

SUMMARY OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

1. Project's Brief Description and Environmental Categorization

1.1. The second phase of the sub-program aims at increasing potable water supply and sanitation infrastructure to rural dwellers in fifteen districts of the North, West and South Provinces. It comprises the following components: (i) development of basic PWSS infrastructure; (ii) institutional support and capacity building of relevant sector agencies; and (iii) program management. From the environmental and social viewpoint, sub-program activities involve the improvement of access to water and sanitation, environmental protection in the beneficiary zones, sensitization and health education.

1.2. The sub-program is classified under Category 2 of the Bank's Environmental and Social Assessment. The assessment of environmental conditions during visits on the ground confirms that the program will have positive impacts. Negative environmental impacts likely to occur during the construction and operation of works will be limited, reversible or controllable through the application and follow-up of appropriate mitigative measures.

2. Major Environmental and Social Impacts

2.1. Positive Impacts

2.2.1. The sub-program will engender positive environmental impacts, among which: the systematic reforestation of catchment areas located around catchment sources (contributing to sustaining the resources tapped); periodic analysis of water quality; and improvement of sanitation in both private and public areas.

2.2.2. By securing potable water supply and considerably increasing sanitation works (from 2 000 during Phase I to 16 130), the sub-program will significantly improve the living standard of nearly 800 000 persons, of which 412 000 women. Such impacts include: (i) reduction in cases of malaria, dysentery, skin infections and cholera outbreaks; (ii) gains in terms of time (nearly three hours) and energy hitherto spent fetching water, as a result of which women would be more involved in other socio-economic and cultural activities, even as girls' attendance and performance in school would improve (currently at the primary level, girls have a success rate of 40.6%, compared to 59.4% for boys).

2.2.3. Furthermore, sanitation sensitization campaigns will change the perception and attitude of the target population, resulting in better personal and community hygiene when fetching, storing and using water – consequently reducing the domestic water contamination rate and cases of water-borne diseases. In addition, the installation of supply infrastructure across several districts will foster social cohesion in such districts insofar as the population in zones served would become members of joint user associations.

2.2.4. At the economic front, the benefits will include: (i) reduced water cost due to savings in transport cost, with water works brought closer to users; and (ii) savings from spending less on healthcare. Productivity gains from improved health will have a positive impact on poverty reduction. Furthermore, contracts with the beneficiaries within the *Ubudéhé* community approach framework will generate jobs during the works implementation phase, helping to reduce poverty. Lastly, various types of training dispensed to masons, hydraulic technicians

and private operators will enable them to acquire skills, thanks to which they would earn income during the implementation of similar projects.

2.2. Negative Impacts

2.2.1. These impacts mostly concern: (i) the reduction and/or loss of land and/or crops during the laying of pipes, installation of water reservoirs and development of catchment protection zones; (ii) erosion risks around catchment areas; (iii) dust; (iv) risk of losing or altering the fauna and flora; (v) risk of altering the quality of water used by the population living downstream during land clearing and digging; (vi) risk of polluting sources by the population living upstream (e.g. fertilizer use); and (vii) risk of personal accidents on the worksites.

2.2.2. During the operations phase, the negative impacts likely to occur will emanate mostly from inadequate/lack of maintenance of works (smell from latrines, stagnating water around standpipes, etc.).

3. Restoration and Mitigation Program

3.1. The major negative impacts identified above will be mitigated by: (i) selecting sites with few or no crops and, as the case may be, using them outside harvesting periods; (ii) paying compensation for farmlands lost for good; (iii) rehabilitating the vegetation cover in borrow areas with appropriate species; (iv) systematic reforestation of catchment basins located around catchment zones; (v) regular humidification of sites; and (vi) periodic control of water quality. Other measures proposed in the ESMP relate to: (vii) informing the population downstream to enable them to take necessary measures to avoid consuming water during works; (viii) appropriate selection of catchment sources and regular maintenance of machinery and works to avoid all pollution risk; (ix) restoration of sites immediately after works completion; and (x) enforcement of security measures on sites.

3.2. Concerning the sanitation component, latrines will be designed and built in a way that would not pollute water sources (also in a way that would prevent smell); this would mean enforcing the statutory distance between the water source and the latrine (220 meters in Rwanda), and selecting an appropriate location (anywhere except the upstream of sources). Furthermore, the latrines will be made user-friendly to handicapped persons. Since the extension of hygiene is primordial to the success and sustainability of the sub-program's impact on health, actions are planned at both the impact area and nationwide. Thus, at the level of the beneficiary provinces, plans have been made to train and sensitize 100 schoolmasters, 250 women's groups and the population of 216 localities. Nationwide, annual campaigns involving the authorities and broadcast via audio-visual media in the local language will be conducted throughout the project duration. Such campaigns will have the added advantage of sensitizing the population for future projects. Training will be dispensed on the maintenance of water points and PWSS works.

3.3 Under the supervision of Rwanda Utilities Regulation Agency (RURA), private operators or PWS manager communities will conduct physico-chemical and bacteriological analyses of catchment sources both prior to selecting the final location of works and periodically thereafter. During such analyses, the national potability norms will serve as reference. Depending on the area, the fluctuation of the water table piezometric level will be monitored by either Electro Gaz or the private operator, under the supervision of the Water Resources

Management Department in the Ministry of Natural Resources (MINIRENA) and RURA. MINIRENA and RURA will take necessary measures should the need arise.

4. Monitoring Program and Additional Initiatives

Contractors in charge of the respective sites will be responsible for implementing the mitigative and restoration measures contained in the ESMP. As during Phase I, the Works Monitoring Department and the environmentalist of the sub-program Coordination Unit (PCU) will coordinate and monitor these measures. The sub-program will provide the necessary logistics for overseeing these measures. The contractors will keep monitoring briefs, validated by the PCU environmentalist, in collaboration with MINIRENA. The PCU quarterly reports to the Bank will include eventual environmental problems and corrective measures adopted. Works reception will also include the environmental component. Since the health stakes are considerable, the medical departments in the districts concerned will conduct the sub-program's health impact assessment.

5. Institutional Arrangements and Capacity Building Needs

The Government put in place the environmental management legislative framework via Environmental Organic Law No. 4/2005 of 8 April 2005. Article 66 of the Law provides for the establishment of environmental preservation and protection committees at provinces, Kigali, districts, towns, sectors and units. Furthermore, the Law requires the conduct of environmental and social impact assessments for some projects, including PWSS operations, prior to their implementation. In that regard, the Rwanda Environmental Management Authority (REMA) was set up with responsibility to analyze impact assessments and deliver certificates of compliance prior to the start of works. The Ministry of Natural Resources (MINIRENA) is responsible for defining/implementing environmental and natural resources management policies. MINIRENA hosts the Rwanda National Environmental Fund (FONERWA) established by organic law, which also sets out its composition, *modus operandi* and mission. In view of the satisfactory implementation of environmental activities under Phase I, capacity building would not be necessary. As earlier mentioned, providing material logistics for monitoring the ESMP would suffice.

6. Public Consultations and Information Dissemination

Since the sub-program seeks to address the concerns of the beneficiaries, they will participate at all stages. Women will see their participation enhanced, especially since they will be fully involved in a large number of sub-program activities.

7. Cost Estimate

The cost of environmental measures necessary to mitigate the project's negative impacts was factored into the cost of the technical components of specifications binding on the contractors.

8. Implementation Period and Reports

These environmental and social measures will be implemented concomitantly with the works. The PCU will report on the status of the project's environmental and social components in

each progress report. Lastly, the environmental and social component will be included in the reception of sub-project works under the sub-program.

POSITIVE IMPACTS

Type of Positive Impact	Impact Assessment	Mitigative Measures Planned
<p>Environmental Impacts</p> <p>Reforestation of catchment basins around catchment sources, thanks to which the resources tapped would be sustained</p>	<p>Significant, long-term</p>	<p>Make reforestation systematic</p>
<p>Socio-economic Impacts</p> <p>Consolidate the decline in water-borne diseases</p> <p>Creation of jobs during works</p> <p>Creation of jobs during the operating phase</p>	<p>Significant, long-term</p> <p>Significant, long-term</p> <p>Significant, medium-/long-term</p>	<p>Regular analysis of water quality by private operators or PWS works manager communities, under RURA's supervision</p> <p>Hygiene sensitization campaigns</p> <p>The Ubudéhé community approach will allow for the use of beneficiaries for construction work; part of the population will also be trained in maintenance and used during the operating phase.</p>

RWANDA – ESMP SUMMARY TABLE

Phase	Environment Concerned	Impact	Impact Assessment	Mitigative Measures	Cost and Source of Financing	Responsibility for Implementation	Responsibility for Monitoring	Period
Site and construction	Natural and physical environment	Destruction of the vegetation cover	Low, temporary	Restoration of the vegetation cover with species suitable to the zone	N/A Included in the cost of works	Contractors	Works Monitoring Agency, environmentalist/ PCU and MINIRENA's local structure	End of works
		Risks to protected fauna and flora	Low	No endemic specie was identified				
		Risk of erosion of source catchment areas	Low to significant, controllable	Planting of radical terraces on the upstream of sources	N/A Included in the cost of works	Contractors	Works Monitoring Agency, environmentalist/PCU and MINIRENA's local structure	End of works
		Risk of source pollution by the population resident upstream	Low to significant, controllable	Avoid building latrines on the upstream of sources Respect the 220 m statutory distance between the source and the latrine		Contractors	Works Monitoring Agency, environmentalist/ PCU and MINIRENA's local structure	Throughout the works implementation phase
		Excavation, land movement	Low to significant, temporary and controllable	Clearing of the arable surface and restoration after works	N/A Included in the cost of works	Contractors	Works Monitoring Agency, environmentalist/ PCU and MINIRENA's local structure	End of works
Dust emission	Regular humidification of	Throughout the works implementation						

				sites				phase
	Human environment	Risk of altering the quality of water for the population dwelling downstream	Average, temporary and controllable	Inform the population about the time and duration of works to enable them to store water beforehand	idem	idem	idem	Prior to the start of works
		Risk of accident for workers and the population	Insignificant, controllable	Monitor sites, indicate works, apply the labor legislation		idem	idem	Throughout the works implementation phase
	Socio-economic Environment	Expropriation of farmland	Average (limited area), irreversible	Compensation	N/A Authorities of districts concerned	Authorities of districts concerned	PCU	Prior to the start of works
		Risk of destroying crops	Low, temporary to permanent	Works outside harvesting periods	N/A	Contractors	Works Monitoring Agency, environmentalist/PCU and MINIRENA's local structure	During works implementation

Operation	Natural and physical environment	Risk of soil erosion following leakages/breakages	Average risk, short- and long-term, controllable.	Regular pipe maintenance	N/A Private operator or communities responsible for managing the works	Private operator or communities responsible for managing the works	Works Monitoring Agency, environmentalist/PCU and MINIRENA's local structure	Permanent
	Human environment	Smell	Average to significant, controllable	Respect the statutory distance between the latrine and the water source		Contractors	Works Monitoring Agency, environmentalist/PCU and MINIRENA's local structure	Prior to the start of works
		Health and hygiene due to pollution and proliferation of	Average to significant, short- and long-term,	Promote the sanitation of water fetching points in	N/A Financed by the sub-program	Environmentalist/PCU	PCU/health centers in districts	Permanent

		vectors of disease around the sources developed, standpipes	controllable	order to keep them clean; clear stagnant water			concerned	
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