### Project Name
São Bernardo & Guarulhos - Integrated Water Management in São Paulo Program

### Region
LATIN AMERICA AND CARIBBEAN

### Sector
General water, sanitation and flood protection sector (89%); Public administration- Water, sanitation and flood protection (11%)

### Project ID
P125829

### Borrower(s)
SÃO BERNARDO DO CAMPO & GUARULHOS MUNICIPALITIES

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### Environment Category
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September 15, 2011 (proposed)

Note: The Mananciais APL Program (P006553) was approved by the Board on July 9, 2009 along with the first and second phases of the Program APL for the State of São Paulo and SABESP loans respectively. This updated appraisal PID focuses on Sao Bernardo de Campo and Guarulhos, the third and fourth (and final) phases of the Mananciais ALP.

1. Country and Sector Background
Brazilian cities under stress.¹ During the last 30 years, Brazil has undergone a sea change in its spatial structure as urban areas absorbed over 80 million people and the urban share of the population grew from 56 to over 80 percent. Today, cities account for 90 percent of the country’s GDP and include half of its poor. After consistent productivity increases in the 1970s and 1980s, the largest Brazilian cities have shown a steady decline in per capita GDP and productivity over the last 15 years. While major world cities position themselves to generate economic innovation and expansion, Brazilian cities grapple with the need to host the informal poor, control crime and violence, improve services and clean up the environment. As one of the most urbanized countries in the world and among the largest economies, Brazil’s competitiveness and prospects for sustainable growth rest on the capacity of its major cities to respond to these pressures. Brazil’s biggest cities are still by far the most productive in the urban hierarchy, but their problems need decisive responses to allow them to maintain their dynamism and the country its economic growth and international competitiveness. Although Brazil has had a relatively stable poverty rate of 28-30 percent in recent years, economic slowdowns have led to higher unemployment, lower labor income and greater informality in cities, especially in metropolitan areas of the Southeast. Brazil’s urban poor now outnumber the rural poor. Slums have become part of the urban landscape in the majority of Brazilian cities. These ubiquitous low-income, informal settlements present city administrators with significant challenges related to social and economic inclusion, service delivery provision and environmental degradation.

São Paulo’s strategic importance.² The sprawling Metropolitan Region of São Paulo (MRSP) is emblematic of the urban challenges facing Brazil. Housing 19.3 million people in 39 municipalities covering 8,050 km², it is the fourth largest urban area in the world, South America’s biggest economic and technological hub and accounts for 17 percent of national GDP and 10 percent of the population. MRSP’s share of the GDP is, however, declining as diseconomies of scale and decreasing competitiveness predominate (per capita output has fallen 2 percent annually in recent years). Rapid urbanization and a process of deindustrialization and economic stagnation have resulted in a region afflicted by social problems including rising unemployment and persistent criminality and a declining capacity to compete with other regions in Brazil to attract investment. The city faces a number of challenges to recover higher rates of growth and to recuperate standards of service delivery and quality of life for its population – metropolitan challenges that require responses and coordination by both state and municipal governments. The institutional framework for such pan-metropolitan coordinated action is, however, lacking in MRSP, as it is in all metropolitan regions in Brazil.

São Paulo’s water challenges.³ Among the pressing problems facing MRSP, the region’s water supply and demand balance is a critical issue for the city’s competitiveness, economic growth and its social and environmental sustainability. MRSP’s extremely low per capita water availability is comparable to that prevailing in the driest areas of the Brazilian Northeast. Half of

the city’s potable supply is imported from neighboring river systems, which is contentious given the demands of other conurbations vying for the same water. The remainder comes from headwater-reservoir systems (*mananciais*) within MRSP itself. The Guarapiranga and Billings reservoirs make crucial contributions, together providing potable water for some 25 percent of MRSP’s population (some 4.8 million people). Recent forecasts for the metropolitan region indicate that by 2015, there is serious risk of demand outstripping supply – with such projections assuming that MRSP’s currently operational *mananciais* (Guarapiranga, Billings and other systems) will remain fully utilized or further expanded. Should Guarapiranga and Billings be lost as raw bodies of water for the city supply, the next-nearest sources to replace them are at great distance and could only be brought to MRSP at multi-billion real costs.

**The land-use/environmental nexus** Some 2 million people reside in the Guarapiranga and Billings river basins – the vast majority of whom are poor, having illegally occupied these areas given their proximity to the city center. The industrial and commercial areas along the banks of the Pinheiros River (today the city’s leading business and economic development region) have long been a magnet for job seekers. This market of employment and opportunity is strategically close to the informal settlements of Guarapiranga and Billings – the latter areas now playing an important role in the city’s fabric and attracting some 14,000 new households annually. The informal/slum settlements cause direct pollution of the reservoirs through wastewater and garbage discharge, storm run-off and silting, thus threatening their future as bodies of water for potable supplies and other uses. To tackle this problem, action is necessary to bring together key urban upgrading interventions locally with metropolitan-wide initiatives in wastewater collection and treatment, drainage and solid waste management, and to do so within the context of the urban river basin. The state water company, SABESB, is the major actor for wastewater collection and treatment. The 1988 Constitution and the 2001 City Statute\(^4\) confer upon municipal governments the responsibility for land use planning, including the elaboration of urban master plans and the control of land zoning and development. In addition, they are locally responsible for drainage and solid waste management. Coordinated vertical and horizontal action between the state and municipal governments to safeguard and capitalize upon the city’s critical water resources is one of MRSP’s main development challenges and a priority of the State Government and the municipal governments of the region.

**Water resources management in São Paulo State.** According to the State Water Resources Management Law\(^5\), São Paulo’s water resources management (WRM) model is based on three principles: decentralization, integration and participation. It adopts the river basin as the basis for planning and management and it recognizes the economic value of water, as the user/polluter pays principle. The State water resources policy defines three instruments for implementation of the model: (i) licensing the use of water resources; (ii) charging for water use; and (iii) dividing the costs of multiple-use interventions, which have collective benefits. The São Paulo WRM model also contains: (a) water resources plans (both at the state and the river basin level); (b) an institutional system of management through deliberative, tripartite bodies (both centrally and at the river basin) with state, municipal and civil society representation; and (c) a state water resources fund (FEHIDRO). The State water resources plan (WRP) is based on the respective river basin plans and is periodically updated and approved by state law. The river basin plans

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\(^4\) Federal law 10.257, July 10, 2001  
\(^5\) São Paulo State law 7.662, December 30, 1991
contain parameters that are intended to guide the preparation of municipal master plans in accordance with the overarching goals of water resources recovery, protection and conservation. In the state’s heavily urbanized river basins, such as in MRSP, the challenges to sustainable water resources management require that medium to long-term multi-sectoral responses are identified in the plans, instead of the standalone, uncoordinated single sector interventions of the past. One of the key elements of such integrated approaches, especially in highly urbanized areas, is the critical issue of land use management. The river basin plans recognize this requirement, proposing strong articulation with municipal governments regarding their responsibilities concerning land use patterns and local service delivery.

The Alto Tietê River Basin. The Alto Tietê river basin consists of the area drained by the Tietê River from its headwaters in Salesópolis at the extreme eastern end of MRSP to the Rasgão Dam in the municipality of Pirapora do Bom Jesus. The basin is characterized by a low level of water availability vis-à-vis MRSP’s substantial demands and by numerous ongoing and potential conflicts over water use. Extending over 5,985 km², the Alto Tietê basin covers a highly urbanized area, virtually coinciding with the physical limits of MRSP, and containing 35 municipalities and a population of 17.7 million. Headwaters Protection Areas (APRMs) account for about 54 percent of the total area of MRSP (4,356 km² of the total 8,051 km²) and for 73 percent of the drainage area of the Alto Tietê basin. The APRMs contain 2.2 million inhabitants, three-quarters of whom live in the Guarapiranga and Billings sub-basins. The Alto Tietê river basin plan (PBAT), which subdivides the basin into seven sub-basins, was first elaborated in 2002 and is currently undergoing revision. The water resources-land management nexus is a key element of the PBAT’s recommended areas of focus.

Urban growth and informality Various surveys and data sources forecast a population for MRSP of around 23 million by 2025 (representing an annual average increase of 0.5-1 percent). The studies also indicate increasing migration of the population towards the fringes of the city and a population decline in the more central areas. One out of six inhabitants of the municipality of São Paulo lives in a slum, representing 400,000 families, or between 1.6 and 2 million people (equivalent to the population of Curitiba), living in substandard housing in 1,538 settlements occupying 30 km². Four years ago some 290,000 families (or 1.3 million people) lived in these conditions in the municipality. The 38 percent increase in this population, according to specialists, is not attributed to increased poverty but to demographic growth. Despite this growth, the area occupied by the slums continues to be virtually the same demonstrating an increase in urban density and more ‘verticalization’ of dwellings.

Water supply and sanitation in São Paulo State. SABESP provides water supply and wastewater services in 367 of the state’s 645 municipalities. Of the remainder, 274 receive their services from municipal utilities and four from private companies. Of the 35 municipalities in the Alto Tietê basin, 29 of them (representing 79 percent of the region’s urban population, or 39 percent of the total state urban population) receive their water supply services (WSS) directly from SABESP. The remaining six municipalities receive treated bulk water from SABESP and

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6 Alto Tamanduateí, Billings, Cabeceiras, Cotia-Guarapiranga, Juqueri-Cantareira, Penha-Pinheiros and Pinheiros-Pirapora.
8 Diadema, Guarulhos, Mauá, Mogi das Cruzes, Santo André and São Caetano do Sul.
distribute and bill for it via municipal utilities. Some of these also send their collected wastewater to SABESP’s treatment plants – a trend that is currently increasing. The recently approved federal law for water supply and sanitation\(^9\) brings long-awaited clarity to the institutional, regulatory, planning and service provision aspects of the sector and recognizes and regulates regional service providers. 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.

**State WRM strategy.** Despite the advances in WRM in the state, many challenges remain. The state government (GESP) needs to develop, refine and implement effective WRM instruments and adopt pragmatic approaches to the creation of political and organizational capacity in the sector in order to promote efficient water use by stakeholders. Alternatives to ‘command and control’ tools need to be developed and innovative, proactive and integrated approaches adopted to ensure the promotion of sustainable and efficient water resources use in the state, including for groundwater. The state’s WRM model needs to provide tangible incentives for water users to adopt good water management practices, such as water pricing and eligibility criteria for access to FEHIDRO and other financing. In order to tackle the state’s most pressing WRM challenges, GESP’s WRM strategy promotes an integrated approach and collaborative, coordinated planning and management that involves local governments and other stakeholders as well as basin committees.

**State WSS strategy.** GESP has identified the following as the main challenges of the WSS sector in the state: (i) maintaining water supply services at high coverage and quality levels while promoting efficiency improvements; (ii) obtaining universal wastewater collection; (iii) increasing the amount of wastewater treated; and (iv) complying with the requirements of the new federal WSS law. GESP intends to achieve this through: (a) developing a more effective and cooperative approach to WSS provision with municipalities; (b) promoting articulation of the WSS sector with environmental, water resources and urban development planning and management; (c) making clearer the roles and responsibilities of policy making and those of sector planning, regulation and service provision; (d) implementing a new state-wide regulatory agency; and (e) developing and implementing alternative funding sources for the sector to complement existing mechanisms and to provide incentives for efficiency.

**Joint strategy for improving water quality and land-use in MRSP** The main challenges of the land use/urban informality/environmental nexus in MRSP are to (i) improve water quality and to guarantee the long-term sustainability of water supply in the region’s watersheds and headwaters; (ii) improve the quality of life and living conditions of the low-income population living in the region’s slums and irregular settlements, (iii) implement better urban development and land-use planning, management and control; and (iv) build a new metropolitan governance model based on cooperation among stakeholders and integration of sectors. The state, municipal and non-governmental actors engaged in these issues recognize that achieving socio-environmental sustainability and better urban land-use and development in MRSP’s poorest areas are key to controlling water pollution and improving living conditions of the resident population. To achieve these goals, key stakeholders have initiated the articulation of a joint strategy based on integrated interventions in infrastructure provision in environmentally sensitive

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Mapping Precarious and/or Irregular Housing in the Municipality of São Bernardo do Campo. In 2009/2010 the municipal government determined that organizing information to map out the precarious and irregular settlements was within its social interest. The government identified 261 centers that contained more than 82,000 households, representing 30 percent of the total households in the municipality. In the Billings Headwater area, 151 precarious and/or irregular settlements were identified (around 60 percent of the existing precarious and irregular settlements in the municipality), of which 68 are favelas and 82 are irregular plots. More than 40,000 families live in these settlements. These settlements, recorded as Zones of Social Interest (Zonas Especiais de Interesse Social- ZEIS) in the new Master Plan, are consistent with the definitions in the Specific Act of Billings and are referenced in the Environmental Recovery Area (ARA 1, Área de Recuperação Ambiental). This study has been the key baseline for the ongoing preparation of the Local Social Interest Housing Plan (PLHIS) for the municipality. This Plan is the main instrument for planning medium and long term actions for the housing sector in the municipality.

The mapping exercise has identified five typologies of urban housing problems in precarious settlements. The areas of intervention in this project are defined as typology 4, precarious irregular settlements that can be consolidated, lacks all infrastructure and whose solution requires complex and high cost interventions and a great number of families to be resettled.

A serious situation in the municipality is that of the Montanhão neighborhood (on the right side of the Rodovia Anchieta road), located in the APRM-B, where uncontrolled slums and illegal settlements (particularly the nuclei of Areião/SABESP/Vila dos Estudantes and Monte Sião neighborhoods with around 3,000 families) are encroaching in the direction of the SABESP potable raw water intake on the Rio Grande tributary of the reservoir, causing a variety of negative environmental impacts. In addition, these areas present high risks of land slide (including past experiences of deaths); high flood risk areas; and a need to restrict new irregular occupation closer to the water reservoir and SABESP’s intake.

Although local government urban planning rules and laws for protecting the headwaters formally govern these environmentally fragile catchment areas, the fact is that the pace and illegality of the occupation process in recent years has overwhelmed the capacity of the municipal government to respond by controlling, supervising and monitoring of the situation. It is now clear to the municipal government that there is an urgent need for a major coordinated intervention with the state government and with other key stakeholders to mitigate this problematic situation.

The water supply and sanitation services in São Bernardo do Campo are today provided by the state water utility, SABESP. Water supply coverage in the municipality is at 98 percent and wastewater collection at nearly 86 percent. The index of wastewater treatment is at some 59 percent, however, SABESP is implementing a wastewater collector close to the project area, which the project will benefit from.
Water supply, sewage and treatment issues in Guarulhos. The municipality of Guarulhos lies to the northeast of the São Paulo Metropolitan Region, with a population of 1.22 million (IBGE Census 2010) – increasing annually at a rate of 1 percent. The municipal area is 98 percent urbanized. Guarulhos is located almost completely in the Tietê-Cabecerias sub-basin and receives approximately 60 percent of its drinking water supply from the Juqueri/Cantareira sub-basin. The remainder of the drinking water comes mainly from the neighboring Cabeceiras and Penha/Pinheiros sub-basins.

Water distribution and sewage collection in Guarulhos is undertaken by the SAAE (the Guarulhos Autonomous Water and Sewerage Utility) which distributes water to 365,000 customers and provides sewage collection for 290,000. While most of the treated water is supplied by SABESP (88 percent), SAAE manages and distributes the water supply system and provides the remaining 12 percent of the water. As for sewage, while 75 percent of the total population in Guarulhos is connected to the sewage collection system, only 15 percent of the sewage generated is currently treated.

The 2003 Guarulhos Water Supply System Master Plan (PDSA) was put in place to promote a more equitable distribution and efficient use of water. The Plan identifies the population distribution and water demand in order to develop a more efficient water supply system and address current and future water demand. The PDSA forecasts a population growth increase for Guarulhos of 32 percent between 2005 and 2025, compared to an increase in water availability of less than 11 percent, widening the gap between demand and available water supply. One of the main results of the Plan was the clear need to develop a water loss control and reduction program designed to benefit the entire population of Guarulhos by attenuating the water and sewage problems in the municipal area while simultaneously reducing water losses.

The 2004 Guarulhos Sewer System Master Plan (PDSE) examined the conditions and characteristics of the current sewer system coverage in Guarulhos in order to determine the best treatment solutions and the best sewage treatment plant configuration for the area. The Guarulhos Sanitation Plan, completed in 2009, expands on the PDSA and PDSE by presenting a consolidated work plan, goals and recommendations designed to produce a universal, progressive and sustainable water and sanitation system.

The Bairro Agua Azul is located in the northeast region of the Guarulhos Municipality in the Agua Azul river basin. The population is nearly 3,200 inhabitants and is expected to grow to 5,500 by 2030, a rate of nearly 3.6 percent a year. Agua Azul until recently was a rural area and is currently the only neighborhood in Guarulhos that does not receive water or sewer service. For this reason, Agua Azul has been targeted for this project. The establishment of basic sanitation infrastructure and water services will reduce downstream water pollution in the Baquirivu-Guaçu River, a major tributary of the Tietê River and will contribute to the protection and preservation of MRSP drinking water sources.

Project to control and reduce water losses in Guarulhos. The water distribution services in Guarulhos are characterized by high levels of water loss – 58 percent of the total water produced is physically lost in distribution, and only 52 percent of the total produced is actually paid for by customers. The effects of these losses are particularly serious given that the SAAE depends on
SABESP for its treated water (87 percent of the total consumed). This obviously implies a need for the SAAE to control and reduce losses, and therefore costs, as much as possible.

2. Objectives

The overall objectives of the APL are (i) to protect and maintain the quality and reliability of MRSP’s water resources and potable water sources; (ii) to improve the quality of life of the poor populations residing in key targeted urban river basins in MRSP; and (iii) to strengthen institutional capacity and improve metropolitan management and coordination in MRSP in water resources management, water pollution control, land-use policy and basic service provision.

The program has been developed in support of the vision for a more equitable, sustainable and competitive Brazil, outlined in the federal government’s pluri-annual development plan (PPA). The program is emblematic of the challenges facing metropolitan regions and large/mega cities in Brazil as it grapples with constraints to growth, social inclusion, environmental degradation and the appropriate planning and management of services.

The 2004-2007 CAS. 10 The CAS highlights the important role of enhanced and more equitable access to basic urban services such as WSS, better water quality and water resources management, more sustainable land management, protection of forests and biodiversity and greater social inclusion. It further recognizes that many urban poor are not served by water and sanitation services, that water pollution and its health consequences are predominantly urban problems that mostly affect the poor and that the continued growth of informal settlements strains local government capacity. The CAS emphasizes the importance of integrated approaches to water pollution control and urban upgrading, which promote cooperation among a variety of actors and revitalize metropolitan governance. The CAS also recognizes the importance of sub-national level support in realizing broader growth and economic development as a means to achieving environmental stability and social equity in Brazil’s urban conurbations.

In June 2006, the Bank’s Board of Directors approved a Progress Report 11 based on activities undertaken in support of the 2004-2007 CAS, which recognized that awareness had grown in Brazil with regard to the importance of water quality and scarcity issues and that more needs to be done to advance sustainable WSS services.

The specific objectives for São Bernardo do Campo are: (i) To protect and maintain the quality and reliability of MRSP’s water resources and potable water sources; and (ii) To improve the quality of life of the poor populations residing in key targeted urban river basins in MRSP.

The specific objective for Guarulhos is to improve the quality of life of the poor populations residing in key targeted urban river basins in São Paulo Metropolitan Region.

3. Rationale for Bank Involvement

Programmatic engagement in the São Paulo water sector. The state government and the Bank are developing a 10-15 year programmatic engagement in the water sector to address the key statewide challenges of water resources management, water supply and sanitation and water pollution control. This programmatic engagement includes ongoing initiatives to implement sustainable land use and water resources management in rural river basins and large-scale restoration of riparian forests in the Cerrado and Atlantic Forest biomes through the São Paulo Land Management program and the GEF Ecosystem Restoration of Riparian Forests project, respectively. The ongoing Programa Reágua project is another key piece in this programmatic engagement, with a results-based design to address issues of water quality and water conservation throughout the state. The Mananciais Project, represents a key vehicle in the Bank’s programmatic engagement with São Paulo state in its water sector, as it is designed to help the state and municipal governments of MRSP in tackling the water quality and urban challenges in the state capital described above.

Bank as catalyst and convening power. The Bank has a unique role to play under the Mananciais Project in bringing the myriad state, municipal and non-governmental actors together to tackle MRSP’s land use and water resources challenges. This role of catalyst and convening power was achieved under the preceding Bank-financed Guarapiranga project but to a smaller degree (for only one of the mananciais and with fewer actors). The Bank’s ‘honest-broker’ role has been demonstrated during the preparation of the Project’s federal government approval document (carta consulta, CC) – a significant feat of bringing a dozen state entities and municipal governments together around a common vision, program and modus operandi within a single CC. The water resources/urban informality challenge can only be tackled and reversed if such horizontal and vertical collaboration can be maintained and replicated in the medium to long-term. The Project provides the institutional consolidation for this cooperation and crucial continuity during the frequent electoral cycles. In addition to leveraging state and municipal debt capacity to achieve broader and deeper impact and providing a framework of common goals and complementary action plans for each player, the Project promotes the participation of other such actors in the future.

Consolidating an unfinished agenda. As reflected in the ICR and in the IEG’s Review and subsequent PPAR for the predecessor Guarapiranga project, as well as in the Bank’s 2003 Water Resources Sector Strategy, persistence, patience, pragmatism and flexibility are needed to implement innovative programs such as this operation. Some of the key cutting-edge work initiated under the Guarapiranga project only came to legal fruition following project closure (the state water charging law and the new state land use law for the Guarapiranga basin). The Guarapiranga project was groundbreaking with regard to its hybrid approach of tackling the inter-related issues of urban water pollution and poverty/land use, but timid in its approach – the key executors ‘kept their heads beneath the parapet’ since, in Brazil of the 1990s, it was unpopular to suggest that the low-income settlements and slums crowding in on the reservoirs should be consolidated to prevent them from polluting rather than being subjected to the mass removals that environmental lobbyists were then advocating.

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The Mananciais Project represents the continuation of a program that fundamentally changed Brazil’s approach to urban water resources and land-use management, pollution control and urban poverty alleviation in large, densely-occupied conurbations with high degrees of informal settlements – a pressing issue facing cities throughout Brazil and the developing world.

The state WRM and land-use systems are incipient and evolving and are entering a critical phase. The Project assists the state and municipal governments of MRSP in moving forward the agenda of metropolitan coordination, management and planning in the areas of land-use, water pollution and related urban-environmental service delivery – issues that are among the major paradigmatic challenges facing Brazilian cities today.

Bank knowledge. The Bank is ideally placed to leverage international experience to help with diagnoses and prognoses of the complex metropolitan, water resources and land use issues that the Project intends to tackle. The Bank serves as a knowledge conduit: bringing experience and lessons from Brazil and elsewhere to bear on Project implementation, and taking the Project’s own lessons to other Brazilian cities and to those in other countries suffering similar pressures. The Bank also brings to bear its specific sector knowledge and technical expertise from Brazil and elsewhere in the fields of water pollution control, urban water resources management, urban/slum upgrading and basic service delivery in peri-urban areas.

4. Description

General Program Description

The Mananciais Horizontal APL Program is designed to respond to the land-use, water resources, environmental and social challenges described above, by providing a vehicle which brings together State and municipal government interventions designed to reverse the deterioration in the headwaters (mananciais) water bodies, improve land-use planning and control, increase the living conditions of the peri-urban poor residing in the reservoir basins, and strengthen and consolidate metropolitan institutional capacity in these fields. It will do so by building on the experience and the lessons learned from the predecessor Bank-financed Guarapiranga Program and from other related state and municipal government initiatives in MRSP.

The Mananciais Project is designed to respond to the land-use, water resources, environmental and social challenges. The Project will provide a vehicle that brings together state and municipal government interventions designed to reverse the deterioration in the headwaters (mananciais), improve land use planning and control, improve the living conditions of the peri-urban poor residing in the reservoir basins and promote metropolitan cooperation and institutional capacity building in these fields. It does so by building on the experience and the lessons learned from the predecessor Bank-financed Guarapiranga Program and from other related state and municipal government initiatives in MRSP.

The Horizontal APL is organized into four components: (i) Institutional Capacity Building; (ii) Urban Integration; (iii) Environmental Protection and Recovery and (iv) Integrated Water Supply
and Sanitation. The last component incorporates activities related to a broader concept of integrated water supply and sanitation, as described in the recently-approved Federal WSS Law (11.445/2007), namely: water supply, sanitation, drainage and solid waste management. A more detailed description of the components, their activities and costs is presented in Annex 4 of the PAD.

The Project is being implemented as a series of loans under a Horizontal APL, implemented over a six-year period. The participants under the Horizontal APL so far are: the State Government of São Paulo (GESP); the State Water Utility (SABESP) and the proposed participants are the municipal governments of São Bernardo do Campo (PMSBC) and Guarulhos (PMG). The participants will all be borrowers under four individual Specific Investment Loans.

Component 1 - Institutional Capacity Building (US$ 35.09 million total, US$16.97 million loan). To achieve the objectives of the Mananciais Horizontal APL Program and to ensure its long term sustainability, an Institutional Capacity Building component has been designed to support GESP and the other executing agencies by strengthening their institutional capacity and promoting improved metropolitan management and coordination with regard to the key metropolitan challenges of water resources management, water pollution control, land-use policy, and basic service provision. The component will support the following activities: (i) improved integrated land-use and water resources management; (ii) environmental and water quality monitoring; (iii) environmental education and social outreach; and (iv) Program management, monitoring, evaluation and dissemination.

Component 2 - Urban Integration (US$ 62.89 million total, US$ 13.80 million loan). The component’s objectives are to improve the standards and layouts of urban occupation in the targeted basins and improve the quality of life of the residents of these basins, especially the low-income communities living in informal settlements. Component 2 will support the following activities: (i) Urbanization of slums and irregular settlements; (ii) Recuperation of high-risk and degraded areas; (iii) Involuntary resettlement; (iv) Preparation of housing plans; (v) Environmental and urban layout standardization of settlements; and (vi) Socio-environmental supervision for urban upgrading and housing interventions.

Component 3 - Environmental Protection and Recovery (US$ 19.71 million total, US$ 11.73 million loan). The component’s objectives are to protect and recover natural habitats and environmentally sensitive and degraded areas in the sub-basins with a view to improving environmental quality. Component 3 will support the following activities: (i) Revegetation and reforestation; (ii) Urbanization of public areas with creation of green and leisure spaces for common use; (iii) Establishment of environmentally protected areas; (iv) Rehabilitation and protection of reservoirs and water production systems; and (iv) Control of the transportation of hazardous substances in the region.

Component 4 - Integrated Water Supply and Sanitation (US$ 119.41 million total, US$ 88.07 million loan). The component’s objectives are to reverse the main factors that contribute to the pollution of the reservoirs and to provide integrated WSS services to the poor. Component 4 will support the following activities: (i) Wastewater management improvements; (ii) Water supply system improvements; and (iii) Solid waste management improvements.
The Project’s borrowers will not each be undertaking all of the activities listed above under the four Project components. Nor will each of the activities be carried out in all of the sub-basins of the MRSP. The table in Annex 4 of the PAD presents the component activities and shows which executing agency will be undertaking them in which sub-basins.

**Project Specific Description**

Specifically, the following activities will be financed under the São Bernardo & Guarulhos - Integrated Water Management in São Paulo Program:

**The Municipality of São Bernardo do Campo (US$41.40 million total, US$20.82 million loan)**

The Municipality of São Bernardo do Campo (PMSBC) Project is divided into two sub-programs encompassing the original Program components in the following manner: Sub-Program 1 – Institutional Strengthening and Management (Component 1); Sub-Program 2 – Integrated Urban Upgrading, Land Regularization and Environmental Recovery of Precarious Settlements (Components 2 and 3, focusing all activities on the nuclei of Areião/SABESP/Vila dos Estudantes and Monte Sião neighborhoods).

**Sub-Program 1: Institutional Strengthening and Management**

**Component 1 - Institutional Capacity Building** (US$ 5.74 million total, US$ 5.70 million loan). This component aims to strengthen institutional municipal capacity to act in the Region of Headwater Protection and ensure the necessary technical support to manage the municipality’s Headwater Program. It is structured to cover the strengthening actions of the Municipal Environmental Planning and Management and Program management. This component benefits the estimated 213,000 people (IBGE) that live in the São Bernardo do Campo area of headwater protection.

**Sub-Program 2: Urban Upgrading, Land Regularization and Environmental Recovery of Precarious Settlements.**

**Component 2 – Urban Upgrading** (US$ 32.56 million total, US$ 13.69 million loan). The main objectives of this component include: (i) Improvement of the standards of urban occupation and elimination of risk through interventions in slums and irregular settlements; (ii) Improvement in quality of life for the resident population (i.e. poverty reduction); and (iii) Introducing an orderly pattern to slums and irregular settlements by promoting land use compatible with urban and environmental requirements.

**Component 3 – Environmental Protection and Recovery** (US$ 2.94 million total, US$ 1.27 million loan). The aim of this component is to protect the natural resources and environmentally sensitive areas – especially the headwaters areas – in the Billings sub-basin located in the municipality of São Bernardo do Campo, in the area of intervention. Furthermore, to recover degraded areas in order to improve environmental quality and ensure more sustainable conditions in the headwater areas.
The Guarulhos Municipality project (US$11.73 million total, US$6.06 million loan). Of the four components of the Mananciais Horizontal APL Program mentioned above, the Guarulhos project includes activities in two of these components: Component 1 - Environmental Education and Program Management and Component 4 - Integrated Water Supply and Sanitation. PMG interventions do not, in principle, call for a need to resettle families, but will demand land acquisition.

Component 1 - Institutional Capacity Building (US$ 0.85 million total, US$ 0.47 million loan). With a view to preserving and recovering the headwaters, this component aims to provide the tools for upgrading the technical aspects related to the management and sustainability of the Project interventions. These interventions include promoting community awareness in Agua Azul through environmental education activities that enable systematic comprehension, public participation in facing environmental degradation issues and liaising with other local and sectoral government projects as well as measuring the progress of the Project through audits and monitoring and evaluation.

Component 4 – Integrated Water Supply and Sanitation (US$ 10.87 million total, US$ 5.58 million loan). The main objective of this component is to enhance environmental quality, correct the main pollution factors in natural bodies of water and improve the quality of life of the resident population through the removal of pollution loads (caused by sewage), the implementation of water supply systems and the reduction of water losses with the overall aim of increasing the efficiency of the water supply system, contributing to increased water availability and distribution and promoting the rational use of the available water resources.

5. Financing

The financing plan for the Mananciais program, including all four projects, is shown in the table below.

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<th>Source</th>
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6. Implementation

The participants under the Horizontal APL are GESP, SABESP (ongoing) and PMSBC and PMG (proposed), under four individual Specific Investment Loans. GESP has an overall coordinating role of the APL, and is implementing its activities under the APL through three executing agencies: the State Secretariat of Housing (SH) through its State Company of Housing and Urban Development (CDHU); the State Secretariat of the Environment (SMA); and the Secretariat of Sanitation and Water Resources (SSRH) – the latter is responsible for coordinating both GESP’s activities under the APL as well as the overall APL itself. The implementation arrangements for the Project are organized around three themes: (i) strategic advisory support; (ii) general coordination; and (iii) operational execution/coordination. The main functions of
each of the bodies involved under these three themes are described below and more details can be found in Annex 6 of the PAD.

**Strategic advisory support** The Project will receive advisory support from a *Committee of Coordinators* (CDC), which will be legally created and composed of technical staff from each executing agency. The CDC will undertake the following activities: (i) monitor the attainment of the Project’s objectives and goals; (ii) guide Project implementation and review next steps; (iii) review and comment on the Project’s results and outcomes; (iv) provide support/technical assistance to the coordinators of the Project Management Unit (UGP) and the Local Management Units (UGLs); and (v) continually monitor and evaluate the implementation progress of all Project components and activities. In addition, the Alto Tietê River Basin Committee (CAT) will provide the Project executing agencies with periodic policy and strategy guidance on issues within the field of CAT’s competence. CAT will receive support in providing this guidance from the respective Alto Tietê sub-basins committees, namely those of Cabeceiras, Juqueri-Cantareira, Cotia-Guarapiranga, Billings-Tamanduateí, and Pinheiros–Pirapora.

**General coordination** Overall coordination of the Project is provided by SSRH through a UGP created by state decree, staffed with GESP and SABESP public servants, and fully embedded within the day-to-day workings of the Secretariat. The core of the UGP team is already in place and has gained considerable experience during the preparation of the Mananciais phases 1 and 2, and the implementation of its PHRD grant, as well as – in some important cases – during the implementation of the predecessor Guarapiranga Program. The UGP is responsible for orienting, planning, coordinating, technically approving, supervising and technically auditing all aspects of the Project’s implementation, including those undertaken by the other borrowers and by the co-financer.

**Operational execution/coordination** Each of the borrowers has established a framework to create their own project management units at the local level (UGLs) using an appropriate legal instrument issued by the respective mayors (PMSBC and PMG) and the president of the company (in the case of SABESP). The UGLs are staffed with public servants of the respective borrowers and fully embedded within its day-to-day workings. The UGL will be embedded in PMSBC’s Housing and Environment Secretariats (SEHAB), in the PMG’s water and sewerage utility (SAAE) and is embedded in an internal unit in the case of SABESP. The UGP is responsible for, *inter alia*: (i) evaluating and approving the appropriateness of subcomponent and activity proposals and designs (from a technical, financial, social, environmental/safeguard and resettlement perspective) before they are forwarded to the Bank; (ii) reviewing and approving related procurement documentation before they are forwarded to the Bank for no-objection; (iii) monitoring and evaluating the implementation of all components, subcomponents and activities under the Project; (iv) reviewing borrower/co-financer periodic progress reports, and consolidating the information therein into periodic overarching Project progress reports. The UGP will be assisted by a management consultancy firm, which will be responsible for supporting it on Bank-specific technical, operational, administrative, financial, procurement, safeguard and M&E aspects of Project implementation. Each UGL will be assisted by specialized individual consultants, on an as-needed basis, to support Project implementation on issues that are Bank-specific (such as procurement, FM and safeguards issues).
The CDC and CAT will have regular meetings with the UGP to discuss and evaluate Project implementation progress. Furthermore, during the sub-basin committees’ regular bimonthly meetings, the UGP will present the Project’s implementation progress and will raise any specific important issues for discussion. In addition, the UGP will participate in specific meetings as and when requested by the CAT or by the respective sub-basin committees. The CDC will meet periodically, as defined in the Operational Manual, to discuss Project implementation and evaluation. The implementation arrangements are further described in Annex 6 of the PAD and will be detailed in the Operational Manual.

7. Sustainability

The Mananciais Project and the overarching program of interventions supported by the state, municipal governments and other MRSP stakeholders within which the Project sits are very much concerned with the medium to long-term sustainability of water resources management and land use in the metropolitan region. The Project has a specific component encompassing numerous activities that focuses on institutional capacity building and policy and strategy development/refinement for the water and land-use sectoral issues faced by the metropolis. These activities are targeted to those stakeholders – the state government, the state water company, the municipal governments and the river committees and agency – that have a direct role in ensuring the sustainability of the interventions, and help bring these stakeholders together under a program of complementary interventions with common goals. The activities include: (i) preparation of sub-basin PDPAs and specific land-use laws; (ii) TA to municipalities to ensure their urban master plans are consistent with the PDPAs; (iii) TA to municipal and state actors responsible for enforcement of land-use patterns; (iv) drafting of a metropolitan water governance structure and creation of a forum for discussing this issue; (v) studies on metropolitan governance, water demand profiles, scenarios and policy, water reservoir behavior and potable water treatment improvements; (vi) environmental and sanitary education campaigns and social outreach to promote issues including community self-regulation in controlling/enforcing appropriate land-use patterns; (vii) TA for environmental and water quality monitoring; and (viii) creation/operationalization of the State WSS Regulatory Agency.

At the community level, the beneficiary stakeholders are fully engaged in the design and implementation of the neighborhood interventions and further benefit from social outreach and environmental/sanitary promotion campaigns which are designed to promote the sustainability of Project activities at this level. The capacity building activities targeted at the Alto Tietê river basin committee and agency, and at the sub-basin committees, together with the reformulation of the Alto Tietê river basin plan and the corresponding PDPAs and specific land-use laws, are designed to allow these entities to successfully navigate the ‘start up’ period they are currently confronting and to move to a scenario of sustainable self-management. Likewise, the challenges of sustainable services delivery to peri-urban communities in the headwaters regions of MRSP are being addressed during Project implementation with the corresponding stakeholders (SABESP for WSS, and the municipal and state governments for other services).

8. Lessons Learned from Past Operations in the Country/Sector
The main lessons learned as reflected in the Project design come from the predecessor Bank-financed Guarapiranga PQA project (São Paulo Water Quality and Pollution Control Project, BR-P006541) and the accompanying Curitiba and Belo Horizonte PQA projects. The lessons presented in the projects’ joint ICR and in IEG’s Review and subsequent Project Performance Assessment Report were reviewed and incorporated into the design of the Mananciais Project as described below. In addition, the state and municipal agencies involved in the principal urban integration, environmental protection and recovery and integrated WSS activities under the Project themselves have considerable experience in their respective fields, which have also been drawn on during preparation and further leveraged during implementation.

The ICR presented the following conclusions and recommendations, among others: (i) Problems related to water quality management, pollution control, the brown environmental agenda and urban upgrading, especially in river basins of metropolitan regions, are complex and cannot be resolved with simple approaches or isolated sector interventions; (ii) Both the institutional and the environmental objectives associated with such projects should be treated as long-term program goals rather than short- to medium-term project objectives; (iii) Integrated approaches to water quality management and urban upgrading can enhance the benefits of a wide range of interventions and contribute to poverty alleviation; (iv) Tackling the shortfalls in metropolitan planning and governance in Brazil is crucial, and PQA-type projects should be used as vehicles to re-engage stakeholders in a debate of metropolitan planning and governance to help move this key agenda forward; (v) Persistence, patience and flexibility are needed to implement such innovations, which should be customized to the unique characteristics of each basin; (vi) Consensus building, though time consuming, is critical for reaching agreement on project design and achieving institutional and policy reform. (vii) The Guarapiranga PQA project demonstrated an equitable approach to urban resettlement and provides a useful model in which resettlement is seen as part of the urban upgrading solution, contributing to the improvement of quality of life in the slums.

The PPAR was extremely positive in its findings and recommendations with regard to the relevance of the first generation of PQA projects in Brazil, and came to the following conclusions about these types of projects:

- They laid the groundwork for a new approach to managing water quality in large urban areas, breaking the conventional mold and representing important new standards of policy and practice in Bank assistance to the WSS sector in Brazil – and establishing the rudiments of global best practice in urban WRM involving the poor.
- The projects moved the emphasis to a basin-wide scale to achieve quality and efficiency objectives in dense urban areas, while learning that the water quality challenges were inextricably linked with urban poverty issues.
- Brazil is still far from consolidating the approach to sustainable urban water resources and land use management, and that experience from developed countries suggests that consolidation may require many decades.

14 São Paulo, Paraná and Federal Government Water Quality & Pollution Control Project ICR Report No. 28962 (June 2004); IEG Review (September 2004); IEG draft Project Performance Assessment Report (March 2007).
• The projects were implemented in complex metropolitan settings, and the policy achievements are therefore all the more noteworthy – the water basin approach is one method, urgent, convenient and operationally relevant to address metropolitan-wide issues.
• The drawbacks of the hybrid approach, in turn, are the complexity of management and possible tradeoffs in depth and scope of policy reform.
• No separate project approach – be it slum upgrading or WSS alone – has succeeded any better on purely water quality objectives as the PQA hybrids.
• The projects contributed to an understanding of how to manage difficult inter-sectoral issues involving the many actors in Brazilian metropolises.
• The fusion of poverty and water basin components into a single approach created a new stage on which technical and policy agents could work out complex problems in a coherent framework.
• The projects solved one of the two big problems in metropolitan governance: large metropolitan areas must solve technical issues of economic evaluation and planning and they must decide priorities and budgets.
• The PQA projects took important steps in what constitutes a feasibility test showing that policy issues linking poverty reduction, the provision of basic services, and environmental improvement at the regional scale can be successfully tackled together.
• The projects show that complex undertakings do not have to be ‘Christmas trees’ – but to keep projects from becoming unmanageable, clear policy objectives are needed and the Bank and borrower need to be committed for several decades.
• The Bank can take steps to keep political transitions and partisan disruptions from becoming blind spots, including multi-party briefings to educate opposition groups and the public on the project.
• More structured learning may be useful during preparation and implementation for both project units and basin committees.

9. Safeguard Policies (including public consultation)

The Program has received an Environmental Category A rating in accordance with the corresponding safeguard policies. The borrowers’ capacity to handle safeguard issues is generally good. The State Secretariat for Sanitation and Water Resources (SSRH) led the preparation of the regional strategic environmental assessment, the social assessment and the resettlement policy framework for the Program in close collaboration with the State Secretariat for the Environment and the State Secretariat for Housing. All three Secretariats, as well as the State water company, have considerable experience with World Bank, IDB, JBIC and other financiers for programs which include environmental and resettlement issues. These three secretariats were responsible for the implementation of the Bank-financed Guarapiranga project from 1992-2000, at a total cost of US$400 million, which successfully implemented similar environmental and resettlement activities in the Guarapiranga sub-basin.

The Mananciais Horizontal APL Program triggers the following safeguards (addressed in detail in the Program’s Environmental Assessment Report and in Annex 10 of the PAD):
Environmental Assessment (OP 4.01): A regional strategic environmental assessment was prepared by the Borrower in conjunction with the State Secretariat for the Environment. The Environmental and Social Impacts Assessment (ESIA) Program reports were worked out and updated by Sao Bernardo do Campo and Guarulhos municipalities for its specifics annexes. The infrastructure interventions will generate temporary negative environmental impacts during their respective construction periods, even in those cases where the interventions are intended to mitigate existing areas of degradation and risk. It will therefore be necessary to adhere to the appropriate criteria and procedures in the ESIA report’s Environmental Manual for Construction (EMC) to be handled with suitable construction techniques and procedures. The EMC will be included in the bidding documents (civil works). The environmental impacts of the Program works interventions are duly described in the ESIA report and summarized in Annex 10 of the PAD for each executing agency. The list includes a group of activities, studies and programs to mitigate, attenuate and/or counteract the negative impacts caused by the implementation of the civil works, as well as highlighting the expected positive effects of the interventions. These activities are also presented in the annexes of the ESIA report, in the Environmental Management Plans of each executing agency and in the updated ESIA annexes prepared by each municipality. Environmental assessments and management plans of associated works such as the main sewerage lines have also been reviewed.

Natural Habitats (OP 4.04): Category 1 and Permanent Preservation Areas (APPs) are located along the banks of the reservoirs and the watercourses which are targeted under the Program. These areas include stretches that have been degraded by irregular urban occupation, including poorly-constructed dwellings. They also contain conservation areas and other areas that could be recuperated. The interventions in these areas will focus on relocating families, and subsequent environmental and landscape restoration of the degraded area in question. In the case of partially degraded areas or those that are still preserved, the strategy will be to protect and preserve them with actions to recuperate and establish a number of parks (including linear parks on the banks of the Billings Reservoir). Long-term management of these areas will be provided for by the Municipality’s environmental secretaries with/without support from local NGOs.

Involuntary Resettlement (OP 4.12): A Resettlement Policy Framework (RPF) for guiding the involuntary resettlement to be carried out under the Program has been prepared in accordance with Bank guidelines and safeguards. The Resettlement Action Plans (RAPs) for each sub-project that entails resettlement will be prepared along with the engineering designs during Program implementation. Each RAP will be sent to the Bank for review and clearance before the associated civil works contract is signed and thereafter implemented. The work plans designed for Sao Bernardo do Campo describe a set of interventions in precarious settlements, including housing upgrading and new housing units, provision of infrastructure and social equipment, recreational areas, strategy for land regularization, participation and social inclusion actions and an ex-post evaluation. Multiples alternatives for resettlement will be offered, such as external resettlement in a new area in the same neighborhood, internal resettlement and regularization of urban land tenure, internal transfer and also guaranteed credit for another option of housing acquisition. The eligibility criteria are well described and complete, removing units from protected areas (e.g. APP (Area de Preservação Permanente)) and/or located in risky areas, as well as houses with poor construction standard. For Guarulhos municipality, the demand already
identified is restricted to land acquisition for the construction of a pumping station. There are two ways in which land is likely to be needed: (i) permanent land acquisition; and (ii) permission on the part of a landowner to guarantee permanent access to a portion of this area for maintenance purposes. In the second case, only involuntary easements are to be covered by a RAP.

Physical Cultural Resources (OP 4.11): The Project is not expected to impact historic and cultural heritage areas of Sao Bernardo do Campo e Guarulhos. However, since the intervention will include construction and excavation activities to expand and replace infrastructure, the ESIA included screening for any known cultural property in the Program area and incorporated "chance find" procedures in the event that culturally significant resources are discovered during implementation. In addition, Brazil has a well-developed legislative and normative framework, which is under the oversight of the National Institute for Protection of Historical and Archeological Sites (IPHAN) and that will be followed during implementation.

Consultations. Besides the state and municipal government entities directly involved in the execution of the Program (GESP, SABESP, SSE, SMA, SH/CDHU, PMSBC, PMG), the social assessment also identified a number of key stakeholders that will participate in the Program’s implementation, including environmental and social NGOs as well as community and other associations.

During preparation, a number of consultations and discussions (including consultation on the terms of reference for the EIA) were carried out with the Alto Tietê basin committee and agency and with the basin sub-committees of the Juqueri-Cantareira, Tietê-Cabeceiras, Cotia-Guarapiranga, Billings-Tamanduate and Pinheiros-Pirapora sub-basins. The committee and the subcommittees are composed of representatives from state and municipal governments, civil society and academia, amongst others. In addition, a number of municipal and local entities and organizations were involved in these consultations. A next round of consultations, following the dissemination of the EIA report, was undertaken in June 2007, following the Pre-Appraisal mission. The Program design and objectives were endorsed during these consultations.

During preparation and implementation of the engineering designs, especially those related to the urbanization of slums and irregular settlements and to the provision of WSS and related services, a considerable amount of social participation and feedback is anticipated. In addition, the Program includes the social overview of civil works and the undertaking of public opinion surveys to register and mitigate any unsatisfactory aspects of the Program.

Component 1 of the Program includes complementary activities that will contribute to strengthening communication and social participation, including: (i) capacity building events for environmental agents; (ii) workshops for community participation; (iii) development of educational videos and radio programs and the carrying out of environmental education programs for stakeholders; (iv) preparation of environmental and social diagnosis for awareness building; (v) beneficiary surveys; (vi) support to community mobilization, social outreach and others especially the ones related to slum urbanization, urban recovery and IWSS activities. The Mananciais Horizontal APL Program includes considerable social participation, as was carried out during the Guarapiranga Program. In addition, the Mananciais Horizontal APL Program
includes the social supervision of works after conclusion by carrying out community surveys to improve any unsatisfactory results.

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10. List of Factual Technical Documents

- Environmental Assessment Report plus Annexes
- Project Information Document and ISDS (appraisal stage - Updated)
- Project Information Document and ISDS (PCN stage)
- Preparation Mission Aides Memoire
- PCN and PCN Meeting Minutes
- QER PAD and QER Meeting Minutes
- Executive Summary of the Environmental Assessment
- Operational Manual
- “Carta Consulta”
- Economic and Financial Evaluation
- Institutional Assessment
- Social Assessment
- Procurement Plan
- Involuntary Resettlement Report
- Decree nº 50.667, of 03/30/2006, State of São Paulo
- Decree nº 51.686, of 03/22/2007, State of São Paulo
- Law nº 12.233, 01/16/2006, State of São Paulo
- Law nº 11.445/07 – Federal

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