# 1. Project Data

| Summary project data | | | |
|---|---|---|---|
| **GEF project ID** | | 2918 | |
| **GEF Agency project ID** | | P097818 | |
| **GEF Replenishment Phase** | | GEF - 3 | |
| **Lead GEF Agency (include all for joint projects)** | | World Bank | |
| **Project name** | | Rwanda Sustainable Energy Development Project (SEDP) | |
| **Country/Countries** | | Rwanda | |
| **Region** | | Africa | |
| **Focal area** | | Climate Change | |
| **Operational Program or Strategic Priorities/Objectives** | | CC-SP3-RE | |
| **Executing agencies involved** | | Ministry of Infrastructure (MININFRA) and Energy, Water and Sanitation Authority (EWSA) | |
| **NGOs/CBOs involvement** | | None | |
| **Private sector involvement** | | Participation of private sector (small and medium-sized companies) during project implementation | |
| **CEO Endorsement (FSP) /Approval date (MSP)** | | 10/15/2009 (ICR) | |
| **Effectiveness date / project start** | | 12/14/2009 (ICR) | |
| **Expected date of project completion (at start)** | | 06/28/2013 (CEO doc.) | |
| **Actual date of project completion** | | 01/31/2014 (ICR) | |
| **Project Financing** | | | |
| | | **At Endorsement (US $M)** | **At Completion (US $M)** |
| **Project Preparation Grant** | GEF funding | 0 | 0 |
| | Co-financing | 0 | 0 |
| **GEF Project Grant** | | 4.5 | 4.47 |
| **Co-financing** | IA own | 1.8 | |
| | Government | 21.77 | |
| | Other multi- /bi-laterals | 41.24 | 3.5 (AFREA) |
| | Private sector | 1.95 | |
| | NGOs/CSOs | - | |
| **Total GEF funding** | | 4.5 | 4.47 |
| **Total Co-financing** | | 66.76 | 3.5 |
| **Total project funding (GEF grant(s) + co-financing)** | | 71.26 | 8.22 |
| **Terminal evaluation/review information** | | | |
| **TE completion date** | | July 29, 2014 | |
| **Author of TE** | | Paul Baringanire and David Vilar (ICR team leaders) | |
| **TER completion date** | | 05/04/2020 | |
| **TER prepared by** | | Mourad Shalaby | |
| **TER peer review by (if GEF IEO review)** | | Molly Watts Sohn | |

## 2. Summary of Project Ratings

| Criteria | Final PIR | IA Terminal Evaluation | IA Evaluation Office Review | GEF IEO Review |
|---|---|---|---|---|
| **Project Outcomes** | S | S | S | S |
| **Sustainability of Outcomes** | | Moderate | Moderate | L |
| **M&E Design** | | - | Substantial | MS |
| **M&E Implementation** | | - | Substantial | S |
| **Quality of Implementation** | | S | S | MS |
| **Quality of Execution** | | S | MS | S |
| **Quality of the Terminal Evaluation Report** | | - | S | S |

## 3. Project Objectives

3.1 Global Environmental Objectives of the project:

This project proposes to mainstream renewable energy within the national energy planning process and support renewable energy market development, particularly solar and hydro resources, thus minimizing the need for diesel fired thermal generation. The key global performance indicator of this project is avoided carbon dioxide emissions. Total estimated emission reductions from the activities under the various components during the projects life are estimated at 0.646 million metric tons of CO2, over the lifetime of the systems (CEO Endorsement document p1).

3.2 Development Objectives of the project:

The overall goal of the project is to strengthen and consolidate the Rwandan renewable energy market (CEO Endorsement document p1). The Project Development Objectives (PDO) for SEDP (the project) are:

- Improve policy and institutional framework of the renewable energy and energy efficiency sub-sectors.
- Increase private sector participation in the renewable energy sector.

The project aimed to achieve these objectives through the following components:

- Component A: Strengthening of renewable energy policy, strategy and management.
- Component B: Efficient utilization of biomass resources.
- Component C: Sustainable development of micro hydro resources.
- Component D: Solar Energy.
- Component E: Energy efficiency (EE) strategy development

3.3 Were there any **changes** in the Global Environmental Objectives, Development Objectives, or other activities during implementation?

There were no significant changes in the components. An additional parallel financing grant of US$3.5million, from the Energy Small and Medium Enterprises Trust Fund, was provided to increase

private sector participation in the renewable energy Sector, specifically for micro-hydropower projects and low cost solar lighting products (ICR p7).

## 4. GEF IEO assessment of Outcomes and Sustainability

Please refer to the GEF Terminal Evaluation Review Guidelines for detail on the criteria for ratings.

Relevance can receive either a Satisfactory or Unsatisfactory rating. For Effectiveness and Cost efficiency, a six point rating scale is used (Highly Satisfactory to Highly Unsatisfactory), or Unable to Assess. Sustainability ratings are assessed on a four-point scale: Likely=no or negligible risk; Moderately Likely=low risk; Moderately Unlikely=substantial risks; Unlikely=high risk. In assessing a Sustainability rating please note if, and to what degree, sustainability of project outcomes is threatened by financial, sociopolitical, institutional/governance, or environmental factors.

Please justify ratings in the space below each box.

| 4.1 **Relevance** | Rating: Satisfactory |
|---|---|

The TE rates the project's relevance as "High", and this TER rates relevance as satisfactory, given that the Project Development Objectives (PDO) remain fully relevant to Rwanda's development priorities and are consistent with the Government of Rwanda's Economic Development and Poverty Reduction Strategy (EDPRS 2008-2012) as well as the World Bank Country Partnership Strategy (CPS) and GEF objectives for the climate change focal area under replenishment phases 3 and 4.

The Government of Rwanda's sector objectives are: reducing the cost of electricity and introducing cost reflective tariffs through the use of cheaper energy sources; reducing system losses; increasing energy efficiency; energy diversification; and strengthening the governance framework and the institutional capacity to facilitate private sector participation in the sector. To help achieve these objectives, the project implemented regulatory instruments, such as a new sector policy and several laws, to help increase private sector investments and off-grid electricity distribution. The objectives were clearly linked to the results framework outcomes and indicators as the policy support actions were aligned with the different components of the project.

The project design was also relevant to Rwanda, following a participatory process and selecting technology options (solar, biomass, and hydro) and policy level interventions which remain priority areas for the country as the current strategy is to tap into these renewable energy sources for further development of the electricity sector in Rwanda. The project implementation played a supportive role in the development of renewable energy and energy efficiency markets in Rwanda, providing timely support to the ongoing development of the sector, particularly activities related to legal, policy, and regulatory frameworks as well as capacity building (ICR p14).

The GEF CEO Endorsement document explains that the project was developed under GEF-3, but is in line with GEF-4's overarching goal to reduce Greenhouse Gas (GHG) emissions through transforming markets, Strategic Objective 4 (To promote on-grid renewable energy) and Strategic Objective 5 (To

promote the use of renewable energy for the provision of rural energy services (off-grid)), which mainly links to Strategic Programs 3 (Promoting market approaches for renewable energy) (CEO Endorsement document p6).

| 4.2 **Effectiveness** | Rating: Satisfactory |
|---|---|

The ICR rates the project's outcomes as "Satisfactory", with no specific rating for effectiveness. This TER rates the project's effectiveness as satisfactory, given that the project strengthened and consolidated the renewable energy market in Rwanda by supporting several activities related to energy policy, strategy and management. As a result of the project's activities and policy actions adopted by the Government of Rwanda, several private firms are participating in the Rwanda renewable energy market, one of the main initial objectives (ICR p13).

- Component A: Strengthening of Renewable Energy policy, strategy and management.

The objective of this component was to support the Ministry of Infrastructure (MININFRA) to streamline and coordinate activities related to renewable energy project design and implementation including increased private sector participation in the process. This component proposed eighteen framework strategy programs in order to ensure a long-term and sustainable contribution by renewable energy resources to Rwanda's energy balance. The findings and recommendations were incorporated in the Energy Sector Strategy.

- Component B: Efficient utilization of biomass resources.

The objective of this component was to increase efficiency in the use of biomass in order to reduce the unsustainable use of firewood and charcoal. It included activities focusing on increasing the use of improved cook stoves and charcoaling efficiency. The ICR indicates that the sustainable and efficient use of biomass resources remains a priority for the Government of Rwanda, and that the 2 executing agencies of this project will continue to engage stakeholders, such as the private sector and local government authorities, to support sustainable use of fuel wood, increase uptake of charcoaling techniques and enhance the charcoal value supply chain.

- Component C: Sustainable development of micro hydro resources.

The objective of this component was to enable private sector investment in micro-hydro power plants. Following on the assessments conducted during the project, the Ministry of Infrastructure (MININFRA) and the Energy, Water and Sanitation Authority (EWSA) are undertaking an evaluation of about 69 potential micro hydro sites for possible development in the next two years. Contracts for the development of the various sites were at different stages by project close.

- Component D: Solar Energy.

In this component, activities were aimed at increasing private sector capacity in order to develop the market for solar systems in Rwanda. The ICR notes that the ongoing Bank-funded Increased Access to Electricity Project (P111567) will use the standards developed during the project to support the installation of Solar systems in selected health institutions.

- Component E: Energy efficiency (EE) strategy development.

The activities of this subcomponent were aimed at reducing technical losses in the electricity grid network and energy efficiency in major electricity users. As a follow up to the assessment of the Energy, Water and Sanitation Authority (EWSA) grid technical audit conducted during the project, EWSA set up a committee to review the recommendations and prepare an investment plan to reduce losses in the system, with various actions to be undertaken in the short-medium and long-term. In addition, EWSA is already implementing several energy efficiency initiatives related to the rational and efficient use of grid electricity, such as public awareness on energy saving in homes and workplaces through good housekeeping methods.

| 4.3 **Efficiency** | Rating: Highly Satisfactory |
|---|---|

The ICR rates the project's efficiency as "High", and this TER rates efficiency as highly satisfactory, given that the set targets at project design were achieved within the project time frame and within the allocated budget without any cost overruns, namely the project facilitated the establishment of a favorable policy and regulatory environment for increased investment in renewable energy technologies.

The project's emphasis on providing technical assistance "demonstrated how barriers to renewable energy use would be removed using GEF funds". By fully integrating renewable energy into all project activities, the project considerably expanded the solar, micro-hydro, and improved stoves markets.

Quantitatively, the project facilitated approximately 9.5MW from several micro-hydro sites; annual energy savings of about 400MWh from the installed solar water heaters; savings in biomass of about 30-39% by using improved cook stoves, and 30% of wood savings by using improved carbonization techniques. In total, use of renewable energy sources was estimated to reduce CO2 emissions by an estimated 0.63 million tons over the lifetime of the equipment installed whereas overall the project would reduce CO2 emissions by an estimated 0.646 million tons (ICR p13).

| 4.4 **Sustainability** | Rating: Likely |
|---|---|

The TE rates the "risk to development outcome" as "Moderate", and this TER rates sustainability as likely, given that the Government of Rwanda committed strongly to ownership of the project and to a

private sector presence in the country's energy sector. The project contributed significantly to strengthening and consolidating the renewable energy and energy efficiency market in Rwanda, with positive social, economic, environmental and institutional impacts (ICR, p 15 -19).

Financial sustainability

The project contributed to the financial sustainability, capacity and autonomy of the renewable energy and energy efficiency sector of Rwanda. The Government of Rwanda has put in place various incentives to attract the private sector, which include the unbundling and corporatization of the Energy, Water and Sanitation Authority (EWSA) into separate electricity and water companies to improve the financial management of the sector and reduce perceived risk by the private sector. These actions created an enabling environment for private sector participation, leading to a more autonomous and profitable clean energy sector.

Sociopolitical sustainability

The ICR notes the relationship between power supply, economic development and poverty alleviation, as mentioned in the World Bank Country Partnership Strategy (CPS) for Rwanda. The micro hydro resources component (C) focused on private sector participation in the power sector of rural areas, which, at the implementation stage following project closure, could have a huge poverty impact and socio-economic development in areas where there is no access to electricity. The biomass component (B) improved living conditions for users through the increased use of improved cook stoves as well as by sustaining local jobs linked to the manufacturing of this technology. Visible benefits include a high reduction of smoke in kitchens as well as savings in fuel wood and charcoal purchasing. This is an important step in the government's poverty reduction strategy, particularly in rural areas, where it is most visible. The solar energy component (D) also focused on job creation and economic development in rural areas.

Institutional sustainability

To ensure the project's sustainability, the Government of Rwanda undertook a regular review of the feed-in tariff, a commitment to scale up use of improved cook stoves and alternative energy sources such as biogas digesters, and increased private sector participation in micro hydropower development, low cost solar lighting products and other renewable energy business. As such, the project strengthened the legal and regulatory frameworks for both renewable energy and energy efficiency by supporting the development of guidelines and recommendations for an energy strategy to govern the sector for the next 10 years. Although the project did not directly support physical investments, it helped put in place the needed institutional and regulatory framework and capacity within the government.

Environmental sustainability

The project helped the Government of Rwanda develop and empower the renewable energy and energy efficiency sector, rendering the general energy portfolio of the country greener. The project helped the Ministry of Infrastructure (MININFRA) and Energy, Water and Sanitation Authority (EWSA) to streamline

and coordinate activities related to the renewable energy and energy efficiency strategy. As a result, MININFRA has prepared a new sector policy to integrate renewable energy and energy efficiency activities in sector development. The project also built up local private sector capacity to plan, design, implement and operate small power plants. As such, in both the private and public sector, the development of the renewable energy and efficiency sector bodes well for future environmental sustainability.

## 5. Processes and factors affecting attainment of project outcomes

5.1 Co-financing. To what extent was the reported co-financing essential to the achievement of GEF objectives? If there was a difference in the level of expected co-financing and actual co-financing, then what were the reasons for it? Did the extent of materialization of co-financing affect project's outcomes and/or sustainability? If so, in what ways and through what causal linkages?

At appraisal, the Africa Renewable Energy and Access program (AFREA) pledged $3.8 million in co-financing out of an expected total project cost of $8.3 million. Total actual project costs were $8.22 million, and AFREA's contribution was $3.75 million. AFREA funds financed roughly half of the cost of components A, B, C and E, while component D was financed exclusively by the GEF.

The Government of Rwanda had initially agreed to provide counterpart funding of over $20 million, though this did not materialize (ICR p.25). The ICR refers to "other ongoing initiatives that would complement/benefit the project", including funds from the Nordic Development Fund, the Support for Energy Small and Medium Enterprises (ESME) trust fund, the EnDev/GIZ PSP Hydro Program, the Belgium Technical Cooperation, the European Union Energy Facility and the Electricity Access Roll-Out Program. However, it is unclear if these funds are the same as those mentioned in the CEO Endorsement document, as the funds are in Euros in the ICR and the amounts differ. The disconnect between the co-financing data in the CEO Endorsement document and the ICR is not explained.

5.2 Project extensions and/or delays. If there were delays in project implementation and completion, then what were the reasons for it? Did the delay affect the project's outcomes and/or sustainability? If so, in what ways and through what causal linkages?

There were implementation delays during the initial stages of project implementation, due to the delay in recruiting the project coordinator and the staff not being familiar with World Bank procurement guidelines. This led to delays in preparing the assignment activities and terms of reference and in the recruitment of consultants to undertake various activities.

Project implementation was also impacted by the change in the institutional set-up. Initially, the project was expected to be anchored in a Ministry of Energy department, which was later transferred to the newly created Energy Water and Sanitation Authority (EWSA). The World Bank missions noted that the EWSA human resources to support the biomass, solar and micro hydro subsectors were overstretched and that activities were not being mainstreamed in the respective EWSA department/sections, thus delaying the project.

The official project closing date as set forth in the Project Appraisal Document (PAD) is January 31, 2014. The closing date of the Africa Renewable Energy and Access program (AFREA) Grant was extended three times because of the World Bank's policy that the Grant Agreement cannot be in force beyond the period of the Parent Trust Fund. Even with these extensions, project implementation never went beyond the official project closing date at approval of January 31, 2014 (ICR p7).

5.3 Country ownership. Assess the extent to which country ownership has affected project outcomes and sustainability? Describe the ways in which it affected outcomes and sustainability, highlighting the causal links:

The Government of Rwanda committed strongly to ownership of the project throughout implementation, because of its vested interest in promoting the country's private sector and its involvement in the renewable energy and energy efficiency sector, thus minimizing Rwanda's costly dependence on thermal generation based on imported fuels. The project also boosted the government's rural energy strategy, providing rural electrification and economic development, reducing rural poverty and empowering vulnerable groups.

The high level of the Government of Rwanda's commitment to the project is seen particularly in its policy to increase private sector investment in renewable energy. Several laws and policies have been approved that define the emerging sector structure and institutional framework, including the government's policy to increase private sector investment, primarily in generation and off-grid electricity distribution with a number of signed memorandums of understanding for investments.

The Government followed up and acted on several recommendations issued by the project, such as the renewable energy tariff and light handed regulations, which have greatly reduced the transactions cost and risk for micro hydro developers.

## 6. Assessment of project's Monitoring and Evaluation system

Ratings are assessed on a six point scale: Highly Satisfactory=no shortcomings in this M&E component; Satisfactory=minor shortcomings in this M&E component; Moderately Satisfactory=moderate shortcomings in this M&E component; Moderately Unsatisfactory=significant shortcomings in this M&E component; Unsatisfactory=major shortcomings in this M&E component; Highly Unsatisfactory=there were no project M&E systems.

Please justify ratings in the space below each box.

| | |
|---|---|
| 6.1 **M&E Design at entry** | Rating: Moderately Satisfactory |

The ICR does not rate monitoring and Evaluation (M&E) design. This TER rates M&E design as moderately satisfactory, given that the performance indicators adequately covered institutional development and project outcomes and outputs, with minor shortcomings.

The ICR points out that the results framework could have been more robust, in the sense that clearer linkages should have been made between the project's global environmental objectives, outcome indicators and the components/outputs. Furthermore, the GEF required the inclusion of a specific indicator on avoidance of CO2 emissions, even though the ICR points out that this indicator could not be used directly to measure the attainment of the global environmental objectives.

| 6.2 **M&E Implementation** | Rating: Satisfactory |
|---|---|

The ICR does not rate monitoring and evaluation (M&E) implementation. This TER rates M&E implementation as satisfactory, given that the data identified in the M&E plan was regularly collected by the Project Implementation Unit (PIU) and was used to monitor progress.

The project evaluations informed decision making and led to revisions in certain cases, for instance after approval of the Renewable Energy Feed-in-Tariff (REFIT). As mentioned earlier, the global environmental indicator of avoided CO2 emissions was not monitored during implementation, as it was difficult to attribute a direct reduction of CO2 emissions to specific activities during the project timeframe, with the exception of the emissions (avoided) through Component 2: Efficient utilization of biomass resource (ICR p11).

## 7. Assessment of project implementation and execution

Quality of Implementation includes the quality of project design, as well as the quality of supervision and assistance provided by implementing agency(s) to execution agencies throughout project implementation. Quality of Execution covers the effectiveness of the executing agency(s) in performing its roles and responsibilities. In both instances, the focus is upon factors that are largely within the control of the respective implementing and executing agency(s). A six point rating scale is used (Highly Satisfactory to Highly Unsatisfactory), or Unable to Assess.

Please justify ratings in the space below each box.

| 7.1 **Quality of Project Implementation** | Rating: Moderately Satisfactory |
|---|---|

The ICR rates the World Bank's performance as "Moderately Satisfactory", and this TER agrees with this assessment, as the Bank designed a project with realistic development objectives and a high relevance for the host country, namely the government's rural energy strategy and poverty reduction efforts, albeit with a few shortcomings.

These shortcomings mostly concerned project preparation, which later impacted implementation. The Project Appraisal Document (PAD) anticipated "'slow implementation due to weak sector institutions", but the World Bank did not take steps to foresee or strengthen institutional capacity during project

preparation, which led to a slow start of implementation. The Bank addressed this issue through intensive discussion with the Ministry of Infrastructure (MININFRA) to identify the causes, mainly limited capacity and unclear responsibilities. This could have been avoided through better planning.

In terms of supervision, the ICR explains that the project was thoroughly supervised by a stable Bank team, with multidisciplinary and specialized skills, and without significant changes in team composition throughout implementation. The Bank's supervision missions were of a high standard, due in part to the team being based in the country office. The Bank also demonstrated flexibility when dealing with the numerous extensions of the Africa Renewable Energy and Access program (AFREA) trust fund closing date. Financial management and procurement were adequately supervised as well.

| 7.2 **Quality of Project Execution** | Rating: Satisfactory |
|---|---|

The "Overall Borrower Performance", which assesses both the Government of Rwanda and the executing agencies, the Ministry of Infrastructure (MININFRA) and the Energy, Water and Sanitation Authority (EWSA), is rated "Satisfactory" by the ICR, and this TER agrees with this rating due to the satisfactory commitment and performances of these entities.

The Government of Rwanda, whose performance is rated "Satisfactory" by the ICR, showed a high level of commitment to the project, seen in its efforts to increase private sector investment in renewable energy through policies and laws to define the emerging sector structure and institutional framework. Other key initiatives included: (i) adoption of feed-in tariffs, and (ii) unbundling and corporatization of the utility (EWSA), into separate electricity and water companies to ensure improved financial sustainability of the sector.

The performance of the executing agencies is rated "Moderately Satisfactory" by the ICR, due to the delays, at the beginning of the project, in the recruitment of the project coordinator and a lack of clear responsibilities in coordinating the various components. But this was due mostly to a lack of capacity, as previously explained, and had not been properly accounted for by the World Bank.

In sum, the Government's strong commitment throughout implementation to develop its renewable energy potential justifies the "Satisfactory" rating, despite the implementation weaknesses that led to early delays.

# 8. Assessment of Project Impacts

***Note - In instances where information on any impact related topic is not provided in the terminal evaluations, the reviewer should indicate in the relevant sections below that this is indeed the case***

***and identify the information gaps. When providing information on topics related to impact, please cite the page number of the terminal evaluation from where the information is sourced.***

8.1 Environmental Change. Describe the changes in environmental stress and environmental status that occurred by the end of the project. Include both quantitative and qualitative changes documented, sources of information for these changes, and how project activities contributed to or hindered these changes. Also include how contextual factors have contributed to or hindered these changes.

The ICR rates the project's achievement of global objectives as "Satisfactory", referring to the improvement of the policy and institutional framework of the renewable energy and energy efficiency subsectors and increasing private sector participation in the renewable energy sector.

The project supported the development of guidelines and recommendations, and the adoption of the renewable energy feed-in tariff, which strengthened the legal and regulatory frameworks for both renewable energy and energy efficiency for the next 10 years. These actions created an enabling environment for private sector participation. Though the project did not directly support physical investments, it helped put in place the needed institutional and regulatory framework and capacity within the government. As a result, a number of private firms are participating in the Rwanda renewable energy market.

The various implemented project activities resulted in an avoidance of CO2 emissions when compared with the pollutant energy sources on the ground at the time. Avoided CO2 emissions by project closing are estimated at 0.560 mtonsCO2 equivalent, attributed to the use of solar water heaters instead of grid electricity and efficiency from improved cook stoves. An additional 8.20mtonsCO2 equivalent will be avoided when the 4.5MW of micro hydro power plants are commissioned that were under construction by project close (ICR p16-17).

8.2 Socioeconomic change. Describe any changes in human well-being (income, education, health, community relationships, etc.) that occurred by the end of the project. Include both quantitative and qualitative changes documented, sources of information for these changes, and how project activities contributed to or hindered these changes. Also include how contextual factors have contributed to or hindered these changes.

As mentioned in the sustainability section above, there is a strong relationship between power supply, economic development and poverty alleviation, especially evident in rural areas. Several of the project components (B, C, and D) focused on private sector participation in the power sector of rural areas, impacting poverty and socio-economic development in areas where there is no access to electricity. The biomass component (B) improved living conditions for users through the increased use of improved cook stoves as well as by sustaining local jobs linked to the manufacturing of this technology. Visible benefits include a high reduction of smoke in kitchens as well as savings in fuel wood and charcoal purchasing. The solar energy component (D) also focused on job creation and economic development in rural areas. Finally, the project indirectly supported vulnerable groups that include women and children as most of the rural households rely on biomass energy to meet their cooking and thermal needs.

8.3 Capacity and governance changes. Describe notable changes in capacities and governance that can lead to large-scale action (both mass and legislative) bringing about positive environmental change. "Capacities" include awareness, knowledge, skills, infrastructure, and environmental monitoring systems, among others. "Governance" refers to decision-making processes, structures and systems, including access to and use of information, and thus would include laws, administrative bodies, trust-building and conflict resolution processes, information-sharing systems, etc. Indicate how project activities contributed to/ hindered these changes, as well as how contextual factors have influenced these changes.

a) Capacities and governance

The project strengthened the legal and regulatory frameworks for the Rwandan renewable energy and energy efficiency sector, both for the public sector (ministry, regulator and utility) and for the private sector (project developers, commercial lenders, and service providers), by supporting the development of guidelines and recommendations, including several strategies, codes and regulatory proposals, for an energy strategy to govern the sector for the next 10 years. Although the project did not directly support physical investments, it helped put in place the needed institutional and regulatory framework and capacity within the government. As such, the Government of Rwanda has increased its capacity to efficiency manage renewable energy and efficiency and integrate the private sector, and improved its governance of these sectors through the adoption and regular review of the renewable energy feed-in tariff and other market incentives.

8.4 Unintended impacts. Describe any impacts not targeted by the project, whether positive or negative, affecting either ecological or social aspects. Indicate the factors that contributed to these unintended impacts occurring.

There were no documented unintended impacts of the project.

8.5 Adoption of GEF initiatives at scale. Identify any initiatives (e.g. technologies, approaches, financing instruments, implementing bodies, legal frameworks, information systems) that have been mainstreamed, replicated and/or scaled up by government and other stakeholders by project end. Include the extent to which this broader adoption has taken place, e.g. if plans and resources have been established but no actual adoption has taken place, or if market change and large-scale environmental benefits have begun to occur. Indicate how project activities and other contextual factors contributed to these taking place. If broader adoption has not taken place as expected, indicate which factors (both project-related and contextual) have hindered this from happening.

The project emphasized technical assistance that would contribute to the long-term sustainability of the renewable energy sector with a focus on accelerating the integration of the local private sector into the planning and implementation of renewable energy projects. As such, the project helped the Government of Rwanda mainstream renewable energy development and energy efficiency within the electric and water utilities, minimizing Rwanda's costly dependence on thermal generation based on imported fuels

The project helped develop three renewable energy technologies, solar, hydro and biomass, and improved the efficiency of the use of traditional fuels. These renewable energy sources and technologies are still an untapped potential in Rwanda. The rural areas that are not connected to the central grid could greatly benefit in the short-medium term from this scaling-up of renewable energy towards these remote areas.

# 9. Lessons and recommendations

9.1 Briefly describe the key lessons, good practices, or approaches mentioned in the terminal evaluation report that could have application for other GEF projects.

The ICR provides several lessons learned, summarized as follows (ICR, p23-24):

- Government leadership is paramount in achieving expected impact. A strong and sustained government commitment is essential in driving the project's development agenda, especially where policy actions and incentives are required. In the case of this project, Government followed up and acted on the several recommendations issued under the project, such as the renewable energy tariff.
- There should be realism in project funding from multiple donors co-financing the project. Task team leaders preparing projects with multiple sources of financing need to structure the project taking into account the different administrative procedures governing funding so as to optimize and leverage financing and minimize the risks of mismatches and delays in the funding of project activities.
- An incubation program is a useful approach to build up local capacity of private companies. An entrepreneur incubator, such as the one created within this project to support renewable energy enterprises, helps develop business plans and feasibility studies in addition to training local technicians and trainers at institutions, and can be instrumental in equipping small and medium start-up companies with the basic framework to understand the business, and take advantage of local skills.
- Using public resources in awareness raising and promotion campaigns is a key tool in promoting increased uptake of new products, especially those offered by small and medium businesses. In the case of this project, the promotion and use of Improved Cook Stoves (ICS) had a huge impact on people's lives in rural areas, who had previously been mostly unaware of such products.
- Balancing the project complexity/number of activities with project impact. Operations that target policy and institutional development need to be addressed holistically. In this project, training and the incubator program as well as awareness campaigns all complemented each other to increase the uptake of Improved Cook Stoves (ICS).

9.2 Briefly describe the recommendations given in the terminal evaluation.

The ICR does not include recommendations but rather "follow up actions", summarized as follows (ICR p 57-58):

- The project focal point should be realistic with regard to the implementation timelines so as to respond to the needs of the borrower.
- To avoid delays in future, it is proposed that the project focal point set as a “project effectiveness condition” that the project implementation team be in place to avoid delays in project implementation.
- Implement findings and recommendations from the assessment of the performance of the existing micro hydro power plants and continue implementation of the energy efficiency strategy, addressed to the Government of Rwanda.

## 10. Quality of the Terminal Evaluation Report

A six point rating scale is used for each sub-criteria and overall rating of the terminal evaluation report (Highly Satisfactory to Highly Unsatisfactory)

P9 TE

| Criteria | GEF IEO comments | Rating |
|---|---|---|
| To what extent does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives? | The ICR assesses impacts, outcomes and the achievement of global environmental objectives in a satisfying way, underlining the fact that the project focuses on technical assistance rather than actual infrastructure. | **S** |
| To what extent is the report internally consistent, the evidence presented complete and convincing, and ratings well substantiated? | The report consistently highlights the institutional achievements of the project and avoided CO2 emissions. The ratings are properly substantiated. | **S** |
| To what extent does the report properly assess project sustainability and/or project exit strategy? | The "risk to development outcome" is quite short and focuses on institutional sustainability, although other sections of the ICR provide ample information in terms of social, environmental and financial sustainability. | **MS** |
| To what extent are the lessons learned supported by the evidence presented and are they comprehensive? | The lessons learned capture the main lessons of the project and are useful for future projects, especially in terms of the role of government and the importance of supporting small and medium-sized companies. | **S** |
| Does the report include the actual project costs (total and per activity) and actual co-financing used? | The report includes project costs by component and by source, on p24, but the information seems insufficient, especially when compared to the figures and information in the CEO endorsement document. | **MS** |
| Assess the quality of the report's evaluation of project M&E systems: | The M&E section is very short, but does provide information on M&E design and implementation/utilization, and points out mistakes made. | **S** |
| **Overall TE Rating** | | **S** |

## 11. Note any additional sources of information used in the preparation of the terminal evaluation report (excluding PIRs, TEs, and PADs).