

Environmental and Social Review

Summary of Environmental and Social Analysis

1. Scope of analysis

The scope of this analysis focuses on the operations of Cycle I and II of the improvement and expansion of the sanitation network in the Metropolitan Region of Recife (State of Pernambuco, Brazil). The company responsible for these operations is BRK Ambiental Região Metropolitana de Recife/Goiana SPE S.A. (“RMR” or “Client”), which is controlled by the company BRK Ambiental Participações S.A. Under the Public-Private Partnership (PPP) signed by Companhia Pernambucana de Saneamento (COMPESA), a public institution, and RMR, sanitation activities were limited to sewage collection and treatment. The partnership did not include services associated with access to potable water, urban cleanup, solid waste management, and stormwater drainage.

The analysis involved extensive checking of documents and a field visit. Telephone interviews and in-person meetings were held with the environment, health and safety, personnel management, community relationships, integrity (compliance), administrative management, property security, laboratory analyses, PPP contract management, and the Operations Control Center (OCC) teams. Field visits were made on October 1st to 5th 2018, during which IDB Invest Social and Environmental Officer visited RMR administrative facilities; Janga, Peixinhos and Roda de Fogo sanitary wastewater treatment plants; the OCC and the construction site in Jardim São Paulo. During the visit, a meeting was held with the environmental agency that licensed the project – the State Environment Agency of Recife (CPRH)—and chats were held with residents of Jardim São Paulo close to the construction site.

The sanitation plan adopted by RMR includes the phases of: a) sewage collection, b) connection to pipeline sanitation network, c) treatment and d) disposal – all of them in the urban consolidated area of Recife. During the collection phase, the effluent catchment system (collector system) will be either installed or restored, with placement (or repair) of underground piping network. Effluent is conveyed via the collection network to the load towers (LT) or to pumping stations that take the effluent to the treatment plants. After physical and chemical treatment, the effluent is discharged into bodies of water located in the vicinity of the treatment plant. The complex consisting of treatment plants, pumping stations and, possibly, load towers forms the Sanitation System (SS).

As described above under “Project Scope,” Cycle I of the operations consisted on the restoration of the collector network and treatment system already installed by COMPESA, as well as the construction of three new SSs (São Lourenço da Mata, Jardim São Paulo, and the first part of Prazeres). Following improvements to the network, the population served increased from 1.05 to 1.3 million people.

RMR obtained from CPRH an environmental operating license for the existing treatment network, valid until December 2018. This license is now being renewed. For construction of the two Sanitation Systems – SS Jardim São Paulo, SS São Lourenço da Mata, and the beginning of works

on SS Prazeres—environmental impact studies were submitted to the CPRH (together with a Vicinity Impact Study). Installation Licenses (LIs) were obtained for the three SSs.

Cycle II calls for an expansion of more than 440 kms of sewage collection network (both installation and repair) and construction of three new Sanitation Systems (Cabo de São Agostinho, Goiana I and Goiana 5), in addition to final completion of the Prazeres SS. New environmental impact studies will be submitted to the CPRH in order to obtain the necessary environmental licenses.

2. Environmental and Social Categorization

This project has been classified as Category B according to IDB Invest’s Environmental and Social Sustainability Policy. The risks and impacts are site specific, moderate in magnitude, and may be addressed through existing mitigation measures that are simple to implement. It should be emphasized that the principal purpose of the project is to improve the environmental and social conditions in the Metropolitan Region of Recife via the collection and treatment of sewage. Therefore, this investment has important positive externalities.

Among the impacts associated with this type of operation there are aspects of workers health and safety and adequacy of working conditions, community safety in the surrounding areas of the construction of the sewage collection pipeline and around the sewage treatment plants (or sanitary wastewater treatment plants), environmental aspects of the treatment and discharge of liquid and solid effluents, and land acquisition and involuntary resettlement in areas where the sewage treatment plants or pumping stations are to be installed.

The following International Finance Corporation (IFC) Performance Standards apply to this project: PS 1 - Assessment and Management of Environmental and Social Impacts and Issues; PS 2 – Labor and Working Conditions; PS 3 Resource Efficiency and Pollution Prevention; PS 4 - Community Health, Safety, and Security; PS 5 – Land Acquisition and Involuntary Resettlement; and PS 8 – Cultural Heritage.

3. Environmental and Social Context

The Metropolitan Region of Recife encompasses 15 municipalities with a total population of about four million. It is characterized by a high degree of human occupation and is densely populated. Until 2013, sewage collection services were provided by a public entity and only 5% of the effluent collected was being treated. The inadequacy of the sanitation system, associated with deficient drainage, led to continual pooling of sewage followed by outbreaks of waterborne diseases. The negative effects of the absence, or inadequacy, of sanitation negatively impact the health of the population, quality of the bodies of water, and economic development of the region.

The target set in the PPP contract is to treat 100% of the collected sewage, and to provide 90% of sewage service in relation to the population served with fresh water until the year of 2038. The PPP establishes several monitoring indicators (KPIs) for RMR, including environmental and social performance. In case the indicator’s targets are not met there are financial penalties.

4. Analysis and Management of Social and Environmental Risks and Impacts

4.1 Environmental and Social Management System

4.1.1 IDB Invest assessment encompassed analysis of documentation related to social and environmental management of the project, as well as a gap evaluation vis a vis the requirements set out in the IDB Invest Sustainability Policy. In order to close those gaps, certain corrective measures were developed that are to be accomplished within certain intervals of time. These are summed up in the Environmental and Social Action Plan (ESAP) to be agreed on mutually with the Client (found at the end of this document).

4.1.2 Policy

RMR has adopted an Environment and Health and Safety Policy that establishes commitments and guidelines. A set of guides and 27 procedures detail the requirements that must be followed in order that the policy is correctly enforced. Examples include an environmental management plan, environmental management manual, occupational safety manual, waste management procedure, hydric resources management procedure, and a Personal Protective Equipment (PPE) management procedure.

The Policy is made available and explained during the initial orientation given all new personnel and subcontractors. It is printed on the reverse of the ID badge (which must always be worn) and published on murals at the administrative facilities, operations centers, and sewage treatment plants.

4.1.3 Identification of Risks and Impacts

The existing environmental and health and safety policy assesses both hazards and risks, as well as the aspects and impacts of all activities conducted in the context of RMR's works. It also assigns responsibilities and targets, and specifies actions and evaluations aimed at continued improvement.

One of the sanitary wastewater treatment plant has already an ISO 14001 environmental management certification. The treatment plants constructed in Cycles I and II will be certified within a year after obtaining their Operational Licenses.

i. Direct and Indirect Impacts

The environmental impact studies and the vicinity impact study produced during the licensing phase of Cycles I and II identified the following potential social and environmental impacts that could occur during execution of the sanitation project: a) generation of noise; b) atmospheric pollution; c) water quality alteration; d) reduction in the availability of natural resources; e) risks to workers safety and the safety of the general public during the construction phase; f) socioeconomic impact on the population residing near the construction site due to occasional roadblocks; g) traffic disruptions and road accident risk; h) contamination of the soil; and i) erosion and reduction of vegetation. Added to this list is the possibility of a deterioration in the quality of life caused by land acquisition and involuntary resettlement.

ii. Analysis of Alternatives

Cycles I and II of the operation are intended to serve Cabo de São Agostinho, Prazeres, and part of Goiana. Network coverage is defined in the PPP contract signed with COMPESA and calls for

sewage collection on all the streets in the region. Decisions on the locations for the sewage treatment plants and pumping stations depend on an engineering assessment and design that permits sewage to flow and be treated as efficiently as possible. RMR also contemplates in its analysis the possibility of installing the sanitary wastewater treatment plants on lands already owned by COMPESA. In the eventuality that land must be acquired, preference is given to areas supported by proven legal ownership so that negotiations can be completed without court intervention (as occurs in areas occupied by persons who lack legal property titles).

4.1.4 Management Programs

The Client has a robust Social and Environmental Management System (SGSA) and comprehensive environmental, health, safety, and social plans that can manage the impacts identified in the environmental impact studies.

Several companies in the region are being subcontracted to perform the repair and construction of the sewage pipeline collection system. The BRK's SGSA also applies to subcontractors, who must formally commit to observe all the policies and procedure called for in the RMR system. The Client's environmental, health and safety, and human resources teams frequently check on the conduct of the subcontractors through field inspections and documentation audits. This process has been formally systematized and evaluated by the RMR director, in addition to being submitted for review at the corporate level of BRK Ambiental.

4.1.5 Organizational Capacity and Competence

RMR has well-qualified and sufficient teams to meet the demands of the SGSA.

The manager of the Department of Environment, Quality, and Occupational Health and Safety reports directly to the RMR director. The environment team employs five people; the occupational health team has five members (including a physician and nursing assistants); and the job safety team has twelve members (including one safety engineer and technical personnel for each sub-regional sector). The manager of the Social and Communications Department reports to the RMR director, and that department has nine members.

4.1.6 Emergency Preparedness and Response

The Client has developed a detailed Emergency Response Plan, which includes allocation of responsibilities, activities, scenarios, fire brigade training, communications, and proper use of equipment. Training sessions are held continually, and simulations are conducted annually at all company facilities (including at the sanitary wastewater treatment plants). RMR also has a Victim Evacuation Plan.

Verified firefighting equipment, well-marked and unobstructed escape routes, and trained firefighters are present at the RMR administrative office and all structures in Cycles I and II.

4.1.7 Monitoring and Review

RMR monitors its social, environmental, and health and safety programs every month. As mentioned in Item 3 of this report, COMPESA also monitors and evaluates indicators of environmental and social performance, such as: 1) collected sewage treatment indicator; 2) effluent final quality indicator; 3) sludge destination indicator; 4) community information campaign indicator; and 5) an indicator for information campaigns presented at schools.

4.1.8 Stakeholder Engagement Stakeholder Mapping and Engagement Planning

The Social Responsibility team is working on an unstructured identification of stakeholders that encompasses primarily the communities affected by the sewage collection works. This team has established guidelines for the engagement teams that interact with the subcontractors and supervise the actions being taken. Before each segment of the sewerage works begin, a social team from the subcontractors, with guidance from the RMR team, conducts a census of the community, identifying the existing residences and public facilities. Then all the residences and public facilities situated on streets where intervention will occur are visited. Information is provided about: a) the timing of the startup and duration of the works; b) purpose of the works; c) the importance of sanitation; d) identification of contact persons in the social area of the subcontractor firm (Social Duty Officer); and e) the telephone number of COMPESA customer treatment channel. During these activities, informative materials such as handouts and posters are provided.

During execution of construction the same social team will make return visits to the sites in order to take complaints or questions. Written records are kept of these activities (Social Duty Officer spreadsheets) and sent every month to RMR.

In Item 1 of the ESAP, IDB Invest requests a complete stakeholder mapping to be made, involving participation by the other RMR teams. This will serve as basis for construction of an Engagement Plan focused specifically on each SS - sanitation system.

The Engagement Plan is aligned with the requirements of IFC PS 1 and will cover: i) campaigns to inform and present the project to residents in the neighborhoods of the sewage treatment plants and pumping stations, in addition to those already conducted with the communities that are affected by the construction works; ii) disclosure of RMR grievance channels; iii) a calendar of scheduled meetings and visits to the neighboring and affected communities, identifying the actions to be taken with each group; and iv) monitoring and evaluation reports.

4.1.9 Informed Consultation and Participation

The Recife Sanitation Plan was announced publicly on December 16, 2016 in the Official Gazette of Pernambuco State (an official printed publication). The document was displayed for public access from December 17, 2016 to January 31, 2017 on the website of the City of Recife Urban Development Secretariat and at the headquarters of the Secretary of Government. During these consultations, comments could be sent by email or in writing. These were consolidated and made available on the website of the State Public-Private Partnerships Program Management Committee, along with the final version of the Plan.

The environmental impact studies prepared for Cycle I are available at CPRH headquarters and can be consulted by the public during business hours.

According to Item 2 of the ESAP, RMR is supposed to conduct public meetings at which the project is presented before starting the works called for in Cycle 2. These meetings should be organized in the manner described in PS 1, permitting participation by all interested and affected parties, including residents in the vicinity of the sanitary wastewater treatment plants and pumping

stations. The results of the consultation must be taken into consideration during project management. Minutes will be kept of these meetings.

4.1.10 External Communications and Grievance Mechanisms, Ongoing Reporting to Affected Communities

Communities affected by the construction works may communicate with subcontractor social teams by telephone or personal contact with a team, which in turn has the obligation to record, screen and assess the complaint/question and inform the RMR social team. As mentioned earlier in this report, these procedures are documented on a monthly basis by subcontractors and monitored by the Client.

A detailed RMR communications procedure is in place for communication with other publics that establishes flows for monitoring, involvement of other areas, and internal controls—with deadlines for response and clear allocations of responsibility.

RMR has established a public channel for grievances that also serves as a Compliance tool. Any person may contact RMR by email, telephone, or via the website—anonously—to report improper behaviors that violate the company’s Code of Ethics and Conduct. These channels are accessible 24/7. Accusations and claims are investigated by an independent third company (ICTS Global). Internal discussions involve the Compliance areas at the corporate level (BRK Ambiental) and RMR and, in certain cases, human resources personnel. The availability of the channels is publicized at the administrative facilities, on communication murals at the sewage treatment plants, at indoor and outdoor sites, as well as during training provided upon hiring of personnel and subcontractors.

COMPESA has a widely-publicized telephone number for contact, as well as an email address and customer centers that are available to all clients of the sanitation service. When a complaint or question is recorded, COMPESA informs RMR in real time, using a shared system at the Client’s OCC. At that point, the OCC initiates a process of screening and reports to the RMR teams that are responsible for each subject matter. Controls on response time and deadlines are in place. In the case of contractual questions, RMR is not allowed to communicate directly with users about questions related to services rendered, therefore a response must be forwarded to COMPESA, which will convey it to the sanitation client.

According to Item 1 of the ESAP, RMR will establish a separate channel with the communities affected by the construction in Cycles I and II, including communities in the vicinity of the sanitary wastewater treatment plants and pumping stations in order to track the complaints received and observe how they are handled (jointly with the subcontractors).

4.2 Labor and Working Conditions

The Client has a team of enough size and appropriate composition that is dedicated to the subject of human resources (HR). It has a coordinator and eight professionals. The coordinator reports to the administrative manager, who in turn reports to the RMR Director. BK had 1,007 personnel under contract, as of October 2018. Of these, 175 were women and 832 were men.

4.2.1 HR Policy and Procedures

RMR has a body of personnel administration rules that establishes guidance and commitments in the field of HR, and various procedures for: a) recruitment and selection; b) initial and refresher training; c) definition of positions and the related remuneration; d) promotions and general opportunities for advancement.

During initial training given all new employees and subcontractors, a detailed presentation is made about labor-related rights and obligations, as well as any benefits offered by RMR that may not be mandatory under the Brazilian law (such as specific courses and educational opportunities, life insurance, medical and dental plans, pension plans, etc.). Information about these matters is available on the company's internal website. Meetings are held for those who do not have access to a computer during the workday.

An analysis of HR policies and procedures adopted by subcontractors is performed in order to ensure that they conform to RMR internal norms and that obligations under labor and social security laws and regulations are adhered to as regards personnel assigned to the Client. When necessary, corrective measures or changes in content will be requested.

4.2.2 Working Conditions and Terms of Employment

RMR Employment contracts include clauses related to wages and benefits, payroll deductions allowed by law, length of workday, holidays and paid leaves, overtime and compensation, medical and dental plans, life and disability insurance, transportation vouchers, maternity leave, etc. These labor contracts observe Brazilian labor law and collective bargaining agreements and are consistent with the requisites of PS 2.

The HR team specifies the content and rights that must be included in the employment contracts signed by subcontractors (such as full adherence to legislation, respect for the respective collective bargaining agreement, submission of occupational health reports upon severance) and routinely monitors compliance; otherwise their service's contracts with RMR may be suspended.

4.2.3 Workers' Organizations and Unions

Brazil is a signatory to various international conventions and treaties related to worker rights, including International Labour Organization (ILO) Convention No. 87 on Freedom of Association and Protection of the Right to Organize. Under Brazilian legislation, all workers have the right to freely join a union. RMR employees may join SINDURB – Union of Workers in the Urban Industries of Pernambuco State. Relations between RMR and SINDURB are collaborative. In the interest of greater transparency, three RMR staffers who are not participating in the negotiations on behalf of the company are invited to sit in on all annual collective bargaining sessions.

4.2.4 Non-Discrimination and Equal Opportunity

The RMR Code of Professional Ethics, as well as its Personnel Administrative Norms, makes it clear that the company does not tolerate any type of discrimination related to race, religion, age, political beliefs, physical characteristics, sexual orientation or other aspects. This content is part of the presentation made when any employees or subcontractors begin work—integration training. Every six months, the BRK Ambiental Compliance structure audits RMR to verify that it is observing neutral criteria in hiring—minimum number of candidates, records of technical evaluations, etc.

4.2.5 Grievance Mechanisms

As described in Item 4.1.10, RMR has established a public channel for complaints that also serves as a Compliance tool. Any person may make accusations or complaints by email, telephone, or the website—anonously—and report improper behaviors that violate the company Code of Ethics and Conduct or to report unsafe working conditions. These channels are accessible 24/7. Accusations and claims are investigated by an independent third company (ICTS Global). Internal discussions involve the Compliance areas at the corporate level (BRK Ambiental) and RMR and, in certain cases, HR personnel. Depending on the subject, other teams may be involved, such as Environment and Health and Safety. The channels are publicized at the administrative facilities, on communication murals at the wastewater treatment plants, the indoor and outdoor sites, as well as during training provided upon hiring of personnel and subcontractors.

According to Item 3 of the ESAP, RMR will ensure that every Cycle I and II job site will publicize the existence of the RMR grievance channel, with the message that it will be also be accessible by subcontracted workers. Communications materials may convey the provisions included in the PPP contract with respect to the restriction against discussing topics related to customer sanitation services.

4.2.6 Protecting the Work Force

The Client observes Brazilian labor regulations, which include content about safe working conditions and minimum age of workers. In Brazil the minimum age for employment is 18 years, except for apprentices, who may be from 14 to 24 years old. RMR has developed an apprenticeship program that includes 34 young people, age 18 or older, assembled according to Federal Decree 5598/2005 that, in turn, is consistent with ILO Convention No. 138.

4.2.7 Occupational Health and Safety

The Client has adopted a robust occupational health and safety program that includes an Environmental Risks Prevention Program (PPRA) and a Medical and Occupational Health Control Program (PCMSO).

Its Workplace Environment and Safety Policy has been broken down into several procedure and processes that ensure appropriate management of the subject matters (such as procedures for managing PPE, a list of PPEs based on every function, and preliminary risk analyses for all the functions.) All employees and subcontractors receive extensive information about occupational health and safety during their initial training. The “Golden Rules” (set of job safety principles) are printed on a second ID badge that must be worn and on posters distributed at all RMR facilities.

For all sanitation operation activities classified as high risk, such as working in confined spaces (as is common in cleaning damp shafts at pumping stations and working in manholes located in the mains), electrical tasks, work at heights and in excavations, RMR performs medical analyses to ensure the appropriateness of the conditions faced by workers. It conducts full training sessions, uses appropriate signage, and ensures that personal and group protective equipment is used, besides maintaining a rescue technician and system at the ready. Access to all sites and facilities is strictly controlled and ID badges must be displayed. RMR is responsible for providing the necessary safety training. It uses stickers pasted on the reverse of the badges to identify those workers (including subcontractors) who are able and allowed to perform each function. The Personal Protective Equipment (PPE) and Crew Protective Equipment are made available by RMR to its employees, and the company performs audits to be certain that subcontractors also receive such equipment.

Subcontractor companies must adhere to all RMR rules and policies, in addition to undergoing field inspections and audits of documentation. A safety technician from the subcontracted company is required to be present at every job site, and the Client has on its team a technician that monitors a group of job sites, visiting them throughout the execution of the works (and filling out monthly spreadsheets that assess health, safety, and the environment). Daily Safety Dialogues are planned in coordination with RMR and address subjects such as risk prevention, correct performance of specific tasks, health-related precautions and lessons learned from accidents or near-accidents. According to Item 4 of the ESAP, RMR will include prevention of gender-related violence in the content of these dialogues.

The Client monitors, among its accident indices and frequency rates, also those that occurred with subcontractors while performing services for RMR. The frequency rates, calculated net of figures for RMR and subcontractors, are low, about 1.18 (as of September 2018). The analysis of root causes and adoption of corrective measures is done routinely by the health and safety team.

The occupational health team is composed of an occupational physician and technical nursing personnel. They are responsible for performing physical examinations of new hires, as well as interim examinations and a final one when an employee's duties are changed upon separation from RMR. The team is also responsible for carrying out the PCMSO.

RMR has developed an Emergency Response Plan that specifies responsibilities and tasks to be performed by different teams at each structure (wastewater treatment plants, pumping stations, OCCs, the laboratory, and administrative facilities). Trained firefighters are assigned to each unit, and installed firefighting equipment is routinely checked for functionality.

4.3 Resource Efficiency and Pollution Prevention

4.3.1 Resource Efficiency

The principal resources used by RMR are electricity obtained from the network (to power the pumping stations and wastewater treatment plants) and fossil fuels (diesel and gasoline) to power its fleet. Average monthly electricity use is approximately 1,198 MWh. The Client uses Sysenergy software to analyze electricity usage at each unit and ways to reduce it (such as replacement of equipment, replacement of older electric motors with motors that have a higher yield etc.).

Water used in operations (by the trucks, in clearing obstructions from the mains or for rest rooms and cleaning) is obtained from public water mains. An average of 2,500 cubic meters of water is used each month. Monitoring of usage is done by GSAN software, which suggests ways to reduce consumption (such as reuse of water in trucks and in cleaning the larger sewage collectors).

4.3.2 Water Usage and Effluent Treatment

Raw sewage received by the collectors is conveyed to the pumping stations, which include a primary stage for removal of solid waste (gratings, sumps, and service pipes). The effluent is then distributed to the sanitary wastewater treatment plants, where it undergoes two phases of treatment: a) primary treatment involving separation of solid particles in sand filters; and b) secondary treatment with activated sludge to remove organic load. The excess activated sludge that is generated is removed from the anaerobic reactors, primary and secondary decantation

tanks, oxidation basins, and treatment ponds, and is sent to its final disposition after a process that removes the excess water from the material (by thickening).

Some of the sludge is stored in tanks and reused in the treatment process. Another portion is “pelletized” and discarded in sanitary landfills. Treated effluent is discharged to bodies of water near the wastewater treatment plants.

Samples of treated effluent are collected daily for RMR laboratory analysis. The indicators studied are the ones required by federal and state environmental agencies (CONAMA 430/2012, CONAMA 357/ 2005, CPRH Technical Notes from 2002 and 2007), as stipulated in contracts with COMPESA. Indicators of process efficiency are also monitored. When the value of an indicator is unsatisfactory, the operational areas and environmental personnel are advised to take corrective measures. After implementation of such action a new measurement is taken in order to ensure that correction was effective.

Brazilian federal and state laws establish parameters for treated effluent (pH, oils and greases, solids in suspension, temperature, biological oxygen demand, minimum efficiency in removal of organic load – expressed as biological oxygen demand units, solids in suspension, and presence of fecal coliforms).

For Cycle I sanitary wastewater treatment plants, the installation of a third phase of treatment—disinfection—with elimination of pathogenic microorganisms (using fecal coliforms as indicator)—is now in progress. It is expected to be complete in August 2019. Item 5 of the ESAP establishes that Cycles I and II sanitary wastewater treatment plants will not be able to begin operation until after the disinfection phase has been installed to control pathogens, in full compliance with national legislation and the World Bank EHS Guidelines for Sanitation Projects.

RMR has established a program to monitor treated effluents after they have been returned to the receiving bodies of water (classified as Class 2) in order to ensure that water quality will not be impaired.

4.3.3 Emissions of Greenhouse Gases

BRK Ambiental is conducting an inventory of Greenhouse Gas (GHG) emissions for all its operations in the GHG Protocol model, including RMR. According to 2017 data, total emissions by RMR were 91,043.54 CO₂t equivalent, of which: Scope 1: 29,545.04 CO₂t; Scope 2: 1,227.08 CO₂t equivalent; and Scope 3: 60,271.42 CO₂t. According to Item 6 of ESAP, RMR will send IDB Invest a copy of its inventory of greenhouse gases annually.

4.3.4 Atmospheric Emissions and Air Quality

The Client has adopted a procedure to control atmospheric emissions from its operations; these are caused primarily by its fleet of vehicles. Current monitoring maintains the fleet in such condition as to help avoid polluting the atmosphere.

4.3.5 Noise

Noise pollution may have an impact during construction works. It has been rated as low by the environmental impact studies and does not exceed the limits accepted in law for operation in urban areas. According to the Construction Environmental Plan, works will be performed during daylight hours so as not to disturb residents.

4.3.6 Solid Waste Management

RMR has a Solid Waste Management Program in which waste generated in the operation is identified, classified, stored, and disposed of according to applicable legislation.

Waste resulting from the selective collection from offices and administrative areas is sent to waste treatment and recycling plants in Metropolitan Region of Recife. Hazardous materials (such as greases, oils, light bulbs, batteries) are stored and disposed of in environmentally licensed landfills capable of receiving and decontaminating these materials. Residue left over from the sewage treatment plants (activated sludge) is sent to licensed landfills in the region. RMR's environmental team monitors the manifests that attest to the proper disposal of wastes into each landfill, in addition to checking the environmental licenses granted to the units.

According to Item 7 of the ESAP, activated sludge in the form of pellets produced at Cycle I and II sanitary wastewater treatment plants (Prazeres, Cabo São Agostinho, Goiana I, Goiana V, São Lourenço da Mata and Jardim São Paulo) will be analyzed by an independent laboratory for composition and classification of the residue according to NBR 10.004/2004.

4.3.7 Hazardous Materials Management

RMR has adopted a procedure for chemical products treatment that covers all hazardous materials used in the operation. The environment team is responsible for implementing and monitoring the measures called for in the procedure.

4.4 Community Health and Safety

4.4.1 Project Infrastructure and Safety

The expansion of the sanitation services as made operational by RMR will have positive effects on the health and safety of the community during the operations phase.

During the construction and renovation of the wastewater collection network, as well as in the construction of sanitary wastewater treatment plants and pumping stations, the risk of impacts on the community are mitigated by the Works Control Program developed by RMR and its subcontractors (including rules on potential blasting, to be performed exclusively by companies authorized by the Brazilian Army under a blasting use plan approved by the Client). During nighttime hours, when construction is suspended, the perimeter of the job site is isolated and well marked. Any opening or excavation is temporarily covered over to prevent members of the community and transients from falling in.

Item 8 of the ESAP calls for the drafting of a Traffic Safety Plan that maps the zones of intervention, along with existing public uses and equipment, as well as the traffic impacts and interruption in circulation that the works may introduce. Measures to mitigate the impacts, as well as monitoring of the implementation of actions in the field and their outcomes will be included as components of the Plan.

4.4.2 Community Exposure to Disease

The subcontracted labor force is composed of local workers from the Metropolitan Region of Recife who do not project a risk of introducing external vectors of disease. The expansion and improvement of basic sanitation that is the object of the PPP will reduce the risk of disease exposure of the population served.

4.4.3 Emergency Preparedness and Response

The RMR Emergency Response Plan and its well-qualified Environment and Health and Safety team, as well as the equipment available are sufficient to handle potential emergencies.

4.4.4 Private Security

The security of the property at all facilities is handled by a subcontractor (V&S), coordinated by an RMR employee. Guard booths have been installed at the wastewater treatment plants and administrative offices and are staffed 24 hours a day, assisted by cameras. Additional protection is afforded by concertina wire installed on the walls. At the wastewater treatment plants, roving guards travel through the facilities and some of them circulate through the job sites.

The Peixinhos Sewage Treatment Plant is the only site that is protected by armed guards. In the plant site it is also located the chemical analysis laboratory and a central materials storage facility. The decision to arm the guards was made because of dangers in that neighborhood and the history of previous assaults. The guards are given specific training by the Federal Police of Brazil, as well as courses in minimal use of force. The same criteria of control and training will be applied to Cycle I and II operations and facilities.

4.5 Land Acquisition and Involuntary Resettlement

Because this is a sanitation project considered beneficial to the population, Brazilian law permits RMR to obtain Public Utility Decrees. Upon presentation of such a decree, the party in possession of a given area of land is required to sell it to RMR, voluntarily or involuntarily.

The Client has retained a specialized real estate company (Emprava) to appraise properties according to Brazilian Technical Standards Association (ABNT) rules 14653-1 and 14653-2 that call for incorporation of criteria such as market research figures, size of tract, existing improvements and economic use of the property. Commercial negotiations with the owner are based on the value provided in the appraisal report. If agreement is reached, the property will be purchased, and the transaction legally registered. If the owner does not agree to sell, the case will go to court. The appraised value will be deposited with the court and an obligation to release the property will be established. The judge will have the property appraised by court experts and will decide the final sum to be paid to the owner by RMR.

If the land does not have a registered title, the appraised value will be deposited with the court for use in a future indemnification. In a scenario where residents are present who cannot prove ownership but merely possession, court intervention will also occur so that the value of indemnification can be arbitrated. The stipulated sum will be shared with the legal owner, if he or she is identified.

According to Item 9 of the ESAP, RMR is to develop a plan for livelihood restoration and involuntary resettlement according to the IFC PS 5, applied to all land acquisition during Cycle II. The plan will be applied to all people living in the land plots, regardless of legal land titles, and will include topics as: a) agreement on non-depreciation of assets as part of the property appraisal methodology; b) evaluation of resident vulnerability; c) a matrix of compensation designed so that livelihood is not lost or impaired after the land is acquired; d) monitoring of the individual's livelihood after land acquisition—when applicable; e) assistance after relocation, including

payment of transaction costs; and f) implantation of a specific grievance mechanism for the resettlement process.

The plan must be executed by RMR before land is acquired for Cycle II (applicable to plots that have residents on site) and monitored every month. If a given piece of land has already been acquired since the closing of the financial operation with IDB Invest, the provisions of the Resettlement Plan will apply retroactively.

4.6 Conservation of Biodiversity and Natural Habitats

This element does not apply because there is no loss or suppression of natural habitats or material impact on local biodiversity.

4.7 Indigenous Populations

This element does not apply because no indigenous populations have been identified in the project influence area.

4.8 Cultural Heritage

Before beginning any operation, RMR contacts IPHAN – the National Institute for Historic and Artistic Heritage, so that the government agency may issue an opinion. When IPHAN deems it necessary, it will recommend archaeological and cultural heritage monitoring of a specific area. An archaeological coordinator will monitor the works in order to recover archaeological findings and a partner educational entity will take actions to protect the material. The monitoring program involves a chance find procedure that is observed during the operation. RMR is responsible for paying the costs associated with the archaeological monitoring program.

5. Local Access to Project Documentation

The environmental impact studies produced for this project may be accessed during business hours at the CPRH – Office of the Director of Pollution Sources Control at Rua Santana, 367, Casa Forte, Recife – Pernambuco.

6. Environmental and Social Action Plan – See Annex I of this document

7. Contact Information

For information about the project, including social and environmental questions related to the investment by IDB Invest, please contact the Client (see Summary of Investment) or the IDB using the email divulgacionpublica@iadb.org

As a last resort, affected communities have access to the IDB Invest Independent Consultation and Investigation Mechanism by writing to mecanismo@iadb.org or MICI@iadb.org, or calling +1(202) 623-3952.

ANNEX I - Environmental and Social Action Plan

	Action	Deliverable	Date
1	<ul style="list-style-type: none"> a) Drafting of a complete mapping of stakeholders and b) Engagement Plan focused specifically on each Sanitation System, in line with the requirements of IFC PS 1. 	<ul style="list-style-type: none"> a) Mapping of stakeholders b) Engagement Plan accepted by IDB Invest 	<ul style="list-style-type: none"> a) Three months after financial closing of the operation b) Four months after closing
2	Public meetings held to present the project prior to the start of Cycle 2 construction, organized as provided in IFC PS 1.	<ul style="list-style-type: none"> a) Calendar and planning for the public meetings b) Report of the records kept for the meetings that were held 	<ul style="list-style-type: none"> a) 30 days prior to the start of construction b) 50 days after the date of each meeting
3	Public disclosure of RMR's grievance mechanism in all Cycle I and II job sites.	<ul style="list-style-type: none"> a) Semi-annual issue of a timetable for the job sites b) Report of public disclosure of the RMR grievance mechanism at each job site 	<ul style="list-style-type: none"> a) January and June of every year until the end of the contract b) July and December of every year until the end of the contract
4	Inclusion of content about gender violence in the Daily Safety Dialogues.	<ul style="list-style-type: none"> a) Presentation of the content to be included in the Daily Safety Dialogues accepted by IDB Invest b) Report of the number of dialogues conducted with inclusion of this content per six-month period. 	<ul style="list-style-type: none"> a) Three months after closing b) Semiannual reports until the end of the contract
5	Installation of the disinfection phase at Cycle I and II sanitary wastewater treatment plants in full compliance with Brazilian federal legislation and in accordance with World Bank EHS Guidelines for Sanitation Projects	Reports of the installation of the disinfection phases at the Prazeres, Cabo São Agostinho, Goiana I, Goiana V, São Lourenco da Mata and Jardim São Paulo Sanitary Wastewater Treatment Plants	Before each sanitary wastewater treatment plant begins to operate

6	Annual transmission to IDB Invest of a copy of the RMR Greenhouse Gases Inventory	RMR Greenhouse Gases Inventory	Annually, beginning at the year of the closing
7	Analysis of residue (activated sludge in the form of pellets) produced at Cycle I and II Sanitary Wastewater Treatment Plants, analysis to be done by an outside independent laboratory to determine the composition and classification of the residue according to NBR 10.004/2004.	Analyses by an outside independent laboratory performed on the residue generated at each of the Cycle I and II sanitary wastewater treatment plants (Prazeres, Cabo São Agostinho, Goiana I, Goiana V, São Lourenço da Mata and Jardim São Paulo) accepted by IDB Invest	Six months after startup of operations at each sanitary wastewater treatment plant, repeated every two years after the first analysis
8	Traffic Safety Plan for Cycle II operations	Traffic Safety Plan accepted by IDB Invest	Three months after closing
9	Implemented Plan for livelihood restoration and involuntary resettlement in accordance with IFC PS 5 for acquisition of lands anticipated to occur in Cycle II of the operation.	Plan for livelihood restoration and involuntary resettlement accepted by IDB Invest and evidence of plan implementation	Four months after closing or prior to any acquisition of land on which a resident is present, whichever occurs first.