

**INTEGRATED SAFEGUARDS DATASHEET
APPRAISAL STAGE**

I. Basic Information

Date prepared/updated: 11/24/2010

Report No.: AC4929

1. Basic Project Data

Country: Brazil	Project ID: P112074	
Project Name: Sergipe Water Project		
Task Team Leader: Marcos T. Abicalil		
Estimated Appraisal Date: November 29, 2010	Estimated Board Date: March 8, 2011	
Managing Unit: LCSUW	Lending Instrument: Specific Investment Loan	
Sector: Sewerage (50%);Water supply (25%);Irrigation and drainage (20%);Solid waste management (5%)		
Theme: Water resource management (40%);Access to urban services and housing (40%);Pollution management and environmental health (20%)		
IBRD Amount (US\$m.):	70.28	
IDA Amount (US\$m.):	0.00	
GEF Amount (US\$m.):	0.00	
PCF Amount (US\$m.):	0.00	
Other financing amounts by source:		
<u>Borrower</u>	46.85	
		46.85
Environmental Category: A - Full Assessment		
Simplified Processing	Simple <input type="checkbox"/>	Repeater <input type="checkbox"/>
Is this project processed under OP 8.50 (Emergency Recovery) or OP 8.00 (Rapid Response to Crises and Emergencies)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

2. Project Objectives

The project development objective is to promote the efficient and sustainable use of water in the Sergipe River Basin, by strengthening the State's sector management, enhancing land management practices and improving water quality. This objective will be measured through the following key indicators: (i) establishment of a functioning state agency implementing integrated procedures and tools for environmental licensing and water rights; (ii) 20 percent efficiency improvement in the use of water as measured by liters/second/ hectare in the 1,150 hectares that comprise the Poção da Ribeira and Jacarecica I irrigation perimeters; (iii) reduction of the pollution load discharged by the municipalities targeted by the project's wastewater investments from 5,620 tons of Biochemical Oxygen Demand (BOD)/year in 2015.

3. Project Description

The proposed project will strengthen the State's institutional framework for integrated water resources management (WRM) and environmental protection and undertake investments to revitalize the Sergipe river basin. The integrated approach will entail: (i)

the strengthening of WRM and promotion of institutional development for the efficient and sustainable use of water resources through the consolidation of a long-term policy for the water and environmental sectors within the State; and (ii) the expansion and improvement of irrigation and WSS infrastructure in the Sergipe river basin to promote the recovery, protection and sustainable use of the surrounding natural resources.

Component One: Integrated Water Resources Management and Institutional Development (US\$17.1 million)

The objective of this component is to strengthen water resources management and environmental management in the State of Sergipe. It will finance activities designed to support an increased integration between policies and practices, improve coordination among related agencies addressing water resources planning, management and water pollution control, enhance environmental protection, and develop more efficient management models for WSS and solid waste services in rural areas and small towns in the Sergipe river basin., including: (i) preparatory work for the establishment or assignment of a state agency in charge of water resource management; (ii) development of water resources and environmental management procedures and instruments; (iii) improvement of the land management practices in the Sergipe River Basin; (iv) development of new regional management models for the provision and management of solid waste and water and sanitation services for rural and small towns; and (v) carrying out of communication and environmental education programs. This component will also support activities related to project management to strengthen the Borrower's capacity for overall project management monitoring and evaluation, including support for dissemination of the results of the project.

Component Two: Water for Irrigation (US\$14.20 million)

The objective of this component is to improve technical, institutional and environmental sustainability of the two irrigation perimeters of Poção da Ribeira and Jacarecica I, provide technical assistance to support future improvements of the Jacarecica II irrigation perimeter and promote improved environmental soil and water use practices within targeted micro-basins of the Jacarecica sub-basin. Investments in the modernization of the existing perimeters as well as the promotion of more efficient irrigation practices will have a positive impact on the availability of water as this scarce resource will be used more efficiently. This component will support the following set of activities: (i) rehabilitation and modernization of public irrigation perimeters and water infrastructure in the Jacarecica River Basin, namely the Poção da Ribeira and Jacarecica I perimeters; (ii) promotion of environmental management through the implementation of selected activities designed to promote soil and water conservation practices; (iii) rehabilitation of existing wells and construction of small-scale rural and small-town WSS solutions; (iv) rehabilitation of the three Poção da Ribeira, Jacarecica I and Jacarecica II dams based on the recommendations of the dam safety panel; and (v) capacity building and institutional strengthening of the State Secretariat for Agriculture (Secretaria de Estado da Agricultura e do Desenvolvimento Agrário, SEAGRI), and its associated agencies, namely the State Water Resources and Irrigation Development Company (Companhia de Desenvolvimento

de Recursos Hídricos e Irrigação, COHIDRO) and the State Agricultural Development Company (Empresa de Desenvolvimento de Agropecuário de Sergipe, EMDAGRO).

Component Three: Water for Cities (US\$83.6 million)

This component will complement ongoing State efforts to finance interventions aimed at improving the quality of life for residents in targeted municipalities in the Sergipe river basin as well as the quality of water and sustainability of the environment in these areas through the expansion of WSS and urban drainage infrastructure and the improvement in the efficiency and quality of services offered by the Sergipe State Water Supply and Sanitation Company (DESO). It will be implemented by DESO, and will comprise two subcomponents: (i) wastewater services expansion in the Metropolitan Region of Aracaju (RMA), fully financed with counterpart funds, and (ii) expansion and improvements of WSS in the Sergipe river basin more broadly, fully financed with Bank funds.

(1) Subcomponent Services Expansion in the RMA (US\$46.85 million): Expansion of the existing wastewater systems and treatment plants in the municipality of Aracaju, and construction of wastewater system and treatment plant for the municipality of Barra dos Coqueiros.

(2) Subcomponent Services Expansion and Improvements in the Sergipe River Basin (US\$36.75 million): (i) expansion and optimization of water supply conveyance systems, and sanitation and drainage services in selected municipalities of the Sergipe River Basin, outside of the RMA; and (ii) provision of technical assistance to DESO and its staff to enhance corporate governance and strategic planning, raise the quality of WSS service provision and improve operational efficiency, including, among others, the development of the following studies: (a) corporate management planning; (b) management plan for wastewater services; (c) institutional arrangements and instruments for service provision; (d) water loss control and energy efficiency programs; and (e) integrated operation of water supply sources in metropolitan area to optimize costs and water reliability.

4. Project Location and salient physical characteristics relevant to the safeguard analysis

The project will be focused on the Sergipe river basin within the state of Sergipe. Sergipe is the smallest state in the impoverished Northeast. With an area of approximately 22,250 km² and a population of 2 million, Sergipe is a coastal state, partially located in the semi-arid northeast, an area of water scarcity. Urbanization has escalated over the last few decades, with the percentage of people living in urban centers rising from 67.2 percent in 1991 to 83.3 percent today. This was a result both of economic migrants to the cities and above average population growth. Though a small state in a relatively poor region of Brazil, Sergipe has the highest per capita income (R\$7,560) of the Northeast region, but this represents only about 60 percent of the average national per capita income, and approximately 52 percent of the population earns less than two minimum salaries (R\$510) a month, indicating a high level of poverty. There are also enormous disparities in terms of access to basic infrastructure and social services such as drinking water and proper sanitation. With 88.3 percent of all households having access to water supply

networks and 74.6 percent with access to sewerage systems or septic tanks, there are still approximately 237,000 people in the State without in-house access to potable water services and 514,000 people in the State without proper sanitation.

The Sergipe river basin is a true synthesis of water scarcity and water quality pressures facing the State. Of the six river basins - São Francisco, Vaza Barris, Real, Japarutuba, Piauí and Sergipe - that make up the State, the Sergipe river basin is the most representative of the State's water scarcity and water quality problems. Encompassing almost half the State's population, including most of the RMA, and overwhelmingly urban, the Sergipe river basin fully includes eight municipalities and partially includes another eighteen. A water demand/ availability study found that overall water demand is 260,000 m³/day while the total volume of water provided by the basin itself is only 87,000 m³/day. This indicates a water deficit of over 65 percent. The shortfall is covered by transfers from the São Francisco River, but this requires significant investment, most of which has already been realized, and continual high operating costs. Water scarcity is further exacerbated by the contamination of water resources in urban areas in and around the RMA.

The Sergipe river basin is also the most polluted basin of the six in the State in terms of its organic pollution load, with impact in the mangrove areas of Aracaju. Inadequate WSS services as well as inappropriate disposal of solid waste has polluted the Sergipe river basin and negatively affected the local environment. Vast informal occupations on the outskirts of the RMA, spreading beyond the lower stretch of the Sergipe River and invading the neighboring estuary of the Vaza Barris River, pollute the surrounding water bodies. In addition, there are several municipalities where almost none of the households have access to proper sanitation services, and have their garbage collected still disposed of in open dumps and environmentally sensitive areas.

The development of irrigated agriculture potential in the river basin is limited by water scarcity, water pollution and conflicts for water allocation due to urban demand. The irrigation perimeters of Poção da Ribeira (900 hectares), Jacarecica I (250 hectares) and Jacarecica II (820 hectares) were built some thirty years ago in the Jacarecica sub-basin with mixed results. Their implementation had a strong social focus as it aimed to settle small farmers in the fields with the State taking the responsibility for covering all costs related to the operation, maintenance and technical assistance. However, existing irrigation could generate more effective results without jeopardizing the already scarce availability of water if the infrastructure were modernized, service delivery were improved and modern irrigation techniques were made available to farmers. Inefficient management of the irrigation perimeters is a constraint needing to be addressed to guarantee their sustainability and optimize positive social and economic results. The proposed project plans to support investments related to the recovery and modernization of the Poção da Ribeira and Jacarecica I irrigation perimeters, which are essential to diversify the State's agricultural economy, raise employment, reduce social land pressures and increase income for local farmers and promote the export of agricultural products to Brazil and abroad. The modernization of the existing irrigation perimeters will positively impact water availability by repairing dilapidated infrastructure and

promoting more sustainable and efficient irrigation methods for farmers that will use less water. The project will only provide technical assistance to support future improvements of the Jacarecica II irrigation perimeter which will not be financed by the project.

One of the main factors influencing water availability in the Sergipe river basin for future irrigation and other human uses is climate change. According to a recent study undertaken by the National Institute of Space Research, the Northeast may 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 it will also mean that groundwater resources will be reduced. The Central and Sertão regions of Sergipe, which concentrate mostly poor people with inadequate access to water resources, is the region that will most likely to suffer the worst impacts of climate change. These negative impacts include prolonged droughts in already water scarce regions, 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. The degradation of the soil will further increase migration from the arid regions to the coastal cities, aggravating water pollution and WSS service provision issues in these already strained urban conurbations.

5. Environmental and Social Safeguards Specialists

Mr Gunars H. Platais (LCSEN)

Mr Jason Jacques Paiement (LCSSO)

Mr Augusto Ferreira Mendonca (LCSEN)

6. Safeguard Policies Triggered	Yes	No
Environmental Assessment (OP/BP 4.01)	X	
Natural Habitats (OP/BP 4.04)	X	
Forests (OP/BP 4.36)	X	
Pest Management (OP 4.09)	X	
Physical Cultural Resources (OP/BP 4.11)	X	
Indigenous Peoples (OP/BP 4.10)		X
Involuntary Resettlement (OP/BP 4.12)	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

II. Key Safeguard Policy Issues and Their Management

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts: Environmental Assessment (OP 4.01) Through its focus on environmental recovery and improvement in the quality of life for local residents, the proposed project will primarily have positive environmental impacts, notably by (i) structuring and improving WRM in the State; (ii) introducing more efficient irrigation techniques to ensure an optimal use of water in the Sergipe river basin; (iii) increasing the coverage and efficiency of WSS

services in and around the basin; (iv) preparing a solid waste management plan for the basin and financing interventions to guarantee its implementation.

The State prepared a Regional Environmental Assessment (REA) evaluating the Sergipe river basin proposed interventions. The EA includes an Environmental Management Plan (EMP), defining criteria and procedures required for subproject design, disclosure and consultation with important stakeholders. The REA has been submitted for public disclosure and consultation. Engineering designs and environmental studies and specifications for works to be financed by Bank funds under Component 3 will be reviewed by the Bank, looking to guarantee full compliance with the Bank Safeguards. These works will need simplified EAs, consistent with the proposed interventions scale and impacts. However, the studies must be comprehensive, covering all key aspects, to match the Bank appropriate Safeguards requirements. The proposed counterpart financed investments under Component 3 are either under way or under environmental review and licensing. The team has carried out a technical, environmental, and social review, including on site audits of the proposed investments, and has reported that the mitigation measures proposed are adequate and conform to applicable standards, including consultation under national (PAC) guidelines. Besides that, the Borrower agreed to conduct additional studies and measures to improve the overall management of counterpart-funded investments, to carry on supplementary technical information requested from the counterpart agencies, and to include the Bank-led audits in the project files. With regard to the Aracaju wastewater works the Borrower agreed to perform complementary environmental studies and environmental management plans, acceptable to the Bank. These complementary studies will be submitted to the Bank prior to initiation of any construction for these investments, in addition to obtaining appropriate licenses required by the applicable national and state legislation. A covenant clause is included in the draft legal agreement stating this specific condition for the Aracaju wastewater investments financed by counterpart funds.

Natural Habitats (OP 4.04) Interventions under Components 2 and 3 will assist the state in implementing Permanent Preservation Areas (Áreas de Preservação Permanente, APPs) which are protected under the Brazilian Forest Code - Federal Law 4.771/65, and will have positive impacts on natural habitats. In addition, the following conservation areas are located within the Sergipe river basin: (i) sustainable use and environmental protection areas, such as National Forests and areas of ecological interest; and (ii) environmental protection areas, including, inter alia, State Parks, ecological stations, Biological Reserves and State Reserves. All interventions will take the necessary measures to avoid negatively affecting these conservation and protection areas. In the case of interventions in protected areas which permit certain types of sustainable use, the necessary authorizations will be obtained from the local environmental authorities and the procedures to be undertaken were evaluated by the EMP. The REA includes an inventory of all areas qualifying as #critical natural habitats# within the project area.

Forests (OP 4.36) The proposed project will rehabilitate degraded riparian vegetation in APPs with appropriate vegetation as well as promote reforestation as part of the environmental management plan. The main compensatory measures include the landmark demarcation of the 100-meter APPs surrounding the Poção de Ribeira and Jacarecica I

reservoirs, to be financed under Component 2. Only native species from the region selected by ADEMA will be used.

Pest Management (OP 4.09) The proposed project will implement the rehabilitation of the irrigation perimeters within the Sergipe river basin. Additionally, as part of the effort to modernize the State's irrigation sector, a pest management program will be developed within the Sergipe river basin to regulate the use of pesticides. The REA includes an assessment of the existing pesticide framework and set forth activities to promote sound integrated pest management within the project area.

Physical Cultural Resources (OP 4.11) The proposed project will involve construction and excavation to expand and rehabilitate water and sanitation systems as well as modernize irrigation infrastructure. There are cultural, archeological and paleontological resources in some of the intervention areas, as listed in the REA. The State of Sergipe will include in the Operational Manual procedures for screening any known and unknown cultural property in the project area and incorporate #chance find# procedures in the event that culturally significant resources are discovered during implementation. Procedures for the identification and protection of physical cultural resources have been included in the EMP. Moreover, Brazil has a well-developed legislative and normative framework for management of physical cultural property, which is under the oversight of the National Institute for Protection of Historical, Artistic and Archeological Sites (Instituto do Patrimônio Histórico, Artístico e Cultural Nacional, IPHAN).

Involuntary Resettlement (OP 4.12) A Resettlement Policy Framework (RPF) was designed to guide the resettlement process under the entire project. Under Component 1, the project will support technical assistance for the development of a solid waste management model. This will seek to aggregate municipalities to reach a minimum scale for economic sustainability. The project will adapt available environmental and social documentation from the Bank-financed Caixa Solid Waste and Carbon Finance project (P106702), including the Social Inclusion Plan for Garbage Pickers (PISCA) for the possible economic resettlement of waste scavengers. This documentation is part of the RPF.

Given the Project's physical interventions in the Poção da Ribeira and Jacarecica I irrigation perimeters, the occupation in the APPs also needs to be addressed to ensure environmental compliance. In this regard, specifically for Poção da Ribeira and Jacarecica I, the State of Sergipe will adopt a Terms of Adjustment of Conduct (Termo de Ajuste de Conduta, TACs), which is a legal instrument negotiated through a participatory process with land occupants. The objective of the adoption of the TACs is to ensure that the current occupants retain user rights while agreeing to conservation measures. An initial round of discussions among COHIDRO, ADEMA and the land occupants in Jacarecica I indicated that the negotiation and implementation of the TACs is a feasible alternative to be pursued, and that the final agreement with land occupants is likely to include restrictions on any future construction of physical structures and to changes in the nature of the fishing practices currently in place (i.e., changing from the current non-commercial nature to a commercial one). Further consultations and

discussion with land occupants will take place with regards to ongoing economic activities and in the case that they have to be restricted or ceased, the State will implement the compensation provisions and methodology established in the Process Framework (PF) that is included in the RPF.

Within the Jacarecica II irrigation perimeter, there are organized social movements, including two irregular settlements in the adjacent areas to the perimeter, encompassing the Fazenda Tingui with 366 families and Mario Lago settlement with 96 families, as well as the Tabua community, with 28 families, which is irregularly occupying a legal reserve area within the perimeter. Approximately three hectares of the lands currently being used by these communities belong to COHIDRO. These are irrigated plots that receive water from the Jacarecica II dam, and COHIDRO officials are willing to allow these communities to continue to use these plots as part of an eventual overall settlement involving national agencies and private land owners. Alternative solutions to manage the technical and socio-economic aspects of this issue will be studied in the course of the technical assistance financed by the Project. The project will only finance technical assistance activities intended to assess the viability of various social, environmental, technical and economic solutions related to this perimeter. The terms of reference for the technical assistance to be provided will incorporate compliance with World Bank safeguards policies as applied to the advice conveyed and conclusions reached through such technical assistance.

Under Component 3, an initial analysis of the types, scales and locations of the proposed interventions determined that land acquisition was necessary for only one Borrower financed investment project - the Barra dos Coqueiros Sewage Treatment Plant. The Borrower prepared a satisfactory Resettlement Plan that describes the need to acquire a small portion of unimproved pasture land (14,000 m²) from a single large landowner, and the steps taken to compensate for this loss. The Resettlement Policy Framework will similarly guide the resettlement process should any land acquisition or resettlement prove necessary during the preparation of detailed engineering designs. These engineering designs will take into account the need to avoid resettlement both during and after the construction process. The Borrower has also agreed to ensure that the terms of reference for any studies to be carried out for the interventions under the Project are satisfactory to the Bank and will incorporate the requirements of the Bank safeguards policies as applied to the advice conveyed and conclusions reached through these studies.

The ongoing expansion of the wastewater systems in the Grande Aracaju region will complement project financed activities under Component 3, but will be fully financed by counterpart funds through the Programa de Aceleração do Crescimento (PAC). These interventions aim to build wastewater collection, transport and treatment systems in the municipalities of Aracaju and Barra dos Coqueiros. While the works in Aracaju involve the expansion of the existing system, the works in Barra dos Coqueiros will build a new system to serve this municipality. All counterpart financed investments under the PAC are required to design and implement an associated Projeto de Trabalho Técnico Social. This means that these works are designed and implemented in a highly consultative and participatory manner.

Safety of Dams (OP 4.37) Physical interventions for the rehabilitation of irrigation perimeters and the expansion of the water supply network within the Sergipe river basin involve water that is supplied from local dams. Although an increase in storage is not envisioned, dam safety issues are included in the EMP to ensure that relevant Bank policies will be applied. In addition, prior to implementing modernization and rehabilitation of public irrigation perimeters to be financed by Bank funds under Component 2, COHIDRO will commission an Independent Safety of Dams Panel for the Poção da Ribeira and Jacarecica I and II dams, satisfactory to the Bank, and demonstrate evidence of the implementation of an action plan and adoption of measures recommended by the Panel.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

It is envisioned that the interventions will contribute to the environmental recovery of the Sergipe river basin and an improvement in the quality of life of the local population. All of the interventions are designed to reduce pre-existing socio-economic and environmental impacts and avoid exacerbating problems in these sensitive environments. Regionally, no significant negative environmental impacts were identified during preparation. During the construction phase, the project may generate local negative impacts, associated to construction activities. The EA/EMP determines a series of measures to mitigate the construction negative impacts and incorporate environmental considerations into the project's design. The project will bring major positive impacts during the operation phase, reducing significantly the raw wastewater disposal at the Sergipe River and tributaries. There are minor potential negative impacts during operation phase, such as odor generation and sludge disposal at the wastewater treatment plants sites. However, the EMP also determines a series of measures to mitigate such impacts, such as wind barriers and disposing the sludge at appropriate sites. Project interventions are expected to be overwhelmingly positive, and are listed below:

Improvement in water quality. Inadequate sanitation infrastructure means that wastewater is regularly discharged directly into the Sergipe river basin without any kind of treatment. This has led to environmental degradation and has compounded the problem of water scarcity in the State. The removal of these sources of pollution through the proper collection and transport of household wastewater to adequately operated treatment plants are crucial elements of a strategy to improve the overall water quality of the river basin. The end results will be the improvement in the quality of life for the population residing within the basin, the environmental recovery of the basin and the sustainable, more efficient use of water resources.

Improvement in infrastructure. Extending household connections to the potable water and sanitation systems as well as constructing wastewater treatment plants to serve these areas will result not only in improved water quality in the river basin but also in improved coverage levels for WSS services, especially in the densely populated poor communities.

Moreover, greater access to WSS services will contribute to improved health, environmental and urban development indicators in the State.

Biodiversity. The project is expected to enhance aquatic and riparian biodiversity within and around the Sergipe and neighboring river basins. The project's emphasis on improving the quality of rivers and environmentally sensitive areas alongside streams will promote the restoration of habitat for wetland and non-wetland species and promote the maintenance of existing aquatic and riparian habitats.

Consolidation of sustainable development and WRM strategies. The proposed project is not solely based on infrastructure interventions but also on institutional strengthening for the state agencies most relevant to WRM in the State. Technical assistance provided to these institutions will improve their capacity for water planning, management and service regulation. One of the objectives of the institutional development component is the establishment of a comprehensive policy for WRM in the State. This policy will lay the foundation for the sustainable use of water resources as well as integrate environmental protection, provision of basic infrastructure services and other key issues related to water availability and quality.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

Considering the serious deterioration of the State's water infrastructure and the negative environmental impact it is causing the alternative of doing nothing was not a viable option. A series of economic and financial analysis supplemented with the socio-environmental assessments of the different components have all contributed to affirming the overwhelmingly positive outcome of project implementation. Strengthening the existing institutional capacity will only further contribute to this outcome.

In terms of involuntary resettlement, community and individual consultations with potentially affected people have helped to produce design alternatives for environmental licensing conditions affecting the use of protected areas to minimize and mitigate restrictions on access to natural resources. In the case of the Jacarecica II reservoir, the Borrower elected to refrain from implementing any physical rehabilitation works that could have negatively affected a considerable number of irregular settlers in the irrigation perimeter. The potential sites for rehabilitation or construction of water and sanitation infrastructure have also been screened and prioritized according to the availability of public land and the need to acquire additional land. Finally, the Borrower's decision to adopt the social practices developed for the Caixa Solid Waste and Carbon Finance Project (P106702) will also help to ensure that garbage collectors, who are among the most vulnerable people in the State, get appropriate opportunities to participate in the design of sustainable alternative livelihood strategies and compensation measures.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described. Although the State of Sergipe is relatively inexperienced when it comes to handling Bank safeguard issues, the proposed project will build on measures and systems already in

place for the federally-financed Proagua project, such as: environmental guidelines for the construction and operation of dams and reservoirs and for water supply systems; manual for safety and inspection of dams; environmental assessment for all financed works; dam safety panels and action plans; social work and environmental and sanitary education programs related to all financed works; etc. Hands-on training in Bank safeguard policies has already been an instrumental part of project preparation, such as the workshop on involuntary resettlement carried during the preparation mission held in October 2009. Representatives from Sergipe also participated in two recent safeguards training events organized by the Bank in the Brasilia Office.

A Project Technical Administration Unit (Unidade de Técnica de Administração do Projeto Águas de Sergipe, UAPAS) has been established within SEMARH as the project executing agency with the overall role of planning, coordinating and supervising the Project as well as ensuring its technical viability and safeguards compliance.

The UAPAS is administered by a General Coordinator and run by staff from SEMARH and other participating secretariats and agencies, including the State Secretariat of Infrastructure, the State Secretariat of Economic Development, Science, Technology and Tourism and State Secretariat of Agriculture and Agrarian Reform. The UAPAS will be responsible for the day-to-day implementation of Component 1 (Integrated Water Resources Management and Institutional Development) and Component 2 (Water and Irrigation). It will also be responsible for compiling the reports and financial records of all project components, to send formal requests to the Bank regarding procurement, financial management (FM) and disbursement aspects, including for activities implemented by DESO.

UAPAS will also be responsible for ensuring that all Bank safeguards applied to the Project are complied with and that all works under implementation follow the EMP, RPF and other related documents. UAPAS will also provide support to the beneficiary agencies and DESO on the preparation of specific environmental assessments, public consultations and preparation of resettlement actions plans, whenever they may be required. In addition, the principal implementing agency SEMARH, through UAPAS, will hire social and environmental safeguard specialists to support project implementation. The Bank team will continue to work closely with State counterparts to ensure adequate adherence to all Brazilian and Bank social and environmental safeguards.

The Borrower prepared a satisfactory Resettlement Plan that describes the need to acquire a small portion of unimproved pasture land (14,000 m²) from a single large landowner, and the steps taken to compensate this loss. The Resettlement Policy Framework will similarly guide the resettlement process should any land acquisition or resettlement prove necessary during the preparation of the detailed engineering designs for all additional civil works. These engineering designs will take into account the need to avoid resettlement both during and after the construction process. The Borrower has also agreed to ensure that the terms of reference for any studies to be carried out for the

interventions under the Project will reflect the requirements of the Bank safeguards policies as applied to the advice conveyed and conclusions reached through these studies.

The EA was undertaken in compliance with Brazil's extensive social and environmental legislation and the Bank's social and environmental safeguard policies. The EMP takes the following approach:

The EA considered during the current phase of project preparation the application of conceptual frameworks, defining criteria and procedures to be adopted in the preparation of subprojects:

- a. Environmental Assessment and screening project impacts on Natural Habitats for all types of interventions; and
- b. Dam Safety, Involuntary Resettlement, Pest Management and Physical Cultural Resources for specific interventions.

Procedures related to the following issues will be considered during the detailed planning phase for physical interventions:

- a. Social and environmental criteria for the design of subprojects;
- b. Environmental licensing of subprojects;
- c. Dissemination and consultation procedures for interested parties; and
- d. Reevaluation of environmental assessment studies for all subprojects with potential environmental impacts as part of the preparation of specific plans to meet the environmental guidelines defined by the triggered safeguard policies.

For Component 2, all guidelines and procedures related to pest management will be adopted in the operation of the irrigated perimeters benefiting from project investments. Other conceptual frameworks will be adopted when they are relevant to the implementation of the subproject.

For Component 3, sub-component 2 (Bank funded interventions), the EA has a specific annex, to be included into the Operations Manual, addressing rationale for selection of sub-projects and screening mechanism, applicable standards (Bank and national regulatory framework), potential impacts and mitigation measures, contractor performance guidelines, procedures for EAs and public consultations, responsible parties, monitoring and evaluation measures for the overall project and individual subprojects.

Interventions for the modernization and recovery of water infrastructure and irrigated perimeters as part of Component 2 must follow a specific set of measures included in the EA, as well as in the ECM.

Modernization and Recovery of Irrigated Perimeters and Water Infrastructure

The measures adopted as part of the EA include actions related to dams, the 100 meter protected range around the reservoirs and the development of the following instruments: (i) Dam Safety Panel for the three dams along the lines of OP 4.37, including the adoption of the panel's recommendations; (ii) TAC between ADEMA and COHIDRO, including the suggested involvement of the State Attorney General, to define the use restrictions in the APPs and measures for supervision and control; (iii) Process Framework, with the development of a plan for land use management in the reservoirs, including control over access and uses of the area, the demarcation of APPs and the

eventual recovery of degraded areas and the re-vegetation of the 100 meter range surrounding these areas; (iv) Resettlement Policy Framework, in case any involuntary resettlement will be required for the few small commercial buildings (bars) and other facilities, if required by the Code of Conduct to be signed between COHIDRO and ADEMA; (v) consultations with interested parties; (vi) studies and processes to obtain Operation Licenses for the dams and Water Rights; (vii) Operational Manual for the Dams; (viii) Pest Management Plan; (ix) plan to monitor the quality of water in the reservoirs; and (x) social communication plan and sanitary and environmental education.

The EA adopts a series of mitigating measures for the defined and potential negative impacts of the project's interventions. These measures, as well as their estimated costs, implementation schedules and matrix of institutional responsibilities are the essence of the EMP, which is summarized below.

Natural Habitats Monitoring Plan

Interventions under Components 2 and 3 will affect APPs, which are protected areas under the Brazilian Forest Code, Federal Law 4.771/65. In addition, there are other conservation areas located in the Sergipe river basin which require sustainable use, such as national forests and areas of ecological interest, state parks, ecological stations, biological reserves and state reserves. All of the interventions will take necessary measures to avoid negative effects on these conservation and protected areas. In the case of interventions in protected areas that allow for some types of sustainable use, the necessary authorizations will be obtained from the local environmental authorities and the procedures adopted will be assessed in the EMP of these subprojects.

Re-Vegetation Plan

The project will restore degraded riparian areas, expand these areas with appropriate vegetation and promote re-vegetation as part of the environmental management plan. The main compensatory measures will also include a demarcation, with markers every 100 to 200 meters, for the APPs around the Poção da Ribeira and Jacarecica I reservoirs. Only native species from the region, as selected by ADEMA, will be used in the re-vegetation activities.

Pest Management Plan

The project will finance the modernization and rehabilitation of the Poção da Ribeira and Jacarecica I irrigated perimeters. As part of the efforts to modernize the state's irrigation sector, the project will support the development of a pest management plan for the Sergipe river basin to regulate the use of pesticides. The EA includes an evaluation of the existing pesticide framework and includes activities designed to promote integrated pest management inside the project area.

Preservation of Physical Cultural Resources Plan

The project will involve construction and excavation to expand and rehabilitate water and sanitation systems as well as modernize irrigation infrastructure. There are cultural, archeological and paleontological resources in some of the intervention areas, as listed in the EA. The State of Sergipe will include procedures for screening any known and unknown cultural property in the project area and incorporate #chance find# procedures in the event that culturally significant resources are discovered during implementation. Procedures for the identification and protection of physical cultural resources have been included in the EMP. Moreover, Brazil has a well-developed legislative and normative framework for management of physical cultural property, which is under the oversight of IPHAN.

Dam Safety Inspection Panel

Physical interventions for the rehabilitation of irrigation perimeters and the expansion of the water supply network within the Sergipe river basin involve water that is supplied from local dams. Although an increase in storage capacity is not envisioned, dam safety issues have been included in the EA to ensure that relevant World Bank policies will be applied. In addition, prior to implementing modernization and rehabilitation of public irrigation perimeters to be financed by World Bank funds under Component 2, COHIDRO will have commissioned an Independent Safety of Dams Panel for the Poção da Ribeira and Jacarecica I and II dams, satisfactory to the World Bank, and demonstrate evidence of the implementation of an action plan which may have been recommended by the Panel.

Communication and Sanitary and Environmental Education Plan

The communication and sanitary environmental education plan aims to define a policy for action in the environmental and water resources area. It will involve activities such as: (i) defining a social communication strategy for environmental and water resources issues; (ii) supporting external social communication actions; and (iii) consolidating the environmental education program in the State. In addition, the plan aims to support project implementation by involving the population directly and indirectly affected by the interventions and the areas of influence. The communication plan will mainly involve the people living in areas where works will be performed and will be developed in an integrated manner to achieve the project's objectives.

Environmental Construction Manual

The ECM aims to ensure that the project works do not result in environmental degradation. It was developed as a guide for appropriate environmental practices that the construction companies should follow when undertaking civil works for the construction of WSS systems. It will be incorporated into the bidding documents to ensure that all involved parties have prior knowledge of the environmental conditions and this will become a contractual obligation of the construction companies. The implementation of the ECM is the responsibility of UAPAS, DESO and COHIDRO as well as the construction companies. The ECM includes: (i) the project's social and environmental

management system; (ii) environmental actions and rules related to the execution and management of civil works, including a plan for living with the works, construction sites, risk management and emergency actions for construction, environmental education for the works and a code of conduct for the works, health and safety regulations for the works, management and disposal of garbage from the works, noise and dust control, yard equipment, traffic control, road service, and construction waste amongst others; (iii) environmental actions and rules related to the construction activities depending on the types of subprojects selected; and (iv) plan for the control and recovery of areas for disposal of excavation areas.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people. The proposed Project was designed to provide a broad framework for stakeholder participation to increase ownership and promote the sustainability of physical investments, building on the well developed participatory planning process implemented by the State Government in general and by SEMARH in particular. The development of a social communication strategy and a state program of environmental education will also be undertaken as part of Component 1 to raise awareness of environmental issues and strengthen the management of the environment and water resources. Furthermore, all counterpart financed investments under the PAC are required to design and implement an associated Projeto de Trabalho Técnico Social. This means that these works are designed and implemented in a highly consultative and participatory manner. For instance, at the community level, the beneficiary stakeholders will be engaged in the design and implementation of the local interventions and will benefit from social outreach and environmental/sanitary promotion campaigns which are designed to promote the sustainability of these interventions.

Two public consultation sessions were held during the project's preparation phase. The first took place on August 20, 2009 before the Sergipe River Basin Committee, and the discussion of the project's general objectives and activities included the Committee members and an environmental specialist from the Bank. The comments and suggestions received were incorporated into the Terms of Reference for the EA. The second consultation was held on November 25, 2009, and it involved twenty-seven local institutions, representing key stakeholders such as municipal and state governments and agencies, local water service providers, universities, river basin committees, churches, community organizations, environmental police, private sector, etc. SEMARH made a detailed description of each of the components and the consultant undertaking the preparation of the EA discussed the main points of the EA as well as the EMP. The overall conclusion of the meeting was that the EA was considered satisfactory, and the participants agreed on the programs in the EMP.

B. Disclosure Requirements Date

Environmental Assessment/Audit/Management Plan/Other:

Was the document disclosed **prior to appraisal?**

Yes

Date of receipt by the Bank	10/19/2010
Date of "in-country" disclosure	10/19/2010
Date of submission to InfoShop	10/26/2010
For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors	10/26/2010
Resettlement Action Plan/Framework/Policy Process:	
Was the document disclosed prior to appraisal?	Yes
Date of receipt by the Bank	10/19/2010
Date of "in-country" disclosure	10/19/2010
Date of submission to InfoShop	10/26/2010
Indigenous Peoples Plan/Planning Framework:	
Was the document disclosed prior to appraisal?	
Date of receipt by the Bank	
Date of "in-country" disclosure	
Date of submission to InfoShop	
Pest Management Plan:	
Was the document disclosed prior to appraisal?	Yes
Date of receipt by the Bank	10/19/2010
Date of "in-country" disclosure	10/19/2010
Date of submission to InfoShop	10/26/2010
* If the project triggers the Pest Management and/or Physical Cultural Resources, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.	
If in-country disclosure of any of the above documents is not expected, please explain why:	

C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)

OP/BP/GP 4.01 - Environment Assessment	
Does the project require a stand-alone EA (including EMP) report?	Yes
If yes, then did the Regional Environment Unit or Sector Manager (SM) review and approve the EA report?	Yes
Are the cost and the accountabilities for the EMP incorporated in the credit/loan?	Yes
OP/BP 4.04 - Natural Habitats	
Would the project result in any significant conversion or degradation of critical natural habitats?	Yes
If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?	Yes
OP 4.09 - Pest Management	
Does the EA adequately address the pest management issues?	Yes
Is a separate PMP required?	No

If yes, has the PMP been reviewed and approved by a safeguards specialist or SM? Are PMP requirements included in project design? If yes, does the project team include a Pest Management Specialist? N/A

OP/BP 4.11 - Physical Cultural Resources

Does the EA include adequate measures related to cultural property? Yes

Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property? Yes

OP/BP 4.12 - Involuntary Resettlement

Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared? Yes

If yes, then did the Regional unit responsible for safeguards or Sector Manager review the plan? Yes

OP/BP 4.36 - Forests

Has the sector-wide analysis of policy and institutional issues and constraints been carried out? Yes

Does the project design include satisfactory measures to overcome these constraints? Yes

Does the project finance commercial harvesting, and if so, does it include provisions for certification system? No

OP/BP 4.37 - Safety of Dams

Have dam safety plans been prepared? No

Have the TORs as well as composition for the independent Panel of Experts (POE) been reviewed and approved by the Bank? No

Has an Emergency Preparedness Plan (EPP) been prepared and arrangements been made for public awareness and training? No

The World Bank Policy on Disclosure of Information

Have relevant safeguard policies documents been sent to the World Bank's Infoshop? Yes

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs? Yes

All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies? Yes

Have costs related to safeguard policy measures been included in the project cost? Yes

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies? Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents? Yes

D. Approvals

<i>Signed and submitted by:</i>	<i>Name</i>	<i>Date</i>
Task Team Leader:	Mr Marcos T. Abicalil	11/23/2010
Environmental Specialist:	Mr Augusto Ferreira Mendonca	11/23/2010
Social Development Specialist	Mr Jason Jacques Paiement	11/23/2010
Additional Environmental and/or Social Development Specialist(s):		
<i>Approved by:</i>		
Regional Safeguards Coordinator:	Mr Glenn S. Morgan	11/24/2010
Comments:		
Sector Manager:	Mr Guang Zhe Chen	11/23/2010
Comments:		