

INTEGRATED SAFEGUARDS DATA SHEET CONCEPT STAGE

Report No.: ISDSC1051

Date ISDS Prepared/Updated: 09-Feb-2015

Date ISDS Approved/Disclosed: 10-Feb-2015

I. BASIC INFORMATION

A. Basic Project Data

Country:	Ecuador	Project ID:	P151439
Project Name:	EC Guayaquil Wastewater Management Project (P151439)		
Task Team Leader(s):	Patricia Lopez Martinez		
Estimated Appraisal Date:	23-Feb-2015	Estimated Board Date:	15-Apr-2015
Managing Unit:	GWADR	Lending Instrument:	Investment Project Financing
Sector(s):	Wastewater Treatment and Disposal (70%), Wastewater Collection and Transportation (30%)		
Theme(s):	Pollution management and environmental health (50%), City-wide Infrastructure and Service Delivery (50%)		
Financing (In USD Million)			
Total Project Cost:	227.90	Total Bank Financing:	102.50
Financing Gap:	0.00		
Financing Source			Amount
Borrower			22.90
International Bank for Reconstruction and Development			102.50
EC European Investment Bank			102.50
Total			227.90
Environmental Category:	A - Full Assessment		
Is this a Repeater project?	No		

B. Project Objectives

13. The Project Development Objective (PDO) is to reach sustainable universal access to wastewater management services in the Southern districts of the City of Guayaquil. The Project will therefore improve environmental conditions in Guayaquil's water bodies (the River Guayas and the Salado Estuary) and bring better livelihood conditions for its residents in selected neighborhoods,

contributing to the reduction of poverty and increase of shared prosperity in the City.

14. This Project will particularly benefit the residents of “Trinitaria” and “Suburbio Oeste”, two riparian districts of the Estero Salado estuary where sewer mains will be rehabilitated -what will contribute to the decontamination of this important environmental asset-, and where poor households –the vast majority in the area - will enjoy eased conditions to get connected to the sewer network (a detailed socioeconomic characterization of the beneficiary population in the mentioned riparian districts will be undertaken during the project preparation phase).

C. Project Description

15. The proposed project would achieve the above mentioned objectives through the implementation of four main components.

16. Component 1: Household Connections (USD 18 million with USD 2.8 million of IBRD loan financing). This Component will finance the installation and rehabilitation of household connections in specific areas within the southern districts of the City of Guayaquil. These districts are equipped with a dense sewerage collection network which, although requiring rehabilitation of main collectors to reduce infiltration, reaches and could serve all inhabited areas. Nonetheless, despite having coverage of almost 100 percent, just 82 percent of the households of the area are currently actually connected to the system. Most of the remaining 18 percent (around 30,000 families) are poor households located in “Suburbio Oeste” and “Trinitaria”, two riparian district of the “Estero Salado” estuary, where household toilets discharge directly to the estuary or to reportedly poorly constructed and maintained pits or septic tanks, which contributes to the degradation of the Estero Salado. These families have not been connected despite having a sewer passing in front of their homes – and despite legal mandate to do so - mainly because of the cost of the connection fee, but also because of technical issues (toilets mostly located at the back of their houses or at a lower level than the condominial sewer branch) and lack of information about their entitlement to enjoy a social tariff and/or about the benefits that getting connected would bring them in terms of livelihood improvement.

17. This component of the project aims at increasing effective access to sewerage collection services in the south districts of Guayaquil to reach a rate of at least around 95% percent. To achieve this objective, household connection costs -including the cost of required indoor works like piping, flooring and others – will be partially subsidized and financed by EMAPAG (clients will pay to EMAPAG the nonsubsidised segment in installments through the water bill). In parallel, a communication campaign will be launched to inform the beneficiaries about this initiative and its benefits and to promote improved hygiene and sanitation practices required to ensure the proper functioning of the condominial sewer system. The design of this component will be developed based on previous successful experiences led by EMAPAG EP, which managed to increase effective access to piped sanitation up to 98 percent in other districts of the city with high poverty rates.

18. Component 2: Rehabilitation of Primary Sewerage Network (USD 37 million, 100 percent financed by IBRD). This Component will finance the rehabilitation of the main collector sewers of “Las Ranas” and “La Chala” neighborhoods within the “Suburbio Oeste” district, which as stated above is riparian to the Salado estuary. These main collectors have been identified to require urgent rehabilitation to reduce wastewater loses and enable their effective collection function. This component of the Project aims at reducing infiltrations in the south sewerage subsystem, thus contributing to the reduction of the contamination of the Salado estuary from domestic wastewater. The magnitude of the infiltration issue is currently illustrated by the following:

- Approximately 71 percent of the wastewater collected yearly in the sub-basin of La Chala in Guayaquil gets lost due to infiltration, which causes groundwater contamination;
- The wastewater volume discharged from the south subsystem into Guayas River during the rainy season is 82 percent higher than the volume discharged during the dry season due to rain and ground water infiltration into the sewerage system, which also increases wastewater pumping and treatment costs.
- Some segments of the “Suburbio Oeste” sewer network meant to work as gravity mains get pressurized during periods of high tide.

19. Component 3: Wastewater Treatment and Disposal Facilities (USD 161 million, with USD 58.5 of IBRD loan financing). This component will finance the construction of a new wastewater treatment plant (WWTP), called “Las Esclusas WWTP, and associated pumping and transmission facilities to treat 100 percent of the wastewater collected in the southern districts of the City of Guayaquil within the design year of 2030. Wastewater generated in the south subsystem is collected in two sewer mains: (i) the “Guasmo” sewer main, which conducts an average flow in dry weather of 0.60 m³/s into the “Guasmo H” pump station from where wastewater is pumped directly into the Guayas River through a 180 meters long pipeline and an underwater outfall diffuser; and (ii) the “Parson’s Sur” sewer main, which conducts on dry weather 2.10 m³/s into the “La Pradera” treatment plant, equipped with a mechanized pretreatment, a disinfection system that is out of service and a underwater outfall diffuser. Therefore, wastewater is currently discharged into the Guayas River with none or very little treatment, failing to comply with the contaminants concentration thresholds established in the National Norm on Environmental Quality and Effluent Discharges (NCADE in its Spanish acronym).

20. To address this situation, EMAPAG EP plans to construct a new wastewater treatment plant in the proximity of the current point of discharge of the Guasmo sewer main, which will treat all the sewerage collected in the south subsystem and will require:

- The adaptation of the Guasmo H pump station and the construction of a new pipeline to drive pumped water to the new treatment facility;
- The decommissioning of La Pradera treatment plant, the construction of a new pumping station in the premises, and the construction of a pipeline to drive pumped water to the new treatment facility;
- Construction of a new treatment facility for a design dry and wet flows of 2.7 l/s and 3.5l/s. The facility will be equipped with mechanized pretreatment, chemically enhanced primary treatment (CEPT), disinfection system, underwater outfall diffuser and hypochlorite production; and
- Construction of the sludge digester.

21. Different technological alternatives were analyzed by the consulting firm hired by EMAPAG to develop the design of the treatment facility and were discussed with the WB team. These alternatives reviewed included, among others, advanced preliminary treatment, chemically enhanced primary treatment (advanced primary treatment), and secondary treatment, including aerobic and anaerobic processes. The CEPT option was retained since it allows to consistently meet the regulatory authorized limits set for the Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD) and all other pollutant concentrations, eases the implementation of effective odor control measures and it is a technology that has extensively and successfully been adopted worldwide in municipal wastewater treatment plants of similar size which effluent does not require a complex treatment process, considering existing effluent quality, effluent quality standards and existing quality, quality standards and dilution capacity of receiving water body. Las Esclusas treatment

facility is being designed to allow for a secondary treatment system to be incorporated into the treatment process in the future should it be required.

22. Component 4: Project management and Administration, including Communication Plan and Management of Social, Environmental and Safety Issues (USD 5.4 million with USD 4.2 million of IBRD loan financing). This component will finance activities associated with overall Project management by EMAPAG EP, including project-related audits, monitoring and evaluation, equipment and training to strengthen implementing entities, as well as individual consultants. It will include support to EMAPAG EP related to the management of environmental and social issues and safeguards.

23. The project is expected to also include a Non-lending Technical Assistance Activity to improve the capacity of EMAPAG to provide better sanitation services to the poor, financed with funds from the Water and Sanitation Program (WSP). The WSP activity will support technical assistance directed at the improvement of the mechanisms currently employed by Interagua and EMAPAG to promote the installation of sewerage household connections among the population of areas that are already equipped with a sewer network or that will benefit from a network extension or densification project. These existing mechanisms, which focus on the creation of financial incentives accompanied with an effective communication campaign, have demonstrated in the past, their usefulness to achieve close to 100 percent sewer sanitation access rates, but failed to promote among the targeted population, the sealing of septic tanks and cesspools that should be decommissioned when connected to the public sewer network. This work is expected to study the reasons behind this failure and explore the socio-economic characteristics of the households in question and identify bottlenecks towards an effective closure of existing on-site solutions. EMAPAG is also looking for unconventional solutions to provide sustainable quality sanitation services to peri-urban communities where conventional sewer systems are not technically, financially or socially viable. In this context, the Bank, through the Water and Sanitation Program (WSP), will provide technical and financial support to identify and adapt to the local reality, alternatives that have successfully been implemented internationally in similar contexts.

24. Flood Risk and Climate Change Preparedness: Given that Guayaquil suffers from a significant flood risk level, an assessment of the resilience of the infrastructure to be built under the Project, and the incorporation of appropriate flood risk management measures, are expected to be included under the proposed Project and will be discussed with EMAPAG/Interagua during Project preparation. This assessment will cover any climate change adaptation measures that are deemed necessary. The flood protection measures can be included in the bidding documents for the contractor that will build the wastewater treatment plant.

D. Project location and salient physical characteristics relevant to the safeguard analysis (if known)

25. The IBRD financed segment of Guayaquil's "Municipal Program for the Universalization of Wastewater Management Services" will directly benefit the central and southern districts of Guayaquil located within the "La Pradera" and "Guasmo" wastewater sewer watersheds. As part of the scope of this IBRD financed project, a new wastewater treatment facility called "Las Esclusas WWTP" will be constructed on the southern shore of the Cobina estuary, in the proximity of its intersection with the Guayas River (Component 3). This new facility will treat all wastewater collected in the above mentioned wastewater sewer watersheds. The project also contemplates the construction of a new pumping station in the existing La Pradera treatment plant site –which will be decommissioned-; the adaptation of the Guasmo H wastewater pumping station; and the construction

of the associated wastewater pipelines to transport collected wastewater to the new treatment facility. The site selected for the construction of Las Esclusas WWTP –which was identified in the 2004 Municipal Sanitation Master Plan- is an industrial area located at the southern outskirts of the city near the Guayas River. In the immediate vicinity, there is a thermal power generation plant and a large shrimp farm. Treated wastewater will be discharged to the Guayas River through an underwater outfall diffuser. The Guayas River is affected by several wastewater discharges and other pollution sources (e.g., storm water runoff) upstream of the Project location with none or very limited treatment.

26. The household connections (Component 1) are located in the southern districts of the City of Guayaquil, which already has a dense sewerage collection network with a coverage of almost 100%, but only 82% of the households are currently actually connected to the system. Most of the remaining residents (around 30,000 families) are poor households located in "la Trinitaria" and "Suburbio Oeste" neighborhoods, the latter a riparian district of the "Estero Salado", where household toilets discharge directly to the estuary or to reportedly poorly constructed and maintained pits or septic tanks which contributes to the degradation of the Estero Salado.

27. The Component 2 sewer rehabilitation works are aimed at reducing infiltrations in the south sewerage subsystem by rehabilitating the main collector sewers of "La Chala" and the "Suburbio Oeste" districts, thus contributing to the reduction of the contamination of the Estero Salado estuary.

E. Borrowers Institutional Capacity for Safeguard Policies

28. EMAPAG will be responsible for managing all environmental and social aspects of the project. INTERAGUA, the private consortium to which EMPAG has delegated the management of Guayaquil's drinking water, wastewater and drainage systems, has experience managing wastewater treatment facilities and its management system is ISO 14001, ISO 18001 and ISO 9001 certified. EMAPAG has experience managing environmental safeguards associated to multilateral financing institutions, particularly with Corporacion Andina de Fomento (CAF) and Inter-American Development Bank (IADB) loans.

29. With regards to the management of the sludge generated by the WWTP, depending on working conditions and on actual contaminants concentrations of the raw wastewater, the treatment process may generate up to 94 tons per day of primary sludge that would be digested and disposed in the existing municipal landfill, which is currently handling 4,500 tons of waste per day. An agreement has already been reached between EMAPAG and the consortium running the landfill, "Las Iguanas", which has all the required environmental permits to receive this type of waste. The landfill has the capacity to receive municipal waste, including the expected volume of sludge during the first eight to ten years of operation of the wastewater treatment facility, based on its current rate of exploitation. Plans for the future expansion or the construction of a new municipal sanitary landfill are under discussion between municipal and environmental authorities which will allow the continuation of the sludge disposal in this manner.

30. Guayaquil's Municipal Directorate for Environmental Affairs (DMA) runs, with EMAPAG's and Interagua's support and participation, a program to monitor industrial wastewater discharges to the sewer network, which will allow control of illegal discharges that may affect the future performance of the "Las Esclusas" WWTP.

31. With regards to social safeguard policies, although financed by EMAPAG, the expropriation required for land acquisition is primarily the responsibility of the Legal and Cadaster departments of

the Autonomous Decentralized Government (GAD) of Guayaquil. While they have a good deal of experience with applying local expropriation laws, they do not have experience in the application of the World Bank's Policy on Involuntary Resettlement. That said, both EMAPAG and the GAD have agreed to taking the additional measures necessary to conform with the requirements of OP 4.12.

32. During Project preparation, an evaluation of institutional capacity of relevant entities will be finalized and specific actions identified, if/as needed, to improve capacity as part of Component 4 (institutional strengthening project management and administration).

F. Environmental and Social Safeguards Specialists on the Team

Carlos Vargas Bejarano (GENDR)

Jose Vicente Zevallos (GSURR)

Martin Henry Lenihan (GSURR)

Robert H. Montgomery (GENDR)

II. SAFEGUARD POLICIES THAT MIGHT APPLY

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	<p>The project team proposes that the Project be classified as an Environmental Category A, due to the type and size of the project, specifically the construction of a 3.6 cubic meters per second wastewater treatment plant (WWTP) under Component 3. The other project works in Components 1 and 2 have relatively minor potential impacts and can be mitigated with more standard measures. The main potential risks relate to potential environmental and social impacts during construction of sewer works associated with the project, potential failure of the WWTP to properly operate and resultant impacts similar to present conditions, and failure in proper disposal of sludge from WWTP. However, the overall expected project impacts are positive due to the improved water quality that will be discharged into the Guayas River and the reduction of untreated wastewater that is presently leaking from the existing sewer system and affecting shallow ground and surrounding surface water bodies, like the "Salado" Estuary.</p> <p>An Environmental and Social Impact Assessment (ESIA) has been developed for the proposed WWTP (Component 3) in compliance with Ecuador's environmental regulatory framework. As such, the Terms of Reference for the ESIA were approved by the Ministry of Environment in Ecuador (MAE). The Bank team has reviewed the scope of the ESIA and found that its technical and scientific rigor is</p>

		<p>consistent with the nature of the Project and that the methodology used for the identification and analysis of environmental impacts conforms with good national and international practices. The design and location of the WWTP included an alternative analysis in terms of design options and site location. The final ESIA will also include a description of the general strategy developed by government entities that are responsible for water quality in the Guayas River, with a hydrographic basin approach.</p> <p>The Bank team has also verified that the expected effluent quality from the WWTP of Las Esclusas to be financed under the Project would keep discharge standards in line with current environmental regulations in Ecuador. EMAPAG has planned for expansion of the WWTP to enable secondary treatment, if it was required by Ecuadorean environmental regulations further on during the life of the Project.</p> <p>The Bank team has conducted two reviews of the ESIA and given EMAPAG recommendations to improve the presentation of the environmental and social aspects of the Project. The last review by the Bank team was conducted before the publication of an advanced draft in the Bank's and EMAPAG's website on December 16, 2014 for public knowledge and consultation.</p> <p>An earlier draft of the ESIA was also widely disseminated locally from September 18 to October 8, 2014 in different Public Information Centers, a formal Public Audience and informal informative meetings, following national regulations and Bank recommendations. In Ecuador, public consultations are coordinated by a Facilitator appointed by the MAE. According to Ecuadorean regulations and Bank environmental standards, concerns and recommendations from the community must be considered and addressed by EMAPAG in the ESIA and the Environmental and Social Management Plan (EMP). All comments received as a result of the public consultation process as well the mechanisms to address them have been included in the ESIA which was publicly disclosed on December 16, 2014 (pending final report from Facilitator from MAE). Of</p>
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	<p>the comments received, around 20% were related to requesting proper maintenance of the sewerage collection and transportation systems to avoid blockages and overflows, around 19% were expressing acceptance and support for the project, a further 19% were expressing concern about proper odor control from the wastewater treatment plant, around 12% expressed concern over ensuring timely completion of the works and around 8% expressed concern about inconveniences that could be caused by rupture of street pavements amongst others. These concerns by the community are being addressed in the Environmental and Social Management Plan (ESMP) which has been prepared by EMAPAG, differentiating between the construction and operation phases.</p> <p>The ESIA has also been reviewed by a panel of independent qualified national experts as recommended by the Bank team. The ESIA is presently being updated to reflect some further revisions and comments provided by the Bank and the panel of experts. Any further revisions to the ESIA will be disclosed in the Bank's and EMAPAG's website by Project Appraisal.</p> <p>For works to be constructed under Components 1 and 2 (i.e., sewer connections to residential houses and rehabilitation of main sewer lines), Environmental and Social Management Plans (ESMP) are being developed also in accordance with Ecuadorian regulations for environmental licensing and under ToR reviewed by the Bank team. Overall social impacts of components 1 & 2 are being assessed during the preparation of these ESMPs and a survey-based Beneficiary Assessment which EMAPAG is currently undertaking, including an assessment of potential involuntary resettlement impacts, temporary economic impacts on vendors, small businesses, shops etc. during the construction/ rehabilitation process amongst others. Final ESMP drafts will be disclosed in the Bank's and EMAPAG's website by Project Appraisal and key results of the assessments will be included in the Appraisal version of the ISDS.</p> <p>The Bank is exploring options with EMAPAG to</p>
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		enhance and promote positive environmental benefits, such as a more comprehensive water quality monitoring program for the River Guayas, promoting the participation of the main users of the river. In this respect, it has been agreed with EMAPAG that Component 4 of the Project will include funds to support the development and establishment of a water quality monitoring system for the Guayas River and the Salado Estuary.
Natural Habitats OP/BP 4.04	TBD	The Project works to be performed will be located in urbanized and/or in industrial areas. There are no protected natural habitats located within or in the proximity of the project intervention area. All the project components will have a positive environmental impact on the Guayas River and the Salado Estuary. Components 1 and 2 of the project will have a positive environmental impact on the Salado Estuary, eliminating an important part of the urban wastewater discharge to the Estuary that will instead be led to the WWTP supported by the Project and discharged to the Guayas River. However the need to trigger the policy will be further addressed during project preparation due to uncertainties related to the potential effects on the project in Estero Salado, and given that the project could affect the receiving waters and aquatic habitats dependent upon them.
Forests OP/BP 4.36	No	The Project works to be performed will be located in urbanized and/or in industrial areas. There are no forests nor mangrove swamps located within or in the immediate proximity of the project intervention area. The project will not affect forests, forest dependent communities nor will it involve changes in the management of forests.
Pest Management OP 4.09	No	The Project does not involve the purchase or use of any significant quantities of pesticides.
Physical Cultural Resources OP/BP 4.11	Yes	During the preparation of the ESIA for Component 3, no potential impacts on physical cultural resources (PCR) were identified. Nonetheless an archaeological monitoring program has been developed and will be implemented during the construction phase and the corresponding safeguard policy has been triggered as a preventive

		measure. The ESMP for Components 2 and 3 will also include a PCR procedure.
Indigenous Peoples OP/BP 4.10	No	There are no indigenous peoples present that meet the criteria defined by the policy in the Project area. According to the 2010 census, less than 1.4% of the population of Guayaquil identify themselves as indigenous. This population is not concentrated in the Project area, nor does it have a collective attachment to land in that area, which is used for modern urban residential or industrial purposes.
Involuntary Resettlement OP/ BP 4.12	Yes	The water treatment plant will be located on a site of 40.74 hectares which has been the property of 6 different private owners. Expropriation has been ongoing since 2011, with four property owners contesting the original valuations in court (decisions are still pending). One site hosts a radio antenna for a local radio station along with the house of an employee of that station (the value of the structure and need to resettle the occupant was not taken into account in the original assessment of the site). Another site belongs to an aquaculture business. The remaining sites are unoccupied and have not been used for either economic or residential purposes. The client is in the process of preparing a Remedial Resettlement Action Plan explaining the extent to which the expropriation process conforms with the World Bank Policy on Involuntary Resettlement, and any additional measures required to address gaps identified. An initial assessment by the task team suggests that the client has offered replacement cost as compensation for the land to be acquired by using market comparators as a basis for valuation. In the case of component 2, no resettlement impacts are anticipated as the works will be taking place in residential neighborhoods with little or no encroachment on the sidewalks, and using trenchless technology in order to minimize impacts. The Remedial Resettlement Action Plan will be reviewed and approved by the Bank and publicly disclosed by Appraisal. The funds necessary for finalizing the pending expropriations are held in trust by the Judge responsible for adjudicating the individual cases and will be available to be paid to the PAPs once these cases have been finalized.
Safety of Dams OP/BP 4.37	No	The Project will neither support the construction or rehabilitation of dams nor will it support other investments which rely on services of existing dams.

Projects on International Waterways OP/BP 7.50	No	The Project will not finance activities involving the use or potential pollution of international waterways.
Projects in Disputed Areas OP/BP 7.60	No	The Project will not finance activities in disputed areas as defined in the policy.

III. SAFEGUARD PREPARATION PLAN

A. Tentative target date for preparing the PAD Stage ISDS: 22-Jan-2015

B. Time frame for launching and completing the safeguard-related studies that may be needed. The specific studies and their timing¹ should be specified in the PAD-stage ISDS:

The client is in the process of finalizing the Remedial Resettlement Action Plan which should be completed by January 15 and disclosed before Project Appraisal.

The final version of the ESIA for Component 3 and the ESMP for Components 2 and 3 should be completed by January 15 and disclosed before Project Appraisal.

IV. APPROVALS

Task Team Leader(s):	Name: Patricia Lopez Martinez	
<i>Approved By:</i>		
Regional Safeguards Coordinator:	Name: Francis V. Fragano (RSA)	Date: 09-Feb-2015
Practice Manager/Manager:	Name: Wambui G. Gichuri (PMGR)	Date: 10-Feb-2015

¹ Reminder: The Bank's Disclosure Policy requires that safeguard-related documents be disclosed before appraisal (i) at the InfoShop and (ii) in country, at publicly accessible locations and in a form and language that are accessible to potentially affected persons.