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APPRAISAL STAGE

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Country	FEDERAL REPUBLIC OF BRAZIL
Sector	Public administration- Water, sanitation and flood protection (100%)
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Concept Review Decision	Following the review of the concept, the decision was taken to proceed with the preparation of the operation.
Other Decision	

I. Introduction and Context

1. Country and Sector Background

1. ***Water is a key element of Brazil's strategy to promote sustainable growth and a more equitable and inclusive society.*** Brazil's recent achievements in terms of poverty reduction and economic development have been closely linked to the expansion of WSS services, to the development of hydraulic infrastructure for hydroelectric power generation and, recently, to the development of irrigation infrastructure, especially in the Northeast region. Brazil has expanded water services to more than 100 million people and sanitation services to more than 50 million people, so that according to the last figures of the WHO/UNICEF JMP, 79 percent of the population has piped household access to water services and 45 percent has access to sewerage services[1]. (JMP 2006) The generation of hydroelectric power has increased per capita energy consumption from 500 kWh to more than 2,000 kWh annually, boosting industrial development and it represents 80 percent of the total power generation in Brazil. Over the past decade, the area of irrigated land increased by more than one-third to an estimated 4.5 million hectares, with potential for further expansion of approximately 30 million hectares when considering the availability of suitable land and water resources. Moreover, the development of Brazil's nascent inland waterways is critical for enhancing the competitiveness of the economy, particularly in the agribusiness sector, which accounted for 25 percent of GDP in 2007, along with 37 percent of jobs and 36 percent of exports and high growth potential. Yet despite these significant achievements in the construction of major civil works, expansion of WSS services and water resources development, important challenges remain for the country.

2. ***Most of the water challenges stand out for their direct impact on the social and economic development of Brazil:*** (a) *water scarcity* is prevalent in the predominantly poor Northeast region and in large metropolitan areas such as São Paulo; (b) *water pollution* is a major issue in most urban conurbations because the degradation of water quality compromises health and living standards, especially of the peri-urban poor and causes environmental damage and increases the cost of water treatment for downstream users; (c) the *severity of drought and flood events* is increasing and their impacts are likely to be exacerbated by climate change; (d) there is *unreliable access* to WSS services, especially among the rural and peri-urban poor and large investments, estimated at R$220 billion, are required to meet universal coverage; (e) the scarcity of water and the access gap of the poor are aggravated by *service inefficiency*, particularly high levels of water losses in urban areas, where almost half of the potable water is lost in the distribution systems and in semi-arid states where these losses are even as high as 60 percent; (f) the *untapped irrigation potential* is the largest in the world, but modernization is required to improve efficiency and productivity; and (g) *water is important in economic*

[1] JMP (2006). When viewed by the broad definition of improved access to WSS services, 90 percent of the overall population has access to potable water and 79 percent has access to improved sanitation.

development, primarily through hydropower and the export-oriented agribusiness sector, both of which are essential for sustained growth and increased competitiveness of the Brazilian economy. Water resources have been important in working toward social equity and promoting economic growth, but further infrastructure development and allocation of water across competing uses often involves complex trade between environmental conservation and economic development.

3. ***While Brazil possesses 12 to 14 percent of the world's freshwater resources, water is unequally distributed around the country and is increasingly polluted in urban centers.*** The sparsely populated Amazon region holds about 80 percent of the water resources, while the semi-arid states have only 4 percent of the water and 35 percent of the population and the metropolis of São Paulo has only 1.6 percent of the water and more than 20 percent of the population. These regional inequities in water endowments are mirrored in the population's unequal access to WSS services. In urban areas, where 84 percent of the Brazilian population lives, coverage is significantly higher at 96 percent for improved water supply and 83 percent for improved sanitation, including 53 percent access to sewerage services, the rest accounted for by on-site sanitation. Coverage in rural areas, where 16 percent of Brazil's population lives, is much lower, with 57 percent for improved water supply and only 37 percent for improved sanitation and only 5 percent of rural Brazilians have access to sewerage services. Geographically, coverage is lowest in the country's poorest regions, such as the predominantly rural North, Northeast and Center-West. While access is higher in urban areas, the pollution of urban rivers and streams is Brazil's biggest water quality challenge and continues unabated, as only about 48 percent of municipal wastewater is collected and only 32 percent is properly treated. Moreover, dumping untreated wastewater into the water bodies further exacerbates the already critical problem of water scarcity because it reduces the amount of water readily available for consumption and industrial use.

4. ***Following three decades of declining investment, the GoB launched the PAC in 2007 to boost investment in infrastructure, including the water sector and stimulate economic growth.*** Specifically in the water sector, planned PAC investments total about R$90 billion for 2007–10–, with the most intense focus on hydropower development and WSS infrastructure. While over this period WSS investment has increased by 40 percent over the annual average of 2000–06–, this increased level is still only 60 percent of what is required to achieve universal access by 2020 and is insufficient to achieve the Millennium Development Goals. Despite available financing, the implementation of infrastructure investments faces a number of challenges, such as delays due to inadequate planning and limited institutional capacity. After two and a half years of PAC implementation, only 42 percent of the WSS works have been completed or are under construction and the implementation of planned irrigation and multipurpose water infrastructure investments has been slower than anticipated, especially in the Northeast. Moreover, there is the tradition in Brazil of investing in infrastructure without adequate attention to the viability and sustainability of these works. Resources that should be invested in management, administration and operation and maintenance are more often than not allocated to new ventures, resulting in large numbers of in efficient irrigation, water supply and sanitation systems. It is critical to assess rehabilitation needs, ensure adequate operation and maintenance and make more productive and sustainable use of existing infrastructure, especially in the Northeast where a supply-driven investment policy has often led to low productivity of

water.[2] Making better use of existing infrastructure is an important challenge and will facilitate the effective development of new infrastructure.

5. ***Modernized and more efficient irrigation models are necessary to balance irrigation needs in an increasingly water-scarce environment.*** Brazil plays a major role in the world's food supply, exports and agro-energy products, thus making the country one of biggest exporters of virtual water in the world. Despite some of the most successful irrigated farms worldwide, including the introduction of innovative PPP approaches in irrigation, less than 15 percent of Brazil's irrigable lands are being used for agriculture. The national irrigation policy and law under discussion in Congress aims to improve public investment in this sector and the efficiency and sustainability of irrigated agriculture. Notwithstanding some beneficial impacts, public irrigation development has been less successful than anticipated, mainly due to poor selection of beneficiaries, lack of commercial orientation and weak integration with productive chains. Low collection of water fees has contributed to the poor operation and maintenance and deterioration of public infrastructure.

6. ***Brazil also needs to enhance its institutional capabilities and protect its infrastructure to deal with the anticipated impacts of climate change.*** According to a recent study undertaken by the Intergovernmental Panel on Climate Change (IPCC),[3] the Northeast will be the Brazilian region most affected by climate change. Global warming will not only mean that it will rain less, with more intense droughts, but also that groundwater resources will be reduced, with aquifer recharge down by approximately 70 percent by 2050. In an optimistic scenario, an increase in temperature of only $1^{o}C$ to $2^{o}C$ by the second half of the century will reduce rainfall by 10 to 15 percent in the Northeast, but in a pessimistic scenario with an estimated temperature increase of between $3^{o}C$ to $4^{o}C$, the corresponding water flow in the São Francisco River will be reduced by as much as 15 to 20 percent. Negative effects include prolonged droughts, reduced potential for agriculture production and evaporation from lakes, dams and reservoirs. Moreover, long periods without rain will be punctuated by brief torrential downpours resulting in floods. Some of these effects are already evident in the recurrent flooding and droughts that have caused significant social and economic impacts in Brazil. For example, in 2007, 788 Brazilian municipalities experienced emergencies due to water shortages, 88 percent of these in the already water-scarce Northeast. Another 176 municipalities suffered extreme floods. The increasing frequency and severity of drought and flood events requires a systematic and coordinated approach to disaster risk management for sustainable investments, emergency response planning to minimize human losses and contingency planning to assure continuity of services.

7. ***The challenges in the water sector demand the strengthening of policies and coordinated institutional efforts coupled with investment in infrastructure development.*** Institutional capacity needs to be developed to allow state institutions to effectively exercise their functions, plan and implement policies and investments and provide a clear regulatory

[2] In the Northeast, for example, there are more than 30 billion cubic meters in storage capacity in large reservoirs, which present high losses, poor maintenance and are often underutilized because expected demands, especially for irrigation, have not materialized. Some irrigation perimeters, such as like Jaiba in the State of Minas Gerais, after many years, still use less than 20 percent of their allocated water.

[3] *Mudanças Climáticas Globais e o Impacto no Bioma Caatinga.* Ministério da Ciéncia e Tecnologia, Instituto Nacional de Pesquisas Espaciais.

environment for the water sector. Important policy and legal reforms have been undertaken since the mid-1990s with strong presence and support from the Bank, particularly in the WRM and WSS sectors, as well as sound environmental practices. The Brazilian National Water Resources Policy, established by the 1997 Water Law (Law 9.433), recognizes the public domain of water and classified it as a limited natural resource with an economic value, establishing the water basin as the territorial unit for the management of the multiple uses of water. The law also made clear that WRM should be done in a participatory and decentralized manner. While the law embraces all modern principles of WRM, its implementation has been unbalanced. Efforts to promote participation and decentralization have not always been accompanied by sound management instruments, resulting in weak enforcement of water rights and limited use of economic instruments.

8. ***The implementation of guidelines on WSS has been hampered by limited institutional capacity and financial sustainability.*** After a decade-long debate, Law 11.445/2007 was established to set national guidelines for WSS and focus on sector regulation, planning and service provision arrangements as the key drivers for improving coverage and efficiency. An essential condition is the implementation of these guidelines and policies at the municipal, state and national levels, but this has been disrupted by the general incapacity of many federal agencies and service providers to leverage investments. The inefficiency of the majority of WSS service providers is reflected in their high costs and losses, low productivity and low operating margins. Although decisions restricting public credit were revised in 2003 to permit service providers to finance new investments, most of them do not have the required short-term capacity to leverage the financial resources for necessary investments. Moreover, capacity strengthening is essential to ensure the proper operation and maintenance of WSS infrastructure to improve the environmental quality of the watersheds. The low level of institutionalization and lack of appropriate scale for service provision also has effects on the management of solid waste and storm water.

9. ***Water's inherent intersector nature calls for better coordination of these institutional efforts.*** Some of the most serious problems restricting the role of water in Brazil's development, such as pollution scarcity, floods, unequal access and conflicts over water use, have their roots and impacts in diverse sectors of the economy, government and society. While it is important to foster advancements in each sector, there are also many opportunities for better integration and coordination among myriad sectors to reconcile conflicting goals, mobilize interests, avoid impasses and setback and spark synergies, as defined in the intersectoral program of the National Water Resources Plan. The diversity of Brazil's physical characteristics, socioeconomic realities and institutional structures imposes tremendous challenges related to the management and use of water. Renewing its water policies and strengthening investment capacity are essential to ensure that the water sector can make important contributions to the reduction of poverty and inequality, the protection of the environment and the sustainable growth of the economy.

10. ***Public policies guiding water policies are defined and enforced by a variety of institutions at the federal level.*** It is not uncommon that public policies developed for one sector affect other sectors and if done in an integrated manner this can bring positive externalities. For example, the construction of dams for hydropower generation often expands navigation possibilities if done in a planned manner. Similarly, improvements in irrigated agriculture

practices can contribute to the protection of water basins that are critical for public water supply. The collection and treatment of domestic wastewater generate multiple benefits from improving the health of communities living on the banks of water bodies to reducing the costs of downstream treatment, not to mention benefits for the ecosystems. The reduction of water losses directly contributes to the conservation of water. Given these multiple examples, it is essential for the myriad federal institutions operating in the water sector to integrate their planning and policies to ensure a coordinated approach to the challenges facing the WRM and WSS sectors in Brazil. The following is a description of the main functions and responsibilities of the key federal entities involved in the water sector.

11. The Brazilian Constitution of 1988 laid the foundation for the National Water Resources Management System (SINGREH) to take into account the multiple water uses and their potential conflicts. SINGREH consists of a set of legal and administrative mechanisms aimed at coordinating, through a participatory approach, the integrated management of water resources and at implementing the Water Resources National Policy, adopted by the Water Law No. 9433 of 1997. SINGREH is composed of the National Council on Water Resources, ANA, state-level water resources councils, basin committees, federal, state and municipal bodies responsible for water resources management and water agencies. The National Water Resources Policy establishes the water basin as the territorial management unit, recognizes the public domain of water and classifies it as a limited natural resource with an economic value. The law made clear that water resources management should be done in a participatory and decentralized manner and that human water supply and livestock needs take priority in situations of water scarcity. While it embraces all modern principles of water resources management, its implementation has been unbalanced. Efforts to promote participation and decentralization have not always been accompanied with sound management instruments, resulting in weak enforcement of water rights and limited use of economic instruments. The law established five management instruments: (a) water resources plans, (b) classification of water bodies according to prevalent uses, (c) water permits, (d) collection of charges for water use, and (e) the National Water Resources Information System (SNIRH).

12. ***The current period of robust economic growth has put intense pressure on Brazil's water resources.*** The expansion of industrial production requires water as an input and as a direct source of energy and the use of water for hydroelectric power generation and navigation is essential to ensure the continued growth and competitiveness of the economy. Economic development, however, needs to be balanced to include environmental concerns, not only to preserve natural habitats and protect ecological and biodiversity but also to ensure the natural resources that will continue to fuel economic growth in the future.

II. Proposed Development Objective(s)

13. ***The proposed Project Development Objective (PDO) is to support the Government of Brazil to improve the coordination and strength the capacity among key federal institutions in the water sector toward an integrated approach.*** The key institutions to be strengthened are the Ministry of the Environment (*Ministério do Meio Ambiente*, MMA), the Ministry of National Integration (*Ministério de Integração Nacional*, MI), and the Ministry of Cities (*Ministério das Cidades*, MCid and the *Agência Nacional de Águas* (National Water Agency, ANA). At the

same time, the Project will focus on achieving effective integrated planning across all water sectors.

14. Indicators to measure the Project's progress toward achieving this objective will cover three main areas: (a) ***policy*** and regulatory improvements, (b) sector and intersectoral investment ***plans***, and (c) capacity building (organizations, ***people***, and skills). The following are the Project's outcome indicators:

- An interministerial management chamber for water sector programs established and functioning regularly with all institutions participating in the Project
- Enhanced capacity of water sector institutions participating in the Project at the federal and state levels to manage water resources with an integrated approach using modern instruments, methodologies, and techniques to design, implement, and monitor plans and programs
- X (to be defined at appraisal) water sector activities and projects implemented by institutions participating in the Project included in the GoB's Multiyear Plan (*Plano Pluri-Annual* [[PPA] 2012–15) following an integrated approach, as attested to by an independent evaluation.

2. Rationale for Bank Involvement

15. ***The proposed Project will help Brazil implement a WRM strategy. Bank-financed projects have provided support to the preparation and implementation of a WRM strategy for over a decade through federal and state projects.*** The proposed Project is a continuation of long-term Bank support to the water sector at the federal and state level. Three federal projects (PROAGUA, PMSS and PROSANEAR, described below) have recently closed, while a relatively new portfolio of projects in the water-scarce Northeast region (States of Ceará, Bahia, Rio Grande do Norte, and Pernambuco) are supporting Brazil to build institutional capacity and improved infrastructure to help these states manage their water resources more effectively. Lessons learned from the Bank's long-term involvement in WRM in Brazil as well as the Bank's international and regional experience in implementing a diverse set of rural and urban water infrastructure projects give the Bank a comparative advantage over other lenders with the implementation of comprehensive institutional reforms to bring coherence to Brazil's federal WRM policies and planning.

16. ***The Bank is well positioned to help address the challenges in the water sector because it has long been Brazil's main development partner in institutional reforms in federal WRM. The Bank has accumulated vast experience in financing*** water resources projects in Brazil, especially in the Northeast region. Under implementation for the past decade, the Federal Water Resources Management Project (PROAGUA) contributed to the development of the water sector through its twofold objective: (a) to promote rational and sustainable use and participatory management of water resources in Brazil in general and in the Northeast in particular; and (b) to provide reliable and sustainable access to water for domestic, municipal and other uses in priority river basins in the Northeast. Supported by two Bank loans totaling US$185 million, PROAGUA was implemented by the Ministries of Environment and National Integration. While initially focused on the semi-arid Northeast, it was later extended nationally and it has been the

main instrument to provide support to the creation and strengthening of ANA and to develop and implement water management legal and institutional frameworks in the Northeast, coupled with investments in priority infrastructure. The project also fostered the development of WRM plans in all 26 states of Brazil and the Federal District. The implementation of a comprehensive set of criteria to select infrastructure subprojects is among the project's noteworthy achievements.[4]

17. ***The Bank also gained significant experience in the federal WSS sector with the Water Sector Modernization Project (PMSS phases I and II).*** PMSS emerged from the context of the National Water Supply and Sanitation Policy, developed in 1997, to the provision of WSS services to all the population and to improve service delivery efficiency by encouraging a more competitive and better regulated environment. Under implementation for roughly the same 10-year period, PMSS was supported by two Bank loans totaling US$275 million, which financed key initiatives such as the groundbreaking National Information System on Water Supply, Sanitation and Solid Waste (*Sistema Nacional de Informaões sobre Saneamento*, SNIS). The project also contributed to the development of national and subnational policies and coordination among stakeholders, including an important role in the formulation and approval of the Consortia Law (No. 11107, 2005) and the National Law on Guidelines for Basic Sanitation[5] (No. 11445, 2007).[6] PROAGUA and PMSS successfully combined support to the federal government in its planning efforts and institutional reforms with support to selected subnational entities (states, municipalities, river basin committees and WSS service providers).

18. ***The Low Income Sanitation Technical Assistance Project (PROSANEAR) provided technical assistance to the development of participatory engineering designs for use in urban upgrading and WSS service provision to the poor.*** The project was designed to tackle some of the most important issues facing the WSS sector that contributed to the dismal state of service coverage to the urban poor at the time, namely a weak institutional and regulatory framework; a lack of incentives, mechanisms and capacity to serve the poor; and ineffective water pollution control policies. The targeted beneficiaries were not only the poor living in densely populated urban and peri-urban poverty pockets of metropolitan areas but also the agencies responsible for policy formulation, planning, implementing and monitoring WSS projects for the urban poor. The project aimed to revitalize the national PROSANEAR civil works investment program by providing technical assistance to a stock of subprojects and undertaking training programs to strengthen the capacity of project executing agencies in preparing and implementing subprojects. It also worked toward strengthening the GoB's policy formulation, planning and coordination capacity for WSS and urban infrastructure investments in low-income areas. Through the incorporation of participatory methods in the preparation of WSS and urban upgrading projects in over 30 municipalities, leveraging over US$500 million of investments, PROSANEAR also developed a manual and standard terms of reference for undertaking these participatory engineering designs. The proposed Project will build on the achievements and the lessons learned in PROAGUA, PMSS and PROSANEAR through the provision of technical assistance to take advantage of the Bank's technical capacity to foster integrated approaches based on its longstanding experience dealing with similar experiences in global contexts.

[4] Report No. 35719-BR, Project Paper: Additional Financing to the Federal Water Resources Management Project.
[5] According to the law, basic sanitation comprises water supply, wastewater, solid waste and urban storm water.
[6] Report No. ICR00001083, ICR for the Second Water Sector Modernization Project – PMSS II.

19. ***The Bank has also been involved with important reforms in other water user sectors.*** In irrigation, a recent Bank Economic and Sector Work (ESW) in the semi-arid region[7] provided a solid analytical foundation for the Bank's reengagement with irrigation policy in Brazil and for the subsequent collaboration of the International Finance Corporation (IFC) and the Bank to assist the GoB in preparing PPP projects in irrigation. The Energy Sector TAL (ESTAL) has supported the reform program initiated in response to the 2001 drought-induced supply crisis in the power sector, focusing on market development and regulation, access and affordability of electricity, environmental management, long-term planning and institutional strengthening. In addition, improved environmental management and sustainability in the water sector has been supported through the Environment Sector TAL (EnvTAL), including assistance to the preparation of the PNRH in 2006. In addition, the Bank is an active partner in state and municipal-level water investment programs.

III. Preliminary Description

20. The proposed Project was designed to consider the following issues: (a) ***sectoral coordination*** to achieve a consolidated approach to planning as a means of coherently and systematically identifying and prioritizing long-term investment needs Sectoral plans have been structured in isolation from each other and better coordination among the multiple entities is required; (b) ***project quality*** to increase the availability of well prepared and sound projects (in terms of quality, sustainability, technical viability and cost-benefit analysis) and the ability to bring them to fruition, taking into account the low technical capacity of some executing agencies and the lengthy administrative processes (at feasibility study, design preparation, bidding and environmental licensing stages). Strengthening public sector decision-making and executing agencies' capacity and streamlining of procedures are among the key solutions to these problems; (c) ***regulatory and policy gaps*** to complete the reform agenda and consolidate the policy framework in some sectors, eliminating uncertainties and making better use of public funds to leverage private investment; (d) ***future investments*** given that the GoB has recently announced the preparation of a second phase of the PAC and the proposed Project could also be instrumental in the definition of water sector programs to be included in the 2012–15 federal government multiyear plan to be approved in 2012; (e) ***linkages between levels of government and with service users*** since the federal government plays a key role in water sector investment financing, especially for infrastructure development, but well functioning water resources systems heavily depend on local arrangements and capacities, solid cooperation agreements and clear roles and responsibilities; and (f) ***capacity building*** to support selected water institutions at the federal and subnational levels.

21. The proposed Project has five components; the first three of them are designed to continue the Bank program of support to ongoing water sector reforms and institutional strengthening in individual sectors at the national level. These three components will involve three federal ministries, namely the MMA, MI and MCid and the ANA. These three components are subsector specific, with individual sectoral responsibility for implementation. Activities to be supported will fall into three main categories: (a) planning and management, (b) studies and project design and (c) institutional development. Each category will include support at the federal and subnational levels. The more innovative fourth component will be cross-sectoral in

[7] Report No. 28785-BR, Irrigated Agriculture in the Brazilian Semi-Arid Region: Social Impacts and Externalities.

nature and designed to improve implementation performance and coordination of sector policies and activities in selected federal river basins. It will promote the multiple use of water in two (or three) priority river basins dealing with complex challenges of allocating water across competing uses (hydropower, navigation, environmental sustainability, WSS, irrigation). The selection of such basins takes into account the need for an integrated planning process, existence of a critical mass of plans and studies and opportunity for improved coordination across sectors, levels of government and other relevant stakeholders. The fifth component will cover project management, monitoring and evaluation.

Component 1: Water Resources Management (US$44.3 million)

22. Under the responsibility of the MMA and ANA, this component will focus on improving the effectiveness of WRM instruments and the implementation of the PNRH, including support to:

- *Planning and management:* support to the PNRH and state and river basin plans and agencies, national and state water resources information systems, water rights administration and enforcement systems, use of economic instruments, monitoring of water quality and quantity, climate change and adaptation and mitigation strategies;
- *Studies:* assessments of water availability and use, water demand analyses and forecast, pilot projects on water conservation and reuse, water quality/quantity models, water allocation decision support systems, studies on groundwater use and protection, preparation of integrated urban water management strategies and water security studies;
- *Institutional development:* organizational structures and business plans, laws and regulations, cooperation arrangements, training and capacity-building programs, education and public communication programs and creation of water basin agencies.

Component 2: Water Planning, Irrigation and Hazard (US$27.8 million)

23. Under the responsibility of the MI, this component will provide institutional strengthening to water infrastructure agencies at federal and state levels and raise the capacity of overall assessment and the level of strategic and operational planning for water infrastructure and increase the preparedness of civil defense for floods and droughts. Specifically, it will include support to:

- *Planning and management:* improve the technical capacity of the MI to identify, assess and plan irrigation in the country, including technical, environmental, economic and management model. Prepare a dam safety policy program; develop flood and drought risk identification, prevention and mitigation measures, emergency response plans and contingency planning;
- *Studies:* revision of existing studies for water infrastructure and irrigation, to include new aspects such as climate change, technology and management models, as well as economic, social and environmental analysis; asset management models, guidelines and manuals, preparation of feasibility studies covering cost-benefit,, environmental and social analyses, administration, operation and maintenance (O&M) aspects; flood and drought risk assessments and management, considering increased hydrologic variability from climate change;

- *Institutional development:* training programs on civil defense, management, design and operation of water infrastructure projects, regulatory framework for the irrigation sector, new financial arrangements and service delivery models for irrigation (for example, PPP) and institutional strategies and cooperation agreements for emergency response and contingency planning.

Component 3: Water Supply and Sanitation (US$32.5 million)

24. This component, under the responsibility of the MCid, will maintain activities initially undertaken as part of PMSS with the overall objective to support the implementation of Law 11.445/2007, specifically in its objective to improve the quality of WSS service provision and contribute to promoting universal access to these services. Actions undertaken as part of this component include:

- *Planning and management:* monitoring, evaluation and updating of the national WSS plan, implementation of the national WSS information system, regional and local WSS plans, studies and models to evaluate WSS investment needs, efficiency-enhancing programs and enforcement of performance agreements;
- *Studies:* preparation of WSS projects, non-revenue water management projects, utility performance benchmarking studies, customer satisfaction surveys, innovative approaches and models to expand services to the poor, dissemination of good practices and technological improvements;
- *Institutional development:* implementation of the national water supply and sanitation information system, revision of federal WSS manuals, corporate governance and commercial management of WSS utilities, regulatory structures to facilitate access to public and private sector financing, capacity building and training for service providers, sector planners and regulators and regional models based on consortia arrangements.

Component 4: Intersectoral Coordination and Integrated Planning (US$21.0 million)

25. This component will focus on integrated planning and actions with a preferential focus in selected priority river basins. It will identify areas of mutual interest, overlap and conflicts in the sectoral plans and opportunities for win-win or better compromise solutions. The component will support complementary studies and institutional improvements involving multiple sectors, coordinated by the Project Technical Secretariat inside ANA. In addition, this component will support water conservation measures in the targeted river basins. The São Francisco and the Araguaia-Tocantins river basins were preliminarily selected by an interministerial group formed for the preparation of the Project, which includes the MMA, MI and MCid and also includes Ministries of Energy and Transportation as consultative members. Intersectoral activities under this component could be complemented by sectoral activities in the same river basins under Components 1, 2 and 3.

26. The São Francisco (635,000 km^2) and the Araguaia-Tocantins (918,000 km^2) are large multistate river basins under high water demand pressure for multiple uses. In the São Francisco, most of the hydropower potential has been developed, but a significant increase in irrigation is expected following successful experiences in the Juazeiro-Petrolina region. Over R$5 billion in

WSS investments[8] are planned in the basin and a 600-km inland waterway is also under consideration. The river basin committee is active and the basin is close to starting to charge for bulk water. The key challenges in this basin are water allocation conflicts from competing demands and inter-basin transfers. The Araguaia-Tocantins region faces strong pressure for hydropower and navigation development. The use of irrigation is increasing to improve productivity of the fast growing agribusiness sector. WRM institutional arrangements at the state and basin levels are very incipient and there are low levels of WSS service coverage (only 8 percent of urban wastewater is collected), which poses additional threats to water quality and the environment. Improved WRM, environmental sustainability and integrated water investment planning are the key challenges. A Strategic Environmental Assessment (SEA) has been prepared for the Araguaia-Tocantins and the project will support its follow up and the preparation of a SEA for the São Francisco river basin. The Project will strengthen the institutional capacity of the project implementing agencies regarding social and environmental issues and will follow up on the recommendations and guidelines defined in the SEA.

Component 5: Project Management, Monitoring and Evaluation (US$4.5 million)

27. This component will support the management, monitoring and evaluation of the project in the implementing agencies. The Project Technical Secretariat (*Secretaria Técnica do Programa*, STP), which will be created within ANA, will take a leading role to coordinate the different project activities at the federal, basin and state levels. STP will also provide support to all operational aspects of the Project and monitor and evaluate all the interventions undertaken to ensure that they meet the targets, timetables and objectives originally agreed by the interministerial management committee as described in paragraph 44 of the PAD. It will also carry out the overall administration duty, including reporting, financial management and auditing of the Project. ANA will function as the liaison for all PNUs and will provide support and coordination to the entire project. The past experience of ANA in the successful implementation of PROAGUA water management component will provide the leadership and ensure knowledge transfer to the participating agencies.

28. To ensure effective transfer of knowledge and use of best practices at the subnational level this component will include a strong communication program, with workshops and seminars to inform all the relevant stakeholders at the basin, state and federal levels.

3. Financing

Source:	($m.)
Borrower	32.53
International Bank for Reconstruction and Development	97.819

[8] The plan envisions investments of R$5.2 billion over ten years, with R$91.5 million (1.8 percent) for the implementation of SINGREH, R$141.8 million (2.7 percent) for the sustainable use of water resources and environmental recovery, R$128 million (2.5 percent) for services and works for water resources and land use management, R$465.1 (8.9 percent) for water sustainability in the semi-arid region, R$1,388.4 million (26.7 percent) for services and works for environmental water supply and sanitation in the semi-arid region and R$2,984.8 million (57.4 percent) for services and works for environmental water supply and sanitation outside the semi-arid region. Over half of this investment comes from federal resources and another quarter comes from state budgets and the rest is financed from public service concessions, water charges, municipal and state hydropower compensation and the Global Environmental Facility(GEF).

Total	130.344

4. Implementation

29. The Federative Republic of Brazil is the Borrower. Since one of the Project's main aims is to promote coordinated planning and implementation of water policies among the Ministries of Environment, National Integration and Cities and ANA, all four institutions have the responsibilities of implementing agencies, under the coordination of ANA, through the STP. Specifically, the MMA, through SRHU and ANA is responsible for implementing Component 1 on WRM; the MI, through SIH and SEDEC, for Component 2 on water, irrigation and hazard management; and the MCid, through SNSA, for Component 3 on WSS. PMUs will be created under each of the three ministries and ANA to implement activities directly tied to their specific components. In addition to implementing its own activities, ANA, through STP, will be responsible for the overall project coordination and the coordination of the execution of the intersector component activities delegating responsibility for specific activities to those ministries most directly linked to the actions being undertaken.

30. An interministerial management committee (*Comitê Gestor do Programa*, CGP) was formed by the three implementing ministries and ANA to oversee project implementation and decide on higher-level strategic issues of an intersectoral nature. The committee includes the Ministries of Energy, Transportation and Agriculture as consultative members. The CGP will define what is of common interest across components, oversee project implementation, evaluate results and agree on criteria for the allocation of loan proceeds depending on institutional performance and the need for institutional strengthening. The CGP will also be responsible for approving the Annual Operational Plan (POA) for the Project. Project funds will be assigned to different components in accordance with implementation performance and evolving needs and priorities and agreed with the Bank. The detailed arrangements, including the appropriate environmental and social arrangements, will be included in the Project Operational Manual (*Manual Operacional do Projeto*, MOP).

31. Project subnational support will be targeted to those entities (state and municipal water institutions, river basin agencies, service providers and so forth) that demonstrate strong commitment to advance reforms and improve performance in the water sector. The MOP defines and details the specific criteria and mechanisms that were developed during preparation to determine how subnationals will engage and have access to project support under each component. These criteria include the following: (a) the activities proposed need to be approved by the management committee, (b) the subnationals should submit a specific funding request and proposal including clear demonstration of institutional capacity to follow up activities preparation and implementation, (c) the proposals should be consistent with existing sectoral plans or programs, (d) the proposals should be approved by the relevant basin committees, (e) the interventions proposed should have an impact on the productive and sustainable use of water, and (f) the proposed interventions should preferably be co-financed by the subnationals. In addition, clear rules of engagement were established for potential beneficiaries at different levels of capacity, from basic support to improve performance of weaker institutions to strategic engagement with stronger agencies that are willing to push the envelope addressing more advanced and complex issues.

5. Sustainability

32. All project components are directly related to increasing the sustainability of water through more effective management of water resources to improve the effectiveness of instruments and the implementation of national plans; more efficient irrigation and natural disaster preparedness strategies, increased provision of WSS services to improve the living standards of the poor, control and reduce the pollution from untreated wastewater and support the implementation of Law 11.445 and to control water pollution; and intersectoral coordination and integral planning to identify and resolve conflicts in sectoral plans and to identify opportunities for compromise solutions that increase the sustainability of the targeted river basins. In addition, the overall focus on institutional capacity building, policy development and strategy refinement for WRM and WSS will also contribute to the sustainability of activities.

6. Lessons Learned from Past Operations in the Country/Sector

33. Drawing on lessons learned from long-term Bank involvement in the federal WRM and WSS sectors in Brazil, work supported by the aforementioned Bank-financed projects has confirmed valuable lessons concerning effective measures to implement institutional reforms.

34. There was initially considerable wariness on the part of the GoB concerning the Bank's priority for sector reforms under PMSS, but the strong partnership and commitment achieved provided for excellent outcomes under very challenging circumstances and provided a solid foundation for future sector engagement at the federal and subnational level. The project's think-tank role and its contribution to sector knowledge management helped to maximize impact. A project grounded on technical assistance can actively contribute to sector reform by: (a) working as a think tank to promote national debate on key issues, helping to channel differences and achieve consensus among key stakeholders; and (b) generating solid analytical materials (studies, information systems) on which to base decision making. PMSS was able to fulfill this role through the preparation and dissemination of solid analytical work, which has been extremely valuable for other Bank-financed projects.

35. The experience of PMSS also demonstrated that structural sector reform processes have their own pace and timing. A wide-ranging reform in any sector will require the participation of key stakeholder groups and firm government commitment. The experience shows the importance of treating the institutional objectives as long-term programmatic engagements rather than projects and this requires persistence, patience, follow-up and flexibility by the Bank team. Though in the PMSS case the outcomes achieved and the current level of GoB ownership overall are thought to ultimately justify the long engagement under the project, an early restructuring of project objectives or a cancellation if they cease to be relevant as defined (that is, a change of government priorities vs. stated project objective), might be warranted to overcome stagnation and long implementation delays, since these affect the efficiency of operations and pose difficulties in assessing both Bank and Borrower performance.[9]

[9] Report No. ICR0000719, ICR for the Low Income Sanitation Technical Assistance Project (PROSANEAR).

36. The experience of PROSANEAR is another case in point, when the Bank was confronted with significant shifts in political realities on the ground, but these changes were not well captured in project design and implementation. The PROSANEAR-TAL project was approved at the end of 2000 but went through many political and administrative changes at the federal, state and municipal levels that affected both project design and implementation. A lesson learned from this project is that doing business in increasingly decentralized and politically complex environments will require flexibility and adaptability if Bank projects are to remain relevant to the borrower and implementers, but such flexibility will also result in additional time and resource costs to the Bank.

37. In countries like Brazil the Bank's comparative advantage is providing investment funds and delivering knowledge that can significantly leverage the effectiveness of these funds. Operational tools have different potential to affect reforms. TALs, for example, have often lacked the financial leverage implicit in a Specific Investment Loan (SIL). TAL projects should provide sufficient incentives to ensure that the anticipated leverage can take place and should consider: (a) whether lessons learned from related SILs can be directly transferred to TALs; (b) the results frameworks (including a set of appropriate outcome and output indicators) of such operations should be adjusted to the limitations of what a TAL can actually achieve; and (c) implementation arrangements have to be crafted to ensure sufficient incentives to encourage improved performance.

38. A centrally coordinated and controlled project, which is implemented at a decentralized level, as was the case of the PROSANEAR-TAL, necessarily involves a large number of actors and tradeoffs with regard to the agility of implementation. To be inclusive in such cases means adding to complexity by involving more stakeholders in project implementation. This has resulted in complex institutional arrangements in this project. The MCid and its Project Implementation Unit (PIU), the *Caixa Econômica Federal* (both at the federal and municipal/state level), municipal governments and their PMUs, service providers, consulting engineering firms, community organizations and the Bank all participated in and contributed to the project's implementation. The many different relationships, which often come with their own ways of doing business, may result in misunderstandings, variations in implementation modalities and a need for extensive learning processes (for instance, if institutions are required to learn Bank procurement processes) which, in turn, may result in high transaction costs and result in implementation delays. For complex projects of a similar nature, it is important to determine up front what the possible implications of these transaction processes are regarding time, cost and real risk to ensure that sufficient consideration is given to them in terms of the impacts on a project's implementation schedule, disbursement profiles, training and other technical assistance needs to stakeholders and supervision costs.

39. Initial lessons learned from the PROÁGUA Project, which recently closed, include the following: (a) in sophisticated Middle Income Countries (MIC) such as Brazil the use of country systems for financial management, procurement and safeguards has improved client interaction, expedited implementation and made Bank loans more attractive; (b) MICs such as Brazil are primarily interested in the Banks technical expertise and ability to act as an honest broker;; and (c) the Bank needs to ensure proper monitoring of outcome indicators and avoid the tendency to report on the status of outputs.

40. The inclusion of disaster risk management aspects in this operation has taken into account the lessons learned from previous global disasters and lessons from 25 years of Bank operations and programs in the area of disaster risk management. The World Bank Independent Evaluation Group (IEG) report, *Hazards of Nature, Risks to Development: an Evaluation of World Bank Assistance for Natural Disasters* (2005), recommends that the Bank assist its clients most vulnerable to natural disasters to shift from focusing entirely on disaster response to implementing programs and policies for comprehensively managing disaster risk.

IV. Safeguard Policies that might apply

41. The proposed Project is expected to have positive environmental impacts by improving the capacity of government water sector institutions and focusing on integrated planning across sectors to achieve the sustainable management and use of water resources. Project activities are designed to enhance and provide protection to the environmental functioning of the predominant ecological system, protect wetland biodiversity and implement strategic activities that address the root causes of environmental degradation. The strengthening of basin institutions responsible for WRM, the generation and dissemination of information and the integration of environmental concerns into water basin economic development activities on a sustainable basis are key elements of this project.

42. *Environmental Assessment (OP 4.01).* The proposed Project has received an Environmental Category B rating in accordance with the corresponding safeguard policies. Although , at this point, no physical works are going to be supported by the Project, the studies and plans financed through technical assistance activities (e.g. feasibility studies, engineering designs) will incorporate Bank's safeguards. An Environmental and Social Management Framework (ESMF) was prepared to ensure that:

- Studies and strategic plans or complementary environmental and social analysis fully reflect and are consistent with the Bank's social and environmental safeguards.
- All documentation is disclosed and consultations were held with relevant stakeholders and future affected communities on studies, assessments and their results.
- All Bank environmental and social safeguards are adequately addressed (natural habitats, forests, pest management, physical cultural property, indigenous people, involuntary resettlement and safety of dams).

43. This ESMF was prepared by the Borrower and reviewed by the Bank during project preparation and it will be part of the project legal documents.

44. The Project will encourage the use of SEAs in river basin planning to identify and assess the cumulative and broader environmental impacts of plans and the complex system dynamics in watersheds; achieve global environmental benefits where feasible, better understand the different demands on water resources (for example, agriculture, forestry, fisheries, energy, industry, transport, sanitation, tourism, biodiversity conservation and ecosystem services); and ensure that direct, cumulative and broader impacts are taken into account in the planning process. As part of

project preparation, the Bank has (a) reviewed the Tocantins-Araguaia river basin and (b) supported the Borrower in the preparation of the ToRs for an SEA for the São Francisco river basin, to be carried out during project implementation.

45. The Project will also strengthen the institutional framework for addressing environmental and social issues through basin-wide planning by: (a) enhancing the capacity and coordination between government institutions in decision making and implementing public policies that support the sustainable use and conservation of water resources; (b) integrating environmental and social considerations in strategic plans and criteria in the selection of future investments; (c) developing and implementing conservation and sustainable use of water resources, resulting in decreased water pollution, soil erosion, improved recovery of critical habitats and conservation of biodiversity; (d) developing innovative tools, such as satellite remote sensing, for assessing water resources, particularly for diagnostic and monitoring; (e) introducing innovative policy instruments, such as water charges, for more efficient water use and improved water and natural resource protection; and (f) creating a framework to enhance public and stakeholder participation in the strategic planning and specific project preparation and implementation process.

46. *Natural Habitats (OP 4.04).* As part of the project's river basin management approach, an inventory of critical habitats and protected areas will be carried out at the river basin level. The ESMF includes measures to protect these areas and ensure that development will respect fragile ecosystems and minimize potential impacts.

47. *Forests (OP 4.36).* The measures taken to address the requirements of OP 4.04 will also address the needs of OP 4.36 for this Project.

48. *Pest Management (OP 4.09)* The Project will help better understand the impact of pesticides, especially from agricultural activities in irrigation areas, on water quality and resources and will support the development of improve pest management practices and control measures that are environmentally sound and economically feasible.

49. *Physical Cultural Resources (OP 4.11)* Under Brazilian legislation, provisions for the protection of cultural property are part of the environmental licensing procedures. The National Institute for Historical, Artistic and Cultural Heritage (*Instituto do Patrimônio Histórico, Artístico Nacional*, IPHAN) is the Brazilian institution responsible for handling archeological and cultural property issues. Whenever "chance findings" occur it is mandatory, under federal and state law, for Brazilian government agencies to seek IPHAN's support to address "chance finding" issues. The Project will include a Physical Cultural Resources Guide that will ensure national legislation is duly followed.

50. *Indigenous Peoples (OP 4.10)* Given that the project area potentially encompasses the entire area of the Federative Republic of Brazil, any of Brazil's estimated more than half a million indigenous peoples may potentially be affected. Although the Project does not finance any infrastructure or other physical investments, a social assessment was conducted and its findings have been used in the preparation of an Indigenous Peoples Planning Framework (IPPF) that applies to the studies and plans supported under this operation.

51. *Involuntary Resettlement (OP 4.12)* The Project does not require any land acquisition or impose any restrictions on access to land or associated resources. However, the potential impacts of future investments, the feasibility of which will be studied under the project, might include involuntary resettlement. Because the location, timing and technical features of such potential investments remain unknown at this time, a Resettlement Policy Framework (RPF) was prepared. A social assessment of the affected peoples was undertaken to inform the design of the RPF. The RPF requires that land acquisition be avoided or minimized by modifying the technical design of the projects as much as feasible. If land acquisitions and/or involuntary resettlement prove unavoidable, proper participatory mechanisms will be used to ensure that affected peoples are consulted on their preferences. Alternative housing and livelihood arrangements at least equivalent to the old site have been included for the affected peoples.

52. *Safety of Dams (OP 4.37)* Based on the successful experience in the State of Ceará, the project will help adapt the existing state framework for the national level and disseminate lessons learned to other states.

53. In view of its technical assistance character, the project does not have any physical investments and is not expected to have any direct adverse social impacts. Instead, the project should have significant impacts in terms of strengthening local capacity to manage the social aspects of future basin-wide development and improving the quality of both planning and implementation. While the Project's broad national focus makes it difficult to assess the social impacts of the proposed activities, the intersectoral component will specifically focus on two river basins in predominantly poor regions of Brazil, namely the São Francisco, in the Northeast and the Araguaia-Tocantins, in the North. The São Francisco, for example, contains 11 of the poorest 100 municipalities in terms of their human development index, notably in the states of Bahia, and Alagoas. Moreover, while 94.4 percent of the population living in the river basin has access to water supply, only 62 percent has access to sewerage services. The project will not directly assist the poor through the provision of these services, but it will strengthen the management of water resources to ensure that this essential resource is distributed more fairly and efficiently.

54. The Project will assist the government to assess salient issues and design social and environmental management systems to facilitate planning for activities needed to address the potential social impacts of future water sector investments. For example, given that the project area potentially encompasses the entire country, any of Brazil's estimated more than half a million indigenous peoples may potentially be affected. The Borrower conducted a social assessment, and its findings have been used in the preparation of an Indigenous Peoples Planning Framework (IPPF) that applies to all the studies and plans financed through the project. Similarly, although the project supported activities do not require any land acquisition or impose any restrictions of access to land or associated resources, the potential impacts of the future investments being studied could include involuntary resettlement. For this reason the Borrower prepared a Resettlement Policy Framework (RPF) that will apply to all activities financed by the project. The IPPF

and RPF were discussed during the public consultations held in Brasilia on 27 August, 2010 with close to 120 representatives of various governmental and civil society organizations. The main project implementation agencies have sufficient staff and adequate capacity to implement these frameworks. Finally, in order to ensure effective transfer of knowledge and use of best practices at the sub-national level, the project includes a communication program with workshops and seminars to inform all the relevant stakeholders at the sector, basin, and state levels. The results of the social assessment, consultations and the IPPF and RPF are summarized in Annex 10 and they were considered highly satisfactory from the comments received. There is also a genuine interest from state governments to participate in the implementation of Interaguas.

The GoB has developed a set of frameworks to address environmental, indigenous people and resettlement risks in the project. These frameworks were discussed with relevant groups during the consultations that took place during project preparation. The GoB understands and agrees that the frameworks apply to all activities financed by the Project and their capacity to implement these norms is considered adequate. The main institutions are adequately staffed and have widespread presence in the territory. Each state also has an active Public Ministry to oversee public sector compliance with its own norms and procedures. In addition, efforts to build capacity in the implementation of the frameworks is also included as part of the project. Finally, Bank supervision will closely follow the progress in streamlining social and environmental concerns during the implementation phase.
The following safeguard policies apply to the project:

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP 4.01)	[X]	[ ]
Natural Habitats (OP/BP 4.04)	[X]	[ ]
Pest Management (OP 4.09)	[X]	[ ]
Indigenous Peoples (OP/BP 4.10)	[X]	[ ]
Physical Cultural Resources (OP/BP 4.11)	[X]	[ ]
Involuntary Resettlement (OP/BP 4.12)	[X]	[ ]
Forests (OP/BP 4.36)	[X]	[ ]
Safety of Dams (OP/BP 4.37)	[X]	[ ]
Projects on International Waterways (OP/BP 7.50)	[ ]	[X]
Projects in Disputed Areas (OP/BP 7.60)*	[ ]	[X]

7. List of Factual Technical Documents

- *ANA: Planejamento Estratégico, 2009-2010.*
- *Carta-Consulta Programa de Desenvolvimento do Setor Água: INTERAGUAS.*
- *Mudanças Climáticas Globais e o Impacto no Bioma Caatinga. Ministério da Ciéncia e Tecnologia, Instituto Nacional de Pesquisas Espaciais.*
- Project Appraisal Document for the Federal Water Resources Management Project (PROÁGUA).

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

- Project Appraisal Document for the Low Income Sanitation Technical Assistance Project (PROSANEAR) and its ICR Report No ICR0000719.
- Project Appraisal Document for the Second Water Sector Modernization Project – PMSS II and its ICT Report No ICR00001083.

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