing for future expansion of the built area.

Legal framework: Resettlement compensation alternatives, as well as expropriation, are fully supported under national and municipal legislation, and are consistent with Bank policy.

Institutional and technical arrangements for executing the resettlement and expropriations: Population resettlement activities will be coordinated by SEMPLAN's PMU and execution will be the responsibility of the *Superintendencia de Desenvolvimento Urbano e Meio Ambiente – Centro Norte*. The municipal team will be assisted by consultant specialists in resettlement as integral members of the PMU during project execution, as required.

Estimated Resettlement Budget

Activity	Total cost	Municipality	WB
Land acquisition	4.76	4.76	
1,588 Housing units with infrastructure	19.06	3.60	15.46
392 constructions expropriations	6.40	6.40	
Housing design	0.48		0.48
Socio-economic and real estate cadastre	0.35		0.35
Judicial and social assistance	0.92	0.92	
Resettlement Plan	0.16		0.16
Operational costs (local office and team)	1.70	1.70	
Total	33.83	17.38	16.45

R\$M; US\$1.00= R\$ 2.25

Coordinating civil works, resettlement and expropriations

Key activities related to resettlement	Project execution phase				
	Year 1	Year 2	Year 3	Year 4	Year 5
Expropriations	=====	=====	---		
Engineering designs bidding	=====				
Resettlement Plan preparation	==	=====			
Resettlement housing bidding	=====				
Resettlement housing construction		=====	=====	=====	
Resettlement Plan execution		---	=====	=====	--

C. Social Analysis

The *Lagoas do Norte* Project consists of a range of activities of benefit to the population of the municipality of Teresina as a whole, but with the bulk of activities directly focused on the population living in the *Lagoas do Norte* region. This Social Analysis deals with the population of this particular area in order to maintain a degree of consistency with the design of the Project.

Socioeconomic characteristics of the city of Teresina: The total population of the municipality of Teresina is currently around 800,000, 95 percent of whom are concentrated in the urban area. The population has grown rapidly over the last 30 years mainly due to migration from the rural interior of the state. In the 1970s, Teresina had only about 30 percent of its present population. According to the last census (2000), the city comes 22nd in terms of GDP *per capita* among Brazil's 27 state capitals. Over the last 30 years, urban growth substantially exceeded the economic performance of the city as well as the ability of PTM to deliver public services to the growing number of residents. In Teresina, as in most other Brazilian cities, the best municipal services in terms of coverage and quality are concentrated in higher income neighborhoods. *Lagoas do Norte* is a region which concentrates a lower-income population and where public services are less in evidence, as are opportunities for economic development.

Socioeconomic characteristics of the population of the Lagoas do Norte region: Approximately 20 percent (around 104,000 people) of the total population of Teresina live in the *Lagoas do Norte* region. This population is distributed over 13 neighborhoods, although half of the residents live in just two of the neighborhoods. Approximately 65 percent of the population of the area earns less than three minimum wages per month (equating to about US\$1.5/person/day), and the precarious socio-economic conditions of the families living there generate a high demand for social services. These are provided by PMT on the basis of partnerships established with community bodies, and with funds provided under municipal and federal programs. For example, the conditional cash transfer program '*Bolsa Família*' benefits some 1,450 families in the *Lagoas do Norte* region.

The percentage of women living in this area is significantly higher than in the city of Teresina overall. As for employment, informal economic activities predominate particularly in the service sector. Compared to the other five areas of the city, *Lagoas do Norte* contains more families living below the poverty line (25 percent) and families that are indigent (26 percent). The main economic activities of the area include handmade ceramic articles, clothes-making, brick and tile manufacturing, rudimentary/subsistence fishing, and family vegetable plots on the river banks.

Main problems undermining the quality of life and economic activities in the area

Health problems arising from diseases such as dengue, meningitis, schistosomiasis, and gastro-intestinal diseases and parasitic infections (diarrhea, dysentery, intestinal parasites, etc) due to: (a) the lack of adequate WSS services; the discharge of wastewater directly to the region's lagoon waters (with which the low-income communities have direct contact), etc; (b) the precarious nature of collection and disposal of solid waste; (c) frequent flooding events; and (d) irregular supply of drinking water.

Environmental degradation of the lagoons which comprise a system of natural macro-drainage combined with a manmade system to deal with the high water levels and the frequent flooding (originally there were 34 lagoons but over the years these were filled in and occupied by the population; today only 12 lagoons remain, which currently provide precarious macro-drainage, resulting in frequent and serious flooding in the area; they also act as the depository of the wastewater and garbage from the surrounding communities, leading to their severe pollution.

Urban degradation of the area, owing to the growth of informal urban occupation, negatively impacts on the above problems.

The response of the Project to the social challenges: The Project covers a group of activities intended to provide technical assistance and investments for coping with problems directly affecting the low-income population of *Lagoas do Norte*. The following are the main actions of the Project that will contribute to improving the social status and quality of life of the resident population:

Resettlement of the population: There will be involuntary resettlement of the population at risk, and of those living in areas affected by the improvement works or by the works related to the reorganization of the road system. The Project plans to resettle around 1,590 families. Of these, 1,288 live in the areas most severely affected by flooding and 302 live in the areas to be affected by infrastructure and road system improvements. Resettlement is basically aimed at the lower-income population. These families will benefit from the largest chunk of investments under the Project with a view of bringing about a substantial improvement in the quality of their lives and that of the neighborhoods in which they live. Resettlement will take place in the same areas on empty, well-located land (both public and private property).

Economic and social development program: The Project includes a series of activities aimed at supporting the generation of employment and income, as well as social promotion activities, including:

Support for employment and income generation: The Project undertook a wide-ranging analysis on the question of employment and income in the area covering the following aspects: (i) the context of urban development of the area; (ii) the importance of the network of existing basic social services; (iii) the importance of urban infrastructure including leisure opportunities; (iv) obstacles to job generation; (v) the existence of more vulnerable social groups; and (vi) forms of community organization. As for the main obstacles to access to employment and income generation in the area, the following points were analyzed: (a) characteristics of the workforce (gender; age, educational level, etc); (b) the kind of job opportunities available (or not) to the workforce; (c) the kinds of urban services existing in the area (d) home address/location; (e) types of transport available; (f) absence of leisure areas; (g) lack of community participation and publicly-provided social support services; (h) the productive profile of the workers living in *Lagoas do Norte* compared with other areas of the city; and (i) weaknesses arising from the types of economic cooperation currently present in *Lagoas do Norte*.

Among the main activities with potential for generating employment and income in the *Lagoas do Norte* region, the following have been identified: (i) the civil construction sector; (ii) manufacturing clothes and leather articles; (iii) ceramic handicrafts; (iv) tile and brick manufacturing; and (v) community horticulture. In response to these, the Project includes activities for: (a) professional training in activities for which there is market-demand; (b) training support and other TA for entrepreneurs and for setting up small businesses; (c) support for the creation and strengthening of cooperatives; (d) support for upgrading the quality and market of the region's ceramic products; (e) support for regulating existing ceramic activities and identifying new clay deposits; and (f) support for the establishment of community horticultural plots.

Estimated costs for employment and income generation actions

Actions	Cost (R\$)
Training	680,000
Setting up horticultural plots	200,000
Recovery of the Production/Marketing Centre	125,000
Funds from the Banco Popular for providing credit	500,000
Ongoing technical assistance	120,000
Support program for improving pottery activities	300,000
TOTAL	1,925,000

Pottery activities – environmental impacts: One of the economic activities in the Project area is clay extraction for the production of bricks and tiles. This is carried out in the *Lagoa dos Oleiros*, the last in the series of the lagoon structures for controlling flooding as part of the region's macro-drainage system. Since this drainage system is not maintained nor operated correctly, for a number of months of the year the *Lagoa dos Oleiros* loses water and a bed of clay of between three to five centimeters deep is exposed. This clay is extracted manually for making bricks and tiles. The inappropriate operation of the lagoon macro-drainage system, and the lack of adequate urban and environmental control by PMT, induces irregular occupation of the areas below the flood line – the houses are therefore frequently flooded in the rainy season.

The clay extraction process in the *Lagoa dos Oleiros* causes intense environmental degradation, with the formation of abandoned shafts ('*cavas*') that accumulate water up to three meters deep and which undermine the natural drainage of the area. Waste material is also discarded in large piles. Solid waste and raw sewage, both originating with the population of the area, also cause problems. Environmental degradation makes it difficult to improve the quality of the brick- and tile-making activities, and is one of many factors that impair their economic sustainability.

Furthermore, the pottery activities give rise to a number of risks for the population of the neighborhood in view of the ubiquitous presence of insects transmitting dengue, leishmaniasis, and even malaria. The activity also impacts negatively on property prices in the area and encourages irregular occupation in the form of slums (*favelas*). The main environmental problems identified include: (i) degradation of the natural water bodies caused by infills, irregular occupation of the edges of the lagoons, and accumulation of solid waste, construction

material and raw sewage; (ii) degradation of the bed of the lagoon caused by clay extraction with no technical or environmental criteria employed; (iii) large amounts of smoke from the brick-kilns; and (iv) uncontrolled extraction of wood from the areas that still have natural vegetation for burning in the kilns. These factors conspire to induce erosion, devegetation, silting, increased flooding, and increased opportunity for disease-causing vectors to breed. The activity is also totally irregular from a legal point of view since, *inter alia*, it does not conform to: (a) labor legislation; (b) mining legislation; nor (c) environmental legislation.

Pottery activities – economic sustainability: The potters' work is seasonal and occurs in the dry season between June and November. During the remainder of the year, the water level in the lagoon is high, making access to the clay deposits difficult or impossible, and the rain makes it problematic to fire the bricks and tiles. During the four or five months of activity, around 200 people work in the *Lagoa dos Oleiros*. These are employed informally by around 50 people who regard themselves as 'owners' of the clay deposits (also informally). The 200-or-so 'employees' receive approximately R\$ 40 a week - around US\$70 per month.

The pottery activity used to be much more intensive, involving a larger number of workers. However since 1980 the activity has declined considerably owing to: (i) exhaustion of the clay deposits in the lagoon mainly caused by intensive environmental degradation and uncontrolled exploitation – much of the remaining clay is mixed with other types of earth making it less valuable still; and (ii) the declining profit margins – the bricks produced tend to be of poor quality, both in terms of composition and shape, and the product has difficulty finding a ready market.

Pottery activities – the response of the Project: Possible alternatives have been analyzed and considered on the basis of three scenarios:

'Without Project' scenario: Clay extraction would come to a natural end and nothing would be done to recuperate the severely environmentally degraded areas. This scenario would lead to even more intense degradation of the lagoons, with serious consequences for increased flooding and a heightened risk to the health of the population. The process of illegal occupation of the lagoons and the surrounding areas would be expected to intensify, worsening the already critical social and environmental problems.

Legal-institutional management scenario: This would involve the robust application of the laws that are not currently being complied with, most probably bringing about total interruption of the activities.

Scenario involving eventual cessation of the activity, with investments targeted on environmental recovery under the auspices of the Project: With this alternative, the pottery activities would continue until they naturally peter out over the next four or five years. During this period, the Project would be under implementation. The impact of Project activities on the *Lagoa dos Oleiros* would be apparent in the fifth year of implementation, or perhaps later. In tandem, during the first four years of execution, the Project would fund a series of support activities such as job retraining of the potters as well as promoting clay extraction from other, high-quality deposits, with extraction in conformity with all applicable legislation. The Project

would also provide the necessary support for the activity to be pursued in conformity with all the legal requirements.

These scenarios and solutions were discussed in detail at a public consultation meeting undertaken as part of the Environmental Impact Assessment. The solutions proposed under Scenario 3 were identified as being the most appropriate from the social, environmental and technical points of view. The full range of necessary activities to support the potters is included under the Project's 'generation of employment and income' sub-component. Specifically, the following activities are planned to provide support to the potters: (i) professional training for employment in activities with market demand; (ii) support for the training of entrepreneurs and for the creation of small businesses; (iii) support for cooperative ventures; (iv) support for upgrading the quality of ceramic products; and (v) support for the legal regularization of the pottery activities and the identification of new deposits.

In addition to these activities, the Project – through the Centre-North Superintendency of Urban and Environmental Development and with the support of the PMU – will field a technical and social team to provide the necessary support to the potters. Two key objectives of this outreach work will be to ensure that the potters: (i) participate in the organization of the training activities so that these respond adequately to the needs of this group; and (ii) are in a position to secure maximum benefit from the activities funded by the Project.

Annex 11: Project Preparation and Supervision

Teresina – Lagoas do Norte

	Planned	Actual
PCN review	03/18/2004	03/18/2004
Initial PID to PIC	04/30/2004	07/28/2004
Initial ISDS to PIC	04/30/2004	07/28/2004
Appraisal	07/10/2007	12/21/2006
Negotiations	10/01/2007	02/21/2008
Board/RVP approval	03/27/2008	03/27/2008
Planned date of effectiveness	08/01/2008	
Planned date of mid-term review	12/01/2010	
Planned closing date	07/31/2013	

Key institutions responsible for preparation of the project: Municipality Government of Teresina
 Bank staff and consultants who worked on the project included:

Name	Title	Unit
Martin Gambrill	Senior Water Engineer/TTL	LCSUW
Dean Cira	Senior Urban Specialist	EASUR
Paula Pini	Senior Social Dev. Specialist	LCSUW
Maria Angelica Sotomayor	Senior Economist	LCSUW
Yasuhiko Matsuda	Senior Public Sector Specialist	EASPR
Juliana Wenceslau	Governance Specialist	Consultant
Adriana Weisman	Operations Officer	OPPCE
Catarina Isabel Portelo	Counsel	LEGLA
Patricia Hoyes	Senior Finance Officer	LOAFC
Fernando Blanco	Economist	LCSPE
Nico Saporiti	Investment Officer	CASDR/IFC
Karla Chaman	Communications Officer	EXTCD
Carlos Velez	Lead Economist	LCSUW
Fabson Vogel	Financial Management Specialist	LCSFM
João Vicente	Financial Management Consultant	LCSFM
Claudio Mittelstaedt (<i>in memoriam</i>)	Financial Management Consultant	LCSFM
Anemarie Proite	Procurement Specialist	LCSPT
Miguel Navarro-Martin	Senior Financial Officer	BDM
Alexandre Borges de Oliveira	Procurement Specialist	LCSPT
Liliana Vendevre	Team Assistant - Consultant	LCSSD
Karina de Souza Marcelino	Team Assistant	LCSFP
Alexandre Fortes	Environmental Specialist	Consultant
Armando Castelar	Economist	Consultant
Alain Locussol	WSS Specialist – Peer Reviewer	Consultant
Jeffrey Rinne	Public Sector Mgt. Specialist – Peer Reviewer	LCSPS
James F. Hicks	Urban Development Specialist – Peer Reviewer	Consultant

Bank funds expended to date on project preparation:

1. Bank resources: US\$230,000
2. Trust funds: US\$500,000
3. Total: US\$730,000

Estimated Approval and Supervision costs:

1. Remaining costs to approval: US\$1,000
2. Estimated annual supervision cost: US\$80,000

Annex 12: Documents in the Project File

Teresina – Lagoas do Norte

- Water Demand/Consumption Study and Evaluation of the Water System of the Lagoas do Norte Region
- Environmental Assessment
- Resettlement Policy Framework
- Technical Diagnostic and Study of the New Concept for Water Supply in Teresina (5 - volumes)
- Housing, Infrastructure, and Poverty eradication in Shantytowns and Slums – Case Study
- Dam/Dike Inspection Report
- Degraded Areas Recovery Study for the Lagoas do Norte Region
- Draft Report on Human Resources Policy in the Teresina Municipal Government, including:
 - Report on the Organizational Structure of PMT
 - Report on a Proposal for Results Based Management
 - Report on a Proposal for Career and Salaries
- Agespisa - Diagnostic of Current Situation (PMSS)
- Technical Study – Restructuring of Water Supply and Sanitation in the State of Piauí (PMSS)
- Study of the Water Supply and Sanitation Concession in Teresina (2 volumes)
- Draft Study of the Wastewater System in Teresina
- Final report on the Alternatives for Water Supply and Sanitation in the State of Piauí
- Institutional Assessment
- Social Assessment plus Annexes
- Specifications for the Project Management Information System
- Dam Inspection Panel – Reports I and II
- Preparation Mission Aides Memoires
- PCN and PCN Meeting Minutes
- QER PAD and QER Meeting Minutes
- Decision Meeting PAD and DM Meeting Minutes
- Minutes of Negotiation and attachments,

Annex 13: Statement of Loans and Credits
Teresina – Lagoas do Norte

Project ID	FY	Purpose	Original Amount in US\$ Millions						Difference between expected and actual disbursements	
			IBRD	IDA	SF	GEF	Cancel.	Undisb.	Orig.	Frm. Rev'd
P089929	2008	BR RGN State Integrated Water Res Mgmt	35.90	0.00	0.00	0.00	0.00	35.90	0.00	0.00
P094199	2008	BR-(APLI) RS Integrated Munic Dev	18.90	0.00	0.00	0.00	0.00	18.90	0.00	0.00
P089013	2008	BR Municipal APL: Recife	32.76	0.00	0.00	0.00	0.00	32.76	0.00	0.00
P089793	2007	BR State Pension Reform TAL II	5.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00
P089011	2007	BR Municipal APL1: Uberaba	17.27	0.00	0.00	0.00	0.00	17.27	0.00	0.00
P082651	2007	BR APL 1 Para Integrated Rural Dev	60.00	0.00	0.00	0.00	0.00	56.14	16.14	0.00
P095460	2007	BR-Bahia Integr.Hway Mngmt.	100.00	0.00	0.00	0.00	0.00	100.00	1.03	0.00
P089440	2006	BR-Brasilia Environmentally Sustainable	57.64	0.00	0.00	0.00	0.00	53.69	23.43	0.00
P095675	2006	BR-2nd Progr. Sustn.& Equit Growth	601.50	0.00	0.00	0.00	0.00	150.00	601.51	0.00
P093787	2006	BR Bahia State Integ Proj Rur Pov	54.35	0.00	0.00	0.00	0.00	7.12	-13.18	0.00
P090041	2006	BR ENVIRONMENTAL SUST. AGENDA TAL	8.00	0.00	0.00	0.00	0.00	6.06	5.16	0.00
P082523	2006	BR HD Technical Assistance Loan	8.00	0.00	0.00	0.00	0.00	7.09	6.14	0.00
P081436	2006	BR-Bahia Poor Urban Areas Integrated Dev	49.30	0.00	0.00	0.00	0.00	42.66	28.61	0.00
P092990	2006	BR - Road Transport Project	501.25	0.00	0.00	0.00	0.00	500.00	200.08	0.00
P050761	2006	BR-Housing Sector TAL	4.00	0.00	0.00	0.00	0.00	3.99	2.07	0.00
P052256	2006	BR-MG Rural Poverty Reduction	35.00	0.00	0.00	0.00	0.00	12.73	-4.24	0.00
P069934	2005	BR-PERNAMBUCO INTEG DEVT: EDUC QUAL IMPR	31.50	0.00	0.00	0.00	0.00	21.42	17.11	0.00
P082328	2005	BR-Integ.Munic.Proj.-Betim Municipality	24.08	0.00	0.00	0.00	0.00	2.37	-4.73	0.00
P083533	2005	BR TA-Sustain. & Equit Growth	12.12	0.00	0.00	0.00	0.00	9.78	6.69	0.00
P087711	2005	BR Espirito Santo Wtr & Coastal Pollu	36.00	0.00	0.00	0.00	0.00	16.28	15.82	0.00
P076924	2005	BR- Amapa Sustainable Communities	4.80	0.00	0.00	0.00	0.00	3.98	3.33	0.00
P087713	2004	BR Bolsa Familia 1st APL	572.20	0.00	0.00	0.00	2.86	11.22	14.08	0.00
P060573	2004	BR Tocantins Sustainable Regional Dev	60.00	0.00	0.00	0.00	0.00	45.58	37.88	17.28
P083013	2004	BR Disease Surveillance & Control APL 2	100.00	0.00	0.00	0.00	0.00	51.03	45.22	0.00
P080830	2004	BR Maranhao Integrated: Rural Dev	30.00	0.00	0.00	0.00	0.00	16.96	16.96	0.00
P049265	2003	BR-RECIFE URBAN UPGRADING PROJECT	46.00	0.00	0.00	0.00	0.00	34.58	27.70	20.71
P074777	2003	BR-Municipal Pension Reform TAL	5.00	0.00	0.00	0.00	0.00	2.92	2.92	2.92
P076977	2003	BR-Energy Sector TA Project	12.12	0.00	0.00	0.00	0.00	7.68	7.68	0.00
P054119	2003	BR BAHIA DEVT (HEALTH)	30.00	0.00	0.00	0.00	0.00	12.14	12.14	0.00
P043869	2002	BR SANTA CATARINA NATURAL RESOURC & POV.	62.80	0.00	0.00	0.00	0.00	11.45	11.45	0.00
P051696	2002	BR SÃO PAULO METRO LINE 4 PROJECT	209.00	0.00	0.00	0.00	0.00	19.24	19.24	19.24
P057653	2002	BR- FUNDESCOLA IIIA	160.00	0.00	0.00	0.00	0.00	12.52	-51.97	0.00
P060221	2002	BR FORTALEZA METROPOLITAN TRANSPORT PROJ	85.00	0.00	0.00	0.00	62.60	20.17	81.65	29.94
P073192	2002	BR TA Financial Sector	14.50	0.00	0.00	0.00	4.57	3.95	8.52	0.21
P066170	2002	BR-RGN Rural Poverty Reduction	22.50	0.00	0.00	0.00	0.00	22.50	0.00	0.00

P059566	2001	BR- CEARA BASIC EDUCATION	90.00	0.00	0.00	0.00	0.00	1.34	1.34	1.34
P073294	2001	BR Fiscal & Fin. Mgmt. TAL	8.88	0.00	0.00	0.00	0.00	4.86	4.56	4.86
P050881	2001	BR BR-PIAUI RURAL POVERTY REDUCTION	22.50	0.00	0.00	0.00	0.00	18.80	-3.70	-3.70
P050880	2001	BR Pernambuco Rural Poverty Reduction	30.10	0.00	0.00	0.00	0.63	23.00	-6.37	-0.20
P050875	2001	BR Ceara Rural Poverty Reduction Project	37.50	0.00	0.00	0.00	0.00	11.08	-26.42	-26.42
P050772	2001	BR LAND-BASED POVRTY ALLEVIATION I (SIM)	202.10	0.00	0.00	0.00	44.23	39.64	45.86	-12.27
P006449	2000	BR CEARA WTR MGT PROGERIRH SIM	136.00	0.00	0.00	0.00	0.00	9.61	9.61	9.61
P043420	1998	BR WATER S.MOD.2	150.00	0.00	0.00	0.00	125.00	7.86	132.83	-0.07
P038895	1998	BR FED.WTR MGT	198.00	0.00	0.00	0.00	40.00	50.00	40.00	5.83
		Total:	3,981.57	0.00	0.00	0.00	279.89	1,541.27	1,336.15	69.28

BRAZIL
STATEMENT OF IFC's
Held and Disbursed Portfolio
In Millions of US Dollars

FY Approval	Company	Committed				Disbursed							
		IFC		IFC		Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
2005	ABN AMRO REAL	98.00	0.00	0.00	0.00	15.77	0.00	0.00	0.00	15.77	0.00	0.00	0.00
2005	ABN AMRO REAL	98.00	0.00	0.00	0.00	15.77	0.00	0.00	0.00	15.77	0.00	0.00	0.00
2001	AG Concession	0.00	30.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00	30.00	0.00	0.00
2002	Amaggi	17.14	0.00	0.00	0.00	17.14	0.00	0.00	0.00	17.14	0.00	0.00	0.00
2005	Amaggi	30.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00
2002	Andrade G. SA	22.00	0.00	10.00	12.12	22.00	0.00	0.00	10.00	12.12	0.00	0.00	0.00
2001	Apolo	6.04	0.00	0.00	0.00	3.54	0.00	0.00	0.00	3.54	0.00	0.00	0.00
1998	Arteb	20.00	0.00	0.00	18.33	20.00	0.00	0.00	0.00	20.00	0.00	0.00	18.33
2006	BBM	49.40	0.00	0.00	0.00	49.40	0.00	0.00	0.00	49.40	0.00	0.00	0.00
2001	Brazil CGFund	0.00	19.75	0.00	0.00	0.00	18.15	0.00	0.00	0.00	18.15	0.00	0.00
2004	CGTF	54.01	0.00	7.00	65.12	54.01	0.00	7.00	65.12	54.01	0.00	7.00	65.12
1994	CHAPECO	10.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00
1996	CHAPECO	1.50	0.00	0.00	5.26	1.50	0.00	0.00	5.26	1.50	0.00	0.00	5.26
2003	CPFL Energia	0.00	40.00	0.00	0.00	0.00	40.00	0.00	0.00	0.00	40.00	0.00	0.00
1996	CTBC Telecom	3.00	8.00	0.00	0.00	3.00	8.00	0.00	0.00	3.00	8.00	0.00	0.00
1997	CTBC Telecom	0.00	6.54	0.00	0.00	0.00	6.54	0.00	0.00	0.00	6.54	0.00	0.00
1999	Cibrasec	0.00	3.27	0.00	0.00	0.00	3.27	0.00	0.00	0.00	3.27	0.00	0.00
2004	Comgas	11.90	0.00	0.00	11.54	11.90	0.00	0.00	11.54	11.90	0.00	0.00	11.54
2005	Cosan S.A.	50.00	5.00	15.00	0.00	50.00	5.00	15.00	0.00	50.00	5.00	15.00	0.00
	Coteminas	0.00	1.84	0.00	0.00	0.00	1.84	0.00	0.00	0.00	1.84	0.00	0.00
1997	Coteminas	1.85	1.25	0.00	0.00	1.85	1.25	0.00	0.00	1.85	1.25	0.00	0.00
2000	Coteminas	0.00	0.18	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.18	0.00	0.00
1980	DENPASA	0.00	0.52	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.48	0.00	0.00
1992	DENPASA	0.00	0.06	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.06	0.00	0.00

	Dixie Toga	0.00	0.34	0.00	0.00	0.00	0.34	0.00	0.00
1998	Dixie Toga	0.00	10.03	0.00	0.00	0.00	10.03	0.00	0.00
1997	Duratex	1.36	0.00	3.00	0.57	1.36	0.00	3.00	0.57
2005	EMBRAER	35.00	0.00	0.00	145.00	35.00	0.00	0.00	145.00
1999	Eliane	14.93	0.00	13.00	0.00	14.93	0.00	13.00	0.00
1998	Empesca	1.33	0.00	2.67	0.00	1.33	0.00	2.67	0.00
2006	Endesa Brasil	0.00	50.00	0.00	0.00	0.00	50.00	0.00	0.00
2006	Enerbrasil Ltda	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00
2006	FEBR	12.00	0.00	0.00	0.00	12.00	0.00	0.00	0.00
2000	Fleury	0.00	0.00	6.00	0.00	0.00	0.00	6.00	0.00
1998	Fras-le	4.00	0.00	9.34	0.00	4.00	0.00	6.04	0.00
2006	GOL	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	GP Capital III	0.00	14.00	0.00	0.00	0.00	0.14	0.00	0.00
	GP Cptl Rstrctd	0.00	2.22	0.00	0.00	0.00	2.16	0.00	0.00
2001	GPC	0.00	0.00	9.00	0.00	0.00	0.00	9.00	0.00
	GTFP BIC Banco	44.91	0.00	0.00	0.00	44.91	0.00	0.00	0.00
	GTFP BM Brazil	4.22	0.00	0.00	0.00	4.22	0.00	0.00	0.00
	GTFP Indusval	5.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00
1997	Guilman-Amorim	18.08	0.00	0.00	14.37	18.08	0.00	0.00	14.37
1998	Icatu Equity	0.00	5.46	0.00	0.00	0.00	4.16	0.00	0.00
1999	Innova SA	0.00	5.00	0.00	0.00	0.00	5.00	0.00	0.00
1980	Ipiranga	0.00	2.87	0.00	0.00	0.00	2.87	0.00	0.00
1987	Ipiranga	0.00	0.54	0.00	0.00	0.00	0.54	0.00	0.00
2006	Ipiranga	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	Itambe	15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	Itau-BBA	12.86	0.00	0.00	0.00	12.86	0.00	0.00	0.00
2002	Itau-BBA	70.61	0.00	0.00	0.00	38.47	0.00	0.00	0.00
1999	JOSAPAR	7.57	0.00	7.00	0.00	2.57	0.00	7.00	0.00
2005	Lojas Americana	35.00	0.00	0.00	0.00	35.00	0.00	0.00	0.00
1992	MBR	0.00	0.00	10.00	0.00	0.00	0.00	10.00	0.00
2006	MRS	50.00	0.00	0.00	50.00	0.00	0.00	0.00	0.00
2002	Microinvest	0.00	1.25	0.00	0.00	0.00	0.82	0.00	0.00
	Net Servicos	0.00	10.93	0.00	0.00	0.00	10.93	0.00	0.00
2002	Net Servicos	0.00	1.60	0.00	0.00	0.00	1.60	0.00	0.00
2005	Net Servicos	0.00	5.08	0.00	0.00	0.00	5.08	0.00	0.00
1994	Para Pigmentos	2.15	0.00	9.00	0.00	2.15	0.00	9.00	0.00
1994	Portobello	0.00	0.59	0.00	0.00	0.00	0.59	0.00	0.00
2000	Portobello	4.28	0.00	7.00	0.00	4.28	0.00	7.00	0.00
2002	Portobello	0.00	0.90	0.00	0.00	0.00	0.90	0.00	0.00
2000	Puras	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
2003	Queiroz Galvao	26.67	0.00	10.00	0.00	26.67	0.00	10.00	0.00
2004	Queiroz Galvao	0.60	0.00	0.00	0.00	0.08	0.00	0.00	0.00
2006	RBSec	22.83	1.51	0.00	0.00	0.00	1.51	0.00	0.00
	Randon Impl Part	2.33	0.00	3.00	0.00	2.33	0.00	3.00	0.00
1997	Sadia	2.55	0.00	2.33	3.28	2.55	0.00	2.33	3.28
1997	Samarco	3.60	0.00	0.00	0.00	3.60	0.00	0.00	0.00
1998	Saraiva	0.00	1.24	0.00	0.00	0.00	1.24	0.00	0.00
2000	Sepetiba	26.24	0.00	5.00	0.00	11.24	0.00	5.00	0.00
2002	Suape ICT	6.00	0.00	0.00	0.00	6.00	0.00	0.00	0.00

1999	Sudamerica	0.00	7.35	0.00	0.00	0.00	7.35	0.00	0.00
2006	Suzano petroq	50.00	0.00	10.00	140.00	39.50	0.00	10.00	110.50
2001	Synteko	11.57	0.00	0.00	0.00	11.57	0.00	0.00	0.00
2006	TAM	50.00	0.00	0.00	0.00	17.00	0.00	0.00	0.00
1998	Tecon Rio Grande	3.55	0.00	5.50	3.71	3.55	0.00	5.50	3.71
2004	Tecon Rio Grande	7.87	0.00	0.00	7.76	7.59	0.00	0.00	7.48
2001	Tecon Salvador	2.95	1.00	0.00	3.10	2.95	0.77	0.00	3.10
2003	Tecon Salvador	0.00	0.55	0.00	0.00	0.00	0.55	0.00	0.00
2004	TriBanco	10.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00
2006	TriBanco	0.35	0.00	0.00	0.00	0.35	0.00	0.00	0.00
2002	UP Offshore	9.01	9.51	0.00	23.29	0.00	2.51	0.00	0.00
2002	Unibanco	16.89	0.00	0.00	0.00	16.89	0.00	0.00	0.00
Total portfolio:		1,164.15	253.88	144.84	503.45	703.91	223.86	141.54	400.38

Approvals Pending Commitment					
FY Approval	Company	Loan	Equity	Quasi	Partic.
2000	BBA	0.01	0.00	0.00	0.00
1999	Cibrasec	0.00	0.00	0.00	0.00
2006	Ipiranga II	0.00	0.00	0.00	0.10
2002	Banco Itau-BBA	0.00	0.00	0.00	0.10
Total pending commitment:		0.01	0.00	0.00	0.20

Annex 14: Country at a Glance

BRAZIL: BR Municipal APL: Teresina Enhancing Municipal Governance and Quality of Life Project

POVERTY and SOCIAL	Latin America & Carib.	Upper-middle-income		
2006	Brazil			
Population, mid-year (millions)	188.7	556	810	
GNI per capita (Atlas method, US\$)	4,730	4,767	5,913	
GNI (Atlas method, US\$ billions)	892.5	2,650	4,790	
Average annual growth, 2000-06				
Population (%)	1.4	1.3	0.8	
Labor force (%)	1.8	2.1	1.3	
Most recent estimate (latest year available, 2000-06)				
Poverty (% of population below national poverty line)	22	
Urban population (% of total population)	85	78	75	
Life expectancy at birth (years)	71	73	70	
Infant mortality (per 1,000 live births)	31	26	26	
Child malnutrition (% of children under 5)	
Access to an improved water source (% of population)	90	91	93	
Literacy (% of population age 15+)	89	90	93	
Gross primary enrolment (% of school-age population)	140	118	112	
Male	146	120	106	
Female	135	116	104	
KEY ECONOMIC RATIOS and LONG-TERM TRENDS				
	1986	1996	2005	2006
GDP (US\$ billions)	268.1	839.7	882.5	1,067.5
Gross capital formation/GDP	19.1	17.0	16.0	16.8
Exports of goods and services/GDP	8.8	6.6	15.1	14.7
Gross domestic savings/GDP	21.6	15.2	19.6	19.7
Gross national savings/GDP	17.1	14.1	15.8	17.3
Current account balance/GDP	-1.9	-2.8	1.6	13
Interest payments/GDP	2.4	1.0	1.2	..
Total debt/GDP	40.7	21.6	21.3	..
Total debt service,exports	46.8	42.6	45.5	..
Present value of debt/GDP	23.7	..
Present value of debt/exports	151.9	..
(average annual growth)	1986-96	1996-06	2005	2006-10
GDP	1.6	2.4	2.9	3.7
GDP per capita	0.0	1.0	1.5	2.5
Exports of goods and services	6.5	9.5	10.1	4.6
STRUCTURE of the ECONOMY				
	1986	1996	2005	2006
(% of GDP)				
Agriculture	11.2	5.5	5.6	5.1
Industry	45.2	26.0	30.3	30.9
Manufacturing	33.0	16.8	18.4	18.4
Services	43.7	68.5	64.0	64.0
Household final consumption expenditure	67.8	64.7	60.4	60.4
General govt final consumption expenditure	10.7	20.1	20.1	19.9
Imports of goods and services	6.4	8.4	11.5	11.7
(average annual growth)	1986-96	1996-06	2005	2006
Agriculture	2.3	4.3	1.0	4.1
Industry	0.1	1.9	2.1	2.7
Manufacturing	3.2	1.9	1.1	1.6
Services	2.9	3.5	3.4	4.1
Household final consumption expenditure	2.8	1.9	3.8	4.7
General govt final consumption expenditure	1.8	2.4	1.9	3.6
Gross capital formation	1.8	0.3	3.6	8.7
Imports of goods and services	12.0	14	9.3	18.1

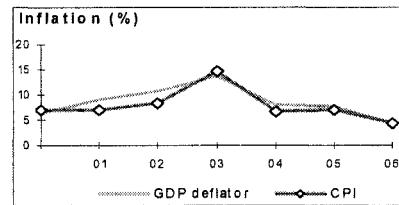
Note: 2006 data are preliminary estimates.

This table was produced from the Development Economics LDB database.

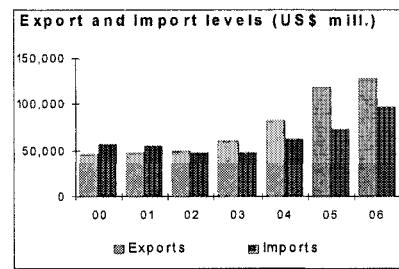
*The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

PRICES and GOVERNMENT FINANCE

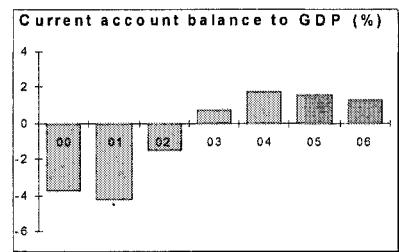
	1986	1996	2005	2006
Domestic prices				
(% change)				
Consumer prices	150.0	15.8	6.9	4.2
Implicit GDP deflator	145.3	17.1	7.5	4.3
Government finance				
(% of GDP, includes current grants)				
Current revenue	10.1	16.4
Current budget balance	-0.4	-0.6
Overall surplus/deficit	-1.6	2.4

**TRADE**

	1986	1996	2005	2006
(US\$ millions)				
Total exports (fob)	22,394	46,925	118,308	127,305
Iron ore, manganese	1,722	2,695
Soybeans	1,562	1,018
Manufactures	11,839	35,025	71,112	79,904
Total imports (cif)	14,044	53,346	73,560	96,835
Food	..	2,484	1,374	..
Fuel and energy	3,541	5,929	11,925	..
Capital goods	3,464	12,918	25,114	49,003
Export price index (2000=100)	74	106	117	106
Import price index (2000=100)	41	83	97	89
Terms of trade (2000=100)	182	128	120	120

**BALANCE of PAYMENTS**

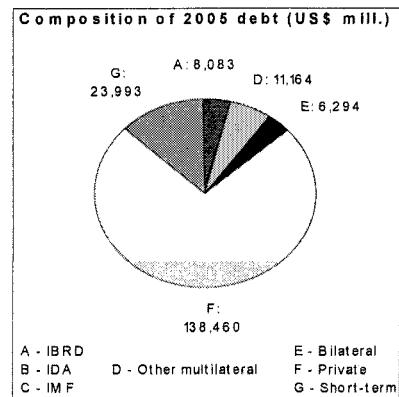
	1986	1996	2005	2006
(US\$ millions)				
Exports of goods and services	23,870	52,785	134,403	156,908
Imports of goods and services	16,576	67,065	97,801	120,243
Resource balance	7,294	-14,280	36,602	36,665
Net income	-12,259	-11,669	-25,968	-27,489
Net current transfers	-26	2,446	3,557	4,307
Current account balance	-4,991	-23,503	13,985	13,621
Financing items (net)	1,759	31,899	2,161	18,419
Changes in net reserves	3,232	-8,396	-16,146	-32,040

**Memo:**

Reserves including gold (US\$ millions)	6,760	60,110	53,799	85,839
Conversion rate (DEC, local/US\$)	4.97E-9	1.0	2.4	2.2

EXTERNAL DEBT and RESOURCE FLOWS

	1986	1996	2005	2006
(US\$ millions)				
Total debt outstanding and disbursed	109,051	181,338	187,994	..
IBRD	7,546	5,876	8,083	9,694
IDA	0	0	0	0
Total debt service	11,618	25,217	62,762	..
IBRD	1,164	1,638	1,335	1,174
IDA	0	0	0	0
Composition of net resource flows				
Official grants	30	80	112	..
Official creditors	1,168	-751	34	..
Private creditors	-444	15,758	1,872	..
Foreign direct investment (net inflows)	345	11,200	15,193	..
Portfolio equity (net inflows)	9	5,785	6,451	..
World Bank program				
Commitments	1,620	858	852	205
Disbursements	1,619	1,500	773	2,203
Principal repayments	608	1,222	1,029	743
Net flows	1,011	278	-255	1,460
Interest payments	556	416	307	432
Net transfers	455	-138	-562	1,028



Note: This table was produced from the Development Economics LDB database.

10/1/07



BRAZIL MUNICIPAL LENDING PROGRAM

Teresina Enhancing Municipal Governance and Quality of Life Project *Programa Lagoas do Norte*

- ★ PROJECT CITY
 - ◎ STATE CAPITALS
 - ⊗ NATIONAL CAPITAL
 -  RIVERS
 -  MAIN ROADS
 -  RAILROADS
 -  STATE BOUNDARIES
 -  INTERNATIONAL BOUNDARIES

This map was produced by the Map Design Unit of The World Bank. The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of The World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.