Introduction

The proposed PRSC I (see Project Information Document, Integrated Safeguards Data Sheet, and forthcoming Program Document) will provide budget support to the Government of Rwanda (GoR) to help the Government implement the goals outlined in its Poverty Reduction Strategy Paper (PRSP) of July 2002, and meet Millennium Development Goal (MDG)-related PRSP objectives. PRSC I will be the first in a planned series of three PRSCs through the period 2007.

This Environmental Assessment (EA)\(^1\) analyzes the cross-cutting environmental and social issues facing Rwanda in each of the four PRSC-targeted sectors, i.e., education, health, water, and energy, and identifies ways in which the GoR can enhance its capacity, with support under the PRSC series, to manage potential environmental and social impacts. The analysis takes into account EA and other relevant assessments and ongoing or planned Bank activities in Rwanda. It also proposes key measures that the GoR can take so that sector ministries, local governments, and other institutions develop the capacity to manage environmental and social issues during the preparation and implementation of development programs and projects, irrespective of the source of financing.

This EA is comprised of the following sections: Program Description, World Bank Environmental and Social Compliance Requirements, Analyses of Environmental and Social Issues, and Environmental and Social Management Capacity.

I. Program Description

A. Overview of PRSC Program

The objective of the proposed PRSC series is to support the GoR in its efforts to implement its Poverty Reduction Strategy aimed at: (a) creating a favorable private sector investment climate that would promote macroeconomic stability and sustained economic growth; (b) improving the quality, coverage, and equity in the delivery of basic human development services, and increasing expenditure efficiency; and (c) enhancing public expenditure management and governance, with an emphasis on expanding the voice and participation of citizens.

Actions in the education and health sectors are fully integrated into the proposed PRSC I, while for the water and energy sectors the focus is on preparatory work (e.g., strategy development, costing of scenarios). PRSC II would be expected to engage fully in actions in all four sectors, and PRSC III would aim to scale up service delivery in these sectors. In each of these sectors, results-orientated budgeting, through the use of a Medium Term Expenditure Framework (MTEF), public expenditure management, and transparency and accountability would be addressed. The proposed PRSC will be complemented by several ongoing and/or planned World Bank projects in Rwanda (see Table 1).

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<table>
<thead>
<tr>
<th>Program/Project Names</th>
<th>Program/Project Development Objectives</th>
<th>Bank Safeguard Policies Triggered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Sector Support Program</td>
<td>The development objective of Phase I of the program is to build capacities in the following areas: (i) management of farmed marshland and hill-side areas; (ii) access to credit and management of productivity and competitiveness in agricultural export sectors; (iii) generation and dissemination of improved technologies; (iv) preparation and supervision of small-scale rural infrastructure by local communities; (v) construction and maintenance of post-harvest and water management infrastructure.</td>
<td>OP4.01, Environmental Assessment; OP4.04, Natural Habitats; OPN 11.03, Cultural Property; OP4.12, Involuntary Resettlement</td>
</tr>
<tr>
<td>Emergency Reintegration and Demobilization Project</td>
<td>To help consolidate peace in the Great Lakes Region and foster reconciliation within Rwanda. The four principal objectives of the Program are: (i) demobilize an estimated 20,000 ex-combatants from the Rwanda Defense Force (RDF) and 25,000 members of the Rwandese armed groups, and support their transition to civilian life; (ii) in the spirit of the Arusha Accords, support the reinsertion of ex-FAR; (iii) support the social and economic reintegration of all ex-combatants who remain socio-economically vulnerable; and (iv) facilitate the reallocation of Government expenditure from defense to social and economic sectors.</td>
<td>Environmental Assessment OP4.01</td>
</tr>
<tr>
<td>Human Resource Development Project</td>
<td>The main objective of this project is to assist Rwanda in its efforts to develop and implement a sustained program of capacity building through education and skills development in order to redress human resources deficiencies and develop a critical mass of trained human resources. Specific actions are geared towards: (i) increasing access to primary and secondary education through the involvement of local communities in school rehabilitation and construction; (ii) improving the quality of primary and secondary education; (iii) heightening awareness of HIV/AIDS and promoting behavioral change prevention strategies among children and youth; (iv) building capacity within the education sector and the overall economy including support for the provision of focused training in key areas; (v) undertaking analytical work and experimentation in preparation for a Sector-Wide Investment Program.</td>
<td>OP 4.01, Environmental Assessment</td>
</tr>
<tr>
<td>Rural Water and Sanitation Project</td>
<td>To assist Rwanda; (i) increasing the availability and sustainability of water supply and sanitation (WSS) services in rural areas; (ii) strengthening the capacity of (a) communities to plan water supply and sanitation investments and manage water supply and sanitation services and (b) agencies responsible for water supply services, communes, water users and the private sector to carry out their respective responsibilities under the Borrower’s water sector strategy; and (iii) mobilizing community support for (a) the rehabilitation or expansion of the major regional water systems, and (b) the operation by the private sector of the said systems.</td>
<td>OP 4.01, Environmental Assessment</td>
</tr>
<tr>
<td>Competitiveness and Enterprise Development Project</td>
<td>To establish an enabling environment for private sector-led economic growth and poverty reduction in Rwanda. The project will focus on promoting a competitive climate by (i) streamlining the business environment; (ii) reducing the costs and increasing the efficiency of telecommunications, water and electricity utilities, and the tea industry; and (iii) improving access to financial services and provide support services to local entrepreneurs.</td>
<td>OP 4.01, Environmental Assessment; GoR prepared medical waste management plan.</td>
</tr>
<tr>
<td>Multi Sectoral HIV/AIDS Project</td>
<td>To; (i) strengthen prevention measures in order to slow down the spread of HIV/AIDS; and (ii) expand support and care for those infected or affected by HIV/AIDS.</td>
<td>OP 4.01, Environmental Assessment; ESMF prepared by GoR.</td>
</tr>
<tr>
<td>Decentralization and Community Development Project</td>
<td>To stabilize and expand the capacity of local government and communities to identify and finance their own development priorities to engender economic growth and reduce poverty according to the Government’s decentralization policy. Whereas, the main development objective of the project is to strengthen and scale up the CRDP, through a CDD approach to development investment, using a transparent and sustainable mechanism that decentralizes planning, project cycle management and financial management to Districts and Community Development Committees (CDCs).</td>
<td>OP4.01, Environmental Assessment</td>
</tr>
<tr>
<td>Integrated Protection and Management of Critical Ecosystems Project</td>
<td>The conservation and sustainable use of natural resources through the development and implementation of community-based integrated resource management plans for critical wetland ecosystems.</td>
<td>OP4.01, Environmental Assessment</td>
</tr>
</tbody>
</table>
B. Potential Environmental and Social Impacts of PRSC I

Because the proposed PRSC I will provide direct budget support to the GoR, it will not be feasible to identify activities financed by PRSC funding, separately and distinguishable from other sources of budget financing. Therefore, adverse environmental and social impacts specifically associated with the PRSC are not distinguishable. Thus, the purpose of this EA is to assist the GoR in identifying and eventually establishing the regulatory, administrative, and technical capacity within Rwanda to ensure that for each development project undertaken in the country, environmental and social impacts are identified, mitigated, and monitored as part of the sustainable use and management of Rwanda’s natural resources and the environment.

II. World Bank Environmental and Social Compliance Requirements

As PRSC I has been designated a Sectoral Adjustment Credit, in compliance with OD8.60, the requirements of OP4.01 apply. Environmental and social issues are broadly defined according to the scope of OP4.01, i.e., the natural environment (air, water, land), human health and safety, and social aspects including, but not limited to, involuntary resettlement, indigenous peoples, and cultural property. The World Banks Safeguards Policies are:

1. Environmental Assessment (OP4.01, BP 4.01, GP 4.01)
2. Natural Habitats (OP 4.04, BP 4.04, GP 4.04)
3. Forestry (OP 4.36, GP 4.36)
4. Pest Management (OP 4.09)
5. Cultural Property (OPN 11.03)
6. Indigenous Peoples (OD 4.20)
7. Involuntary Resettlement (OP/BP 4.12)
8. Safety of Dams (OP 4.37, BP 4.37)
9. Projects on International Waters (OP 7.50, BP 7.50, GP 7.50)
10. Projects in Disputed Areas (OP 7.60, BP 7.60, GP 7.60)

The EA Category assigned to PRSC I is Category B. Therefore, in this EA:

a) An analyses of the environmental and social issues potentially raised by PRSC I, associated with the four targeted sectors of education, health, water and energy, has been undertaken.
b) Based on this analysis, the roles of public sector agencies (sectoral and central, national and decentralized) to manage these issues is examined and responsibilities for monitoring and managing these issues arising from proposed activities under PRSC I and other ongoing, Bank-supported operations are assigned.
c) Also based on the above analysis, an indicative set of key measures has been identified to help guide the GoR in public sector monitoring and management of the environmental and social issues discussed.

The applicability of other safeguard policies listed above will be discussed in the context of sectoral PRSC I activities and ongoing Bank-supported projects, and recommendations to manage relevant issues will be harmonized with the b) and c) above. In compliance with the Bank’s Disclosure Policy, this EA will be disclosed both in Rwanda and at the World Bank’s InfoShop in Washington, DC and via the World Bank’s web site (www.worldbank.org).

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3 See http://www1.worldbank.org/operations/disclosure/.
III. Analysis of Environmental and Social Issues

A. Brief Overview of Key Biophysical Environmental Features

Rwanda is a small, mountainous, landlocked country located in Central Africa, bordering Burundi, Tanzania, Uganda, and the Democratic Republic of Congo (DRC), with Kigali as its capital. Rwanda has a total surface area of 26,338 square kilometers, of which the total land area is 24,948 square kilometers, and 1,390 square kilometers is water, with the lowest altitude of 950 meters at Rusizi River and the highest altitude of 4,519 meters at Mount Karisimbi. The average altitude is 1,250 meters above sea level. Rwanda can be divided into six topographical regions:

- From west to east is the narrow Great Rift Valley, which slopes sharply to Lake Kivu.
- The Volcanic Virunga Mountains, whose highest peak, the snow capped Mount Karisimbi, towers over the high north western lava plains.
- The ridge of the Congo – Nile Basins divide, with an average elevation of 2,750 meters above sea level.
- The central plateaus east of the mountains, which are covered by rolling hills.
- The savannas and swamps of the eastern and south eastern border areas, which cover one-tenth of the nation’s land area and include the vast Kagera National Park.

Rwanda’s hydrology is characterized by a dense hydrographic network of lakes, rivers, and wetlands. The country is divided into two major drainage basins, the Nile to the east and the Congo to the west. The Congo River Basin covers 25 percent of Rwanda and receives 10 percent of the total national rainfall. The Nile River Basin covers an area of 75 percent of the territory and receives 90 percent of the national rainfall. The waters of the Nile River basin flow out through the Akagera river system, which contributes between 8 and 10 percent to the Nile drainage system. Rwanda's high altitude accounts for its tropical, highland climate. Daily temperatures typically reach 25 degrees Celsius. There are two rainy seasons, one from October/November to January and the other from mid-march to the end of May.

Rwanda has some 28 lakes of significant size. Six among the largest are entirely within the national territory: Runhondo, Muhazi, Mugasera, Ihema, Rwanye, and Burera. Three others, Rugwero, Cyohoha, and Kivu, are shared with neighboring countries. The largest is Lake Kivu which lies at 1,460 meters above sea level and is 90 kilometers long (north-south) and 49 kilometers wide (east-west). From an average depth of 220 meters, it plunges to a maximum depth of 475 meters. Lake Kivu has a rough, jagged coast and contains numerous islands, the largest of which is Idjwi. Lake Kivu lies on the border with Congo in Western Rwanda at the foot of the Virunga Volcanoes. Kivu’s shores are densely populated and the principal town on the Rwandan side is Gisenyi. Although it is supplied with fish, the lake is poor in fauna, but rich in volcanic substance. Great volumes of dissolved methane gases that may be developed as an energy source exist in its deep waters. Lake Kivu drains to the south into lake Tanganyika by the swiftly descending Ruzizi River. The Central Plains are drained by the Nyabugogo, and Akanyaru rivers. Rwanda’s eastern border is formed by the Akagera River on its way to Lake Victoria. The rivers and lake cover some 135,000 hectares, or 5 percent of national territory.

The dense high altitude forests of Volcanoes National Park is home to about half (320) of the world’s remaining population (650) of Mountain Gorillas. Mountain. The gorillas eat large amounts of vegetation from more than 70 different plant species and spend about 30 percent of each day foraging for food. They consume roots, leaves, stems of herbs, vines from trees, shrub-sized plants, wild celery, gallium, vines, berries, barks, and bamboo shoots. Among the 12 species of primates in the Nyungwe National Park, are the black and white Colobus monkeys that wonder around in huge troupes, some of which are made up of over 300 agile individuals. There are also known to be 275 species of birds in the Nyungwe. In the Akagera National Park is the largest variety of wildlife species, which includes buffalo, zebra, antelope,
warthog, chimpanzee, lion, elephant, rhinoceros, and hippopotamus as well as rare species such as the
giant pangolin, or anteater. The main threat faced by these animals is the destruction of their habitats and
poaching.

B. Rwanda’s Environmental Policy, Law, and Institutions

The Rwandan National Environment Policy (October 2003) sets out overall and specific objectives as
well as fundamental principles for improved management of the environment, both at the central and local
levels, in accordance with the current policy of decentralization and good governance in the country. The
policy sets out institutional and legal reforms with a view to providing the country with a coherent and
harmonious framework for coordination of sectoral and cross-cutting policies. It called for the
Establishment of the Rwanda Environment Management Authority (REMA) and the provincial, district,
and lower level committees responsible for environmental protection. The policy recognizes that
environment as a sector is a new concept in Rwanda, requiring true awareness and coordination of actions
at all levels.

An Environment Bill has been formulated and is currently (July 2004) before parliament; when passed, it
will lay the legal framework for environmental management in Rwanda. The main institutions with
responsibility for the environment in Rwanda are the Ministry of Lands, Environment, Forestry, Water
and Natural Resources (MINITERE) and the Rwanda Environmental Management Authority (REMA).
The latter was only recently established. Within the MINITERE is the Directorate of Environment, which
is broadly responsible for policy issues, monitoring policy implementation, and the budget, whereas
REMA is the technical arm of MINITERE responsible for implementing environmental policy. At the
local level, the District is an autonomous decentralized administrative structure with a legal status and
financial autonomy. It has two principal political bodies:

a) The District Council. This entity is responsible inter alia for enforcing the laws of Rwanda,
   promoting governance based on democracy, preparing regulations governing the District,
   implementing Government decisions, adopting the District’s development action plan, adopting
   the District’s budget, fixing the maximum amount to release from the District’s funds, following up
   on the activities of the Executive Committee (see below), coordinating activities of the sectors,
   approving any grants, bequests, and credits that the District may receive.

b) The Executive Committee. This entity is responsible inter alia for administration of the District,
   preparation of the District Development Action Plan, implementation of the district budget,
   preparation of quarterly and yearly reports, and examination and resolution of problems not solved at
   the Sector level.

C. Analysis of Environmental Issues

The key environmental concerns affecting Rwanda today are highlighted in the Table 2. Key measures to
guide the GoR to address these concerns include:

- Directorate of Environment, MINITERE, to harmonize Sectoral Policies and Laws (e.g., forestry,
  water, land, etc.) with the Environmental Policy and the new Environmental Law.
- Enhance capacity of Department of Environment, MINITERE, through short- and medium-term
  training and technical assistance in environmental law, policy formulation, budgeting and policy
  implementation monitoring.
- REMA to prepare Environmental Sectoral Guidelines.
- Build capacity of REMA through short- and medium-term training and technical assistance in the
  areas of EIA preparation, review, and monitoring, and in the conduct of Environmental Audits and
  Inspection.
- Enhance capacity of REMA to conduct environmental public awareness campaign.
- Design and installation of information and ICT systems in REMA. Training of staff to use, update and maintain these systems.
- Track UNDP funded Decentralization and Environmental Management Project’s Districts capacity building plan to support and strengthen as appropriate.

Table 2. Rwanda’s Environmental Challenges

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<tbody>
<tr>
<td><strong>Immediate Causes</strong></td>
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<tr>
<td>Massive continued loss of vegetative cover due to deforestation and loss of other land cover, deterioration of catchment buffer zones.</td>
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<tr>
<td>Inappropriate agricultural practices leading to decreased soil quality and erosion, such as use of marginal lands, overgrazing and free grazing.</td>
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<tr>
<td>Lack of soil and water conservation measures and/or abandonment and poor maintenance of anti-erosion works.</td>
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<tr>
<td>Bush fires and slash and burn practices.</td>
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</tbody>
</table>

Deforestation: For instance, a pre-war 1994 total forest area of 417,000 ha has fallen to approximately 226,000 ha. Gishwati Forest has all but disappeared, the Mutara hunting reserve has completely disappeared and the Akagera National Park is now less than one-third of its original size. Nyungwe Forest is also threatened.

<table>
<thead>
<tr>
<th>Immediate Causes</th>
<th>Root Causes</th>
<th>Impacts</th>
<th>Severity</th>
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<tbody>
<tr>
<td>Land use conversion due to increasing need for arable land and grazing areas; burning practices for land clearing and shifting cultivation.</td>
<td>Poverty and population pressure leading to unsustainable pressure on resources; absence of alternative livelihoods and weak capacity to increase unit agricultural production.</td>
<td>Decreasing vegetation/forest cover; loss of density and diversity.</td>
<td>HIGH</td>
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<tr>
<td>Uncontrolled logging for fuelwood and charcoal production for domestic/household energy consumption, construction material and local industry fuel needs.</td>
<td>Insufficient energy alternatives to fuelwood.</td>
<td>Deterioration of watershed: high run-off associated with increased erosion leading to loss of fertile soils and siltation and siltation downstream.</td>
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<tr>
<td>Unsustainable and inefficient resource use (e.g. overgrazing, extensive cultivation on steep hill slopes and uncontrolled logging).</td>
<td>Insufficient awareness and knowledge of sustainable land use practices and effects of deforestation.</td>
<td>Energy crisis associated with price increases due to decreased availability of fuelwood and charcoal.</td>
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<tr>
<td>Lack of local planting/replanting.</td>
<td>Land tenure system leading to allocation and use of marginal lands and lack of incentives for sustainable land use practices.</td>
<td>Large scale habitat destruction and loss of wildlife in terms of numbers and biodiversity; progressive disappearance of National Parks.</td>
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<tr>
<td>Human migration and resettlement due to increasing numbers of returnees and other war affected groups, encroaching into forested areas.</td>
<td>Large numbers of refugees and resettlements without basic support and planning.</td>
<td>Variability in climate and rainfall patterns.</td>
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### Water Contamination: Sanitation Aspects

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<tr>
<th>Immediate Causes</th>
<th>Root Causes</th>
<th>Impacts</th>
<th>Severity</th>
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<tbody>
<tr>
<td>Lack of water supply systems and/or other reliable drinking water source; drinking water contamination with fecal matter leading to spread of pathogens.</td>
<td>Lack of environmental regulations and laws, monitoring and enforcement and general waste management strategies.</td>
<td>Pollution of drinking water sources (ground and surface water) and high dissolved nutrient loads resulting in increasing eutrophication and spread of infectious diseases (diarrhea, malaria, bilharzias, dysentery, and intestinal worms).</td>
<td>SEVERE</td>
</tr>
<tr>
<td>Lack of or insufficient sewerage or alternative sanitation systems; leaks and insufficient maintenance of existing facilities; lack of urban storm water sewers and solid waste disposal facilities.</td>
<td>Rapid growth of urban centers and lack of financial resource base to build needed water supply and sanitation infrastructure, combined with lack of planning for urban expansion and required infrastructure.</td>
<td>Risks to public health due to poor sanitation conditions, especially during rainy season and floods.</td>
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<td>Insufficient sanitation and hygiene training in conjunction with widespread poor sanitary conditions.</td>
<td>High capital costs for investments; high operation and maintenance costs.</td>
<td>Increased absence from work due to sickness; increase in malnutrition and death rates especially among vulnerable groups such as small children, the displaced and the elderly.</td>
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<tr>
<td>Increased breeding ground for mosquitoes in water weed infested areas and irrigation canals.</td>
<td>Previous low priority given to sanitation by government and agencies, lack of awareness of connection between sanitation and safe drinking water; need for better hygiene education.</td>
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<tr>
<td>Poverty and poor health condition of large parts of the population.</td>
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### Water Contamination: Water Weed Infestation, Especially along Kagera and Nyabarongo rivers and Lakes Cyohoha and Rwero.

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<thead>
<tr>
<th>Immediate Causes</th>
<th>Root Causes</th>
<th>Impacts</th>
<th>Severity</th>
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<tbody>
<tr>
<td>High dissolved nutrient levels from pollutant discharge from industrial discharge and domestic sources and agricultural run-off due to poor land use practices and lack of water treatment.</td>
<td>Introduction of hyacinth, insufficient preventive measures against introduction of foreign species in general.</td>
<td>Continuing spread of weeds and infestation of lakes and rivers, eutrophication.</td>
<td>MODERATE TO SEVERE</td>
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<tr>
<td>Inadequate response mechanisms.</td>
<td>Lack of capacity in water resources and environment ministry resulting in inefficient enforcement of environmental regulations.</td>
<td>Interference with ecology and economy, e.g. mats on water surface impair navigation and fishing activities and lead to decrease in fish yields as well as to eutrophication.</td>
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<td>Delay in mobilizing funds and creating national/regional programs to combat infestation.</td>
<td>Decrease in diversity of certain fish species.</td>
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<td>Increase in occurrence of waterborne diseases; increased water evaporation.</td>
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### Loss of Biodiversity and Habitats

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<th>Immediate Causes</th>
<th>Root Causes</th>
<th>Impacts</th>
<th>Severity</th>
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</thead>
<tbody>
<tr>
<td>Species loss and decline of ecosystems and unique habitats.</td>
<td>• Population pressure and poverty combined with high reliance on primary natural resources and income from agriculture.</td>
<td>Species loss and decline of ecosystems and unique habitats.</td>
<td>SEVERE</td>
</tr>
<tr>
<td>• Poaching and illegal trade in valuable species as well as intensive and unsustainable resource use and land management, such as deforestation, wetlands conversion, expansion of agriculture (crops and livestock farming, overfishing, uncontrolled burning and forest fires).</td>
<td>• Low financial and staff capacity in management of protected areas and associated lack of control and monitoring; poor enforcement of laws protecting gazetted forests and game sanctuaries; lack of financial resources for development and implementation of effective and relevant programs.</td>
<td>• Disappearance of unique animal and plant species, especially endemic ones; decline of species diversity.</td>
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<td>• Lack of alternative income sources especially in areas or resettlement.</td>
<td>• Weak agricultural extension services.</td>
<td>• Decrease in numbers of large mammals with negative impact on tourism and associated decrease in revenue.</td>
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<td>• Lack of awareness of biodiversity concerns and benefits from conservation.</td>
<td>• Decrease in forest cover constituting decrease in food, fuel timber and shelter.</td>
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<td>• Lack of regulations to prevent introduction of exotic species.</td>
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<td>• Inadequate and unregulated land use practices; insufficient integrated programs for people living in protected areas.</td>
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<tr>
<td><strong>Loss of agrodiversity.</strong></td>
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| • Expansion of hybrid/high yielding crop and livestock varieties leading to decrease of genetic diversity of domestic/national species | ```
| • Introduction of exotic species.                                               |                                                                                                 |                                                                                               |          |
|                                                                                   |                                                                                                 |                                                                                               |          |
| **C.1. Analysis of Key Environmental Issues Concerning the Education Sector**   |                                                                                                 |                                                                                               |          |
| On the hardware side, the construction and rehabilitation of school buildings and sanitary facilities under the Human Resources Development Project and/or the Decentralization and Community Development Project is not expected to cause significant adverse impacts. Most impacts are local and can be easily mitigated. The funding of school construction under these operations is subject to comprehensive     |                                                                                                 |                                                                                               |          |
screening (using standardized checklists), negative environmental impacts are identified and mitigated by adjusting architectural designs and civil works contractual obligations, and implementation of mitigation measures is monitored at the district level with support from the project.

On the software side, the absence of environmental awareness among Rwandese is among the root causes of many environmental concerns affecting the country. The Government is cognizant of the need to address this situation and is determined to introduce environmental education through the primary and secondary school curricula, through study of the need to protect the natural environment for sustainable economic income from suitable management of natural resources and for increased awareness on the direct impact on public health. Key measures to guide the GoR to address these issues include:

- MINEDUC (Ministry of Education) to develop environmental education curricula for primary and secondary school education.
- REMA to develop training manuals in environmental education for primary and secondary school teachers.
- Issue of standard design guidelines for primary and secondary school construction necessitating at a minimum the inclusion of: (i) sanitary facilities with sewage systems and water provided from wells or by water harvesting; (ii) canteen/school kitchens to have standpipes; and (iii) schools to have energy-saving cooking stoves or ovens to ensure efficient use of biomass fuel.

### C.2. Analysis of Key Environmental Issues Concerning the Health Sector

The construction and rehabilitation of health care facilities under Bank-finance operations is not expected to cause significant adverse impacts. More serious environmental concerns are likely during the day to day operations of these facilities. The greatest risk comes from the ineffective management of medical and human waste. The Bank-funded Multi Sectoral HIV/AIDS Project (MAP) prepared a Waste Management Plan. The challenge for the MAP project is in finding affordable and appropriate technologies for incineration of medical solid waste. MAP is considering the use of locally constructed clay ovens that can achieve the high temperature required and along with minimum operational (including maintenance) costs. This Waste Management Plan forms the basis for addressing waste management throughout the health sector in Rwanda. Regarding broader sector issues, the Ministry of Health has developed, as part of its Health Sector Strategy Plan, an environmental public health plan. Key measures to guide the GoR to address these issues include:

- Directorate of Planning at the MINISANTE (Ministry of Health) to prepare Public Health Guidelines for use by institutions with responsibility for public health (in water and food supply).
- REMA to prepare manual for environmental public health awareness campaign.
- Training of Public Health Inspectors for posting to Districts.
- Training of Public Health Nurses for posting to Districts.

### C.3. Analyses of Key Environmental Issues Concerning the Water Sector

Regarding water as a natural resource, and its cross cutting implications for the sustenance of all forms of life, the main environmental issues are contamination and pollution of its sources and storage areas due primarily to pollution from lack of suitable sanitation and drainage facilities, and also from water weed/hyacinth infestation. These issues severely affect the quality of water available for human consumption, agriculture, energy, and the maintenance of natural habitats and ecosystems in Rwanda. The Government is committed to its Water Supply and Sanitation Strategy, with its main objective being to provide a sustainable, safe water supply and sanitation facilities based on management, responsibility, and ownership by users.
The national rural water supply strategy, implemented and tested under the Bank financed Rural Water and Sanitation Project (RWSP), is based on the concept of a community demand driven approach and the national decentralization policy. An EA was carried for this project to ensure proper environmental management of the project. At the time the EA was conducted, REMA did not exist; Thus REMA will now get involved in monitoring the RWSP. The Government has committed itself to finalize and publish its Water Policy and to pass a new law to provide the legal and regulatory framework for the implementation of this policy. Key measures to guide the GoR to address these issues include:

- Directorate of Water, MINITERE, to incorporate integrated environmental management and protection of water resources into the new policy and law.
- Directorate of Water, MINITERE, to work closely with REMA, and the Ministries of Health and Education, to ensure effective monitoring and public awareness of public health issues.
- REMA to monitor implementation of RWSP.
- Directorate of Water, MINITERE, to conduct a Sectoral Environmental and Social Assessment (SESA) for the water sector based on the new policy and law.

C.4. Analyses of Key Environmental Issues Concerning the Energy Sector

At the present time, most of Rwanda's power needs are the responsibility of Electrogaz, the national parastatal, whose main source of generation is hydro-power. Even though this is a renewable source, the water reservoir levels are low, thereby affecting power output. To meet the current shortfall in demand, plans are underway for thermal generation in the medium term and for purchasing power from independent power producers (IPP's), particularly those using Lake Kivu methane. In addition, most rural and many urban households depend on biomass fuels for domestic energy needs. This places great pressure on forest resources. The sustainable management of Rwanda's natural resources lies at the centre of its ability to provide energy for socio-economic development. Part of the Government’s national energy policy is to mitigate environmental, health, and safety impacts of energy production and use. Key medium-term measures to guide the GoR to address these issues include:

- REMA to prepare Environmental Guidelines for the Energy Sector.
- MININFRA (Ministry responsible for Energy) to conduct a Sectoral Environmental and Social Assessment (SESA) for the sector based on the energy policy and rural electrification policy so as to inform the planning process as new electricity generation is brought into service.
- Build capacity of Electrogaz through training and technical assistance and at the provincial levels for environmental management of natural resources.
- Conduct EIA for the Generation Master Plan and the Extension of Kibuye-Karongi transmission line to connect to the methane plant.
- MININFRA to review wood fuel related legislation and to draft new legislation to bring it into compliance with new policy.
- MININFRA and REMA to launch Public Awareness Campaign for energy efficient use of wood/charcoal awareness.
- Introduction by REMA and MININFRA of new technologies/design for energy saving cooking stoves, using less firewood for more output.

D. Brief Overview of Key Social Issues Affecting Rwanda

Rwanda remains one of the poorest countries in the world. Its population of 8.2 million in 2000, made up of Hutus, Tutsis, and Batwas, is growing at between 2.5 to 2.9 percent per annum. Its population density of 337 per square kilometer in 1999 is in the top ten in the world, nearly 50 percent of the population is 16 years old or younger, and 90 percent live in rural areas. Agriculture is the primary economic activity for this 90 percent. Rwanda ran out of new arable land almost 20 years ago and agricultural productivity has
been on the decline. The severe degradation of scarce land, forests, and water resources that support agriculture has become a challenge to the revival of the rural economy.

The legacies of the genocide continue to weigh heavily on the social and economic recovery of Rwanda. The genocide and the preceding civil conflicts impoverished Rwandese and increased their vulnerability, particularly widows and orphans of the genocide, recently returned refugees, resettled internally displaced persons (IDPs), and the families of the detained 120,000 (at the peak) suspects of crimes of genocide. In 2000, 40 percent of children between the ages of 7-14 were orphans (have lost at least one parent). Mental health problems, largely the result of the horrors of the genocide and its aftermath, are widespread in a society that is not well-equipped to deal with it. A 1995 UNICEF survey found that 96 percent witnessed violence during the genocide, 88 percent saw dead bodies or parts of bodies, and 70 percent witnessed someone being killed or injured.

A recent survey of the population found that poverty/economic hardship, security, health care, and lack of trust/sincerity are the major social problems. The loss of social capital and community solidarity that help to cope with poverty has increased social and economic vulnerability. The rebuilding of the social fabric will take time; continued assistance to reintegrate the vulnerable populations and the rapid expansion of economic opportunities will accelerate the process.

Despite these difficulties, over the last decade the country has been steadily moving out of the post conflict phase. Many refugees have returned and the reconciliation process has significantly progressed. Rwanda has taken huge strides toward pro-poor measures aimed at improving social services, reducing gender disparities, and initiating a serious effort to fight HIV/AIDS. Health indicators have improved steadily after the genocide and are reaching close to pre-genocide levels. Enrollment has increased at all levels of education, with net and gross enrolments surpassing pre-genocide levels, and enrolment of girls is at with that of boys.

D.1. Characteristics of Poverty

The PRSP benefited from a number of recent surveys (completed in 2000 and 2001) in this area, including the Household Living Standards Survey (HLSS), the Core Welfare Indicators Questionnaire (CWIQ), and the Demographic and Health Survey (DHS). These confirmed that living conditions in Rwanda, while slowly improving since 1994, continue to be very poor, particularly in the rural areas. Rwanda’s per capita income of US$230 is still much lower than the US$370 it was in 1990; in addition, 60 percent of households live below the poverty line, compared to about 40 percent in 1985. Ninety percent of the population live rural areas and depend on agriculture for their livelihood. The HLSS showed a significant change in income inequality, with urban populations doing much better than rural ones. Based on these surveys and the results of the in-country consultations with local communities, local and central governments and civil society members, during the preparation of this EA, the following characteristics of poverty were derived:

Who are the Poor?
- Rural households.
- Female headed households, other households with less than two adult-members, elderly and handicapped persons.
- Large households.
- Recently resettled internally displaced people (IDP’s) and returned and returning refugees.
- The Batwa People.
- The “assetless,” i.e., landless, those with no livestock, etc.

These groups are not mutually exclusive.
Why are they poor?

- **Rural Households**
  - low agricultural productivity, declining soil fertility and environmental degradation.
  - lack of access to land, land fragmentation, insecurity of land tenure.
  - lack of access to markets, absence of rural commercial activity and alternative income earning opportunities.
  - social and economic isolation due to high transport costs and insecurity.
  - poor health services and health standards and rise in HIV/AIDS incidence, impacting negatively on productivity.
  - loss of capital stock (livestock and other animals) in the genocide.
  - poor agricultural extension services, lack of access to and knowledge of the use of improved inputs.
  - lack of access to low cost capital or micro-credit or micro-grants.
  - lack of access to affordable and sustainable household energy sources.

- **Female-headed households**
  - Shortage of household labor
  - declining soil fertility
  - many women have to take care of husbands and sons in prison, dependant parents, orphans, handicapped husbands and children, returning refugees, and other dependents.
  - low education attainment, poor access to land, paid employment and credit
  - poor social services, e.g. water, health, education etc.

- **Recently returned refugees and resettled IDPs**
  - lack of permanent housing.
  - access to social services, water, healthcare and education
  - lack of land and other assets
  - loss of capital stock- livestock, coffee bushes, banana plantations, farm implements and supplies.
  - lack of social support due to disconnection with or dislocation from original/nuclear families as resettlement was arbitrary and not to original home base.

- **Urban Poor**
  - rapid increase in urban population.
  - no employment opportunities particularly among poorly educated young people.
  - poor basic social services and infrastructure.
  - lack of housing.
  - lack of land.
  - high food prices due to low agricultural productivity, high transport costs and restrictions on petty trade.

Where are the poor?

Poverty continues to be essentially a rural phenomenon in Rwanda. All the provinces suffered reductions in household and individual incomes over the last two decades.


Issues affecting land reform and administration remain a very emotive and sensitive issue and was seen as one of the major sources of unrest in the past. Therefore, the Government has approached this issue wisely, with sensitivity, and appropriate consultative and participatory processes. Key measures to guide the GoR to address these issues include:

- Land Law Policy passed by Cabinet.
• Land Law submitted to parliament.
• Development of Land Registration System through the development of a Cadastre System.
• Build capacity of new Land Center through training and technical assistance.
• Train of Urban and Peri-Urban Land/Town Planners.

In general, development programs/projects in both the public and private sector that contain activities which have an adverse impact on people or communities, as defined by the Bank’s Involuntary Resettlement OP 4.12, will be avoided. In such cases where this is not feasible, affected people and/or communities will be identified, participate in relevant project/program activities, be fully compensated, and have entitlements delivered before the activities causing the impact are started. Affected persons/communities must also have the grievance mechanisms explained to them and assisted to use these mechanisms when they believe they are grieved. Particular attention should be paid to identified vulnerable groups, and their post resettlement condition must be monitored to ensure successful mitigation.

In ongoing or planned Bank projects/programs where a Resettlement Policy Framework (RPF) was prepared by the GoR and publicly disclosed, affected persons would be treated in ways and manners consistent with that RPF. For programs/projects that did not envisage involuntary resettlement and hence an RPF was not prepared during project preparation, a Resettlement Action Plan (RAP) for each case would be prepared consistent with the laws of Rwanda and the World Bank’s OP4.12. Additional key measures to guide the GoR to address these issues include:

• Prepare a country wide strategy to manage involuntary resettlement due to public and private funded investments projects.
• Build capacity at the central and local level to implement this strategy.

D.3. Analysis of Key Social Issues: Education Sector

Rwanda has achieved remarkable progress in reviving its education system that collapsed during the genocide. The challenge now is for Rwanda to make the transition from recovery of the system to sustained long-term development. To achieve this, higher quality of service must be provided as improved access to post-primary education among those at risk of being left behind, particularly children from rural areas and the lowest income groups, and among girls and orphans is increased.

Primary and Secondary Education. Progress has been uneven across socio-economic groups. Although girls are as likely as boys to enroll in primary and secondary education, they make up only about a third of the students in higher education. Gaps between urban and rural populations as well as across income groups are modest in primary education, but they widen considerably in secondary education and deteriorate even more in higher education. For example, in 2000 the secondary gross enrollment rate ratio (GER) was only 6 percent in rural areas compared with 30 percent in urban areas; and the ratio among children from the highest income quintile was 29 percent compared with 3 percent among those from the lowest income quintile. While gross enrolment rates for primary education are impressive across the gender, income and locality, the transition rate to secondary education is low. This is due in part to a combination of higher than normal (34 percent in 2000-2001) primary school repetition rate, less access to secondary school due to greater travel distances, and higher costs to parents of secondary school students. Key measures to guide the GoR to address these issues include:

• GoR implements its pledge to abolish school fees for lower secondary education (i.e., the tronc commun cycle).
• MINEDUC to closely monitor (“follow the money”) Capitation Grants, valued at 300 RwF per pupil, to Districts to ensure targeted areas are reached.
• GoR to increase funding to District Education Funds and monitor them to ensure and intensify public support to particularly needy students.
• MINEDUC to increase access to secondary schools.
• Improve quality of service at primary schools to reduce repetition rates.

**Higher Education.** Access to higher education is generally very low in Rwanda. In urban areas the gross enrollment ratio is 8.3 percent, but only 0.5 percent in rural areas. The Government's strategy includes encouraging financially independent private institutions to grow, and promoting greater financial and managerial autonomy and accountability in publicly-subsidized institutions (e.g., through the proposed creation of the National Council for Higher Education and the Student Finance Agency of Rwanda. Key measures to guide the GoR to address these issues include:

• Set up National Council for Higher Education.
• Establish Student Finance Agency for Rwanda.

**D.3. Analyses of Key Social Issues: Health Sector**

Health indicators have improved steadily after the genocide and are reaching close to pre-genocide levels, which, while impressive, are still low in comparison to Sub-Saharan Africa. There are also large gaps between the poor and higher income groups in terms of health outcomes and coverage. Benefits distribution is biased in favor of urban areas: urban dwellers capture twice as much public spending on hospitals as rural inhabitants. With regard to HIV/AIDS, the Bank-funded MAP is providing assistance for public awareness campaigns and community sensitization, testing, anti-retroviral drugs, and health and vocational care for those living AIDS. Key measures to guide the GoR to address these issues include:

• Increase access to and participation in micro-insurance schemes "mutuelles" in rural areas.
• Improving and broadening participation of civil society in health committees at the grassroots level, ensuring gender balance in the composition of these groups.
• Expanding use of Community Development Fund (CDF) mechanism for financing cost effective health care interventions (e.g., community outreach, social marketing, safe and simple water systems, nutrition activities).
• Ensuring a gradual and sustained increase in public sector financing of health care both relative to total government expenditures and on a per capita basis.
• Supporting the transfer of block grants in the context of the decentralization process to introduce mechanisms that target areas of the greatest need with a view to improving equity in coverage and health outcomes.
• Standardizing user fee policies and revising fee structures to ensure that basic services are affordable to the poor while monitoring the financial impact of fees on households.

**D.4. Analysis of Key Social Issues: Water and Sanitation Sector**

Collecting water in rural Rwanda is a time consuming, energy demanding, and expensive daily task for most people. According to the last national inventory of the water supply infrastructure carried out in 2001 by the Directorate of Water and Sanitation, the coverage rate for safe drinking water was estimated at 57 percent in rural areas and at 60 percent in urban areas. However, it is estimated that 30-35 percent of the existing rural water systems are non-functional, which puts the effective access to safe water in rural areas at about 40 percent across the country. The access rate to traditional household sanitation facilities is about 85 percent. The country’s objective is to provide sustainable safe water supply and sanitation facilities. Most of the responsibilities to provide water supply and sanitation services to rural areas are
being devolved to the District level with technical support from the provincial level. Key measures to guide the GoR to address these issues include:

- Expand water production capacity in the City of Kigali.
- Construct hygiene facilities in a certain percentage of schools.
- Finalize urban Water and Sanitation Strategy, along with the corresponding investment plan.
- Ensure all 11 provinces and provincial support units (to advise districts) to be fully staffed with trained personnel.
- Increase percentage of water supply systems managed by local private operators.

D.5. Analyses of Key Social Issues: Energy Sector

Rwanda has among the lowest per capita electricity consumption in the world, with only 6-8 percent of households having grid access, almost entirely in the main cities (with Kigali alone accounting for nearly two-thirds of total electricity consumption). Power and energy supply for rural households is almost entirely biomass for cooking and heating whereas petroleum (paraffin/kerosene) is mostly used for lighting. Reliable power supply is also a significant constraint faced by district hospitals and most primary and secondary schools do not have access to any form of power. Key measures to guide the GoR to address these issues include:

- Implement strategy to address capacity generation constraints in the short-term.
- Develop and implement strategy to address capacity generation over the medium- and long-term.
- Intensify energy conservation campaign.
- Adopt low costs standards.
- REMA to review and clear EA’s prepared for the Lake Kivu Methane Gas exploration project.

IV. ENVIRONMENTAL AND SOCIAL MANAGEMENT CAPACITY

Rwanda’s primary institutions responsible for management of environmental issues are:

- The Directorate for Environment in the Ministry Lands, Environment, Forestry, Water and Natural Resources (MINTERE).
- Rwanda Environment Management Authority (REMA).

The responsibility of the Directorate for Environment has changed following approval of the new Environmental Policy and the establishment of REMA. The Directorate for Environment is responsible primarily for formulation of policies relating to the environment, the budget for the sector, and for monitoring policy implementation. REMA is the technical arm of MINITERE responsible for implementing environmental policy.

The sector ministries involved in preparation of the proposed PRSC I, i.e., education, health, water, and energy, have cross-cutting responsibility with MINITERE, as does the decentralized administration at the Provincial and District levels. Under decentralization, the Provincial and District administrations have primary responsibility for the provision of public services. Therefore, as the decentralization process rolls out, the District and Provincial governments will need to assume more responsibility for environmental management of natural resources and investments within their jurisdictions. For this to be successful, decentralized local governments must enhance capacity and draw on technical support from the center, via adequate policies, legislation, and qualified personnel. Thus, the linkages between the center and local governments must be strengthened. To this end, the capacity of the central institutions (Directorate for Environment, REMA) must be built, and the linkages between the local and national entities strengthened.
Synergies and complementarity between the PRSC and the UNDP co-financed Decentralization and Environmental Management Project (DEMP) should be pursued to ensure effective coordination of all environmental capacity building efforts in Rwanda.

The Directorate for Environment has been successful in getting its environmental policy approved by cabinet and has the supporting legislation before the national parliament. The efforts to build capacity gaps at the Directorate for Environment are therefore minimal at this time. However, REMA is a new institution facing restrictive budgetary constraints that have rendered it unable to recruit required personnel (the only staff in place is the Director General). Support provided under the proposed PRSC will be used to help staff REMA and build its capacity to carry out its mandate.

**Figure 1. The Management Structure of REMA**