



1. Project Data

Project ID P097201	Project Name Reg&Domestic Pwr Mkt Dev. (FY07)	
Country Africa	Practice Area(Lead) Energy & Extractives	
L/C/TF Number(s) IDA-H2960,IDA-H7080	Closing Date (Original) 30-Jun-2013	Total Project Cost (USD) 538,703,048.20
Bank Approval Date 29-May-2007	Closing Date (Actual) 30-Jun-2018	
	IBRD/IDA (USD)	Grants (USD)
Original Commitment	296,700,000.00	0.00
Revised Commitment	578,965,475.69	0.00
Actual	538,703,048.20	0.00

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2. Project Objectives and Components

a. Objectives

APL Program Objectives: The objectives of the Program, as set out in the Development Credit Agreement of the Southern African Power Market Project, Phase 1, p.21) were to develop an efficient regional power market in the Southern African Development Community (SADC) to create conditions for accelerated investments in the power sector, increase competition and foster regional economic integration.



The Project Development Objectives (PDO), as mentioned in the Financing Agreement (FA), p.6, were "to improve operational efficiency in the sector and to expand generation, transmission and distribution capacity, in order to support regional power market integration and to better meet domestic power demand".

Revised PDO: The PDO was revised at the time of the 2011 Additional Financing (AF). The revised PDO, as mentioned in the Financing Agreement to the Additional Financing, p.6, read as follows: "to improve operational efficiency in the electricity sector and to expand renewable generation, transmission and distribution capacity, in order to better serve domestic power demand and to support regional power market integration".

The revision to the PDO slightly changed the emphasis between regional power market integration and domestic power demand, without substantially altering the individual objectives, though the results indicators had to be revised to take account of the investments under the AF. A split evaluation is hence unnecessary.

For the purposes of this review, the following three sub-objectives will be assessed:

Sub-objective 1: To improve operational efficiency

Sub-objective 2: To better serve domestic power demand

Sub-objective 3: To support regional power market integration

The expansion of generation, transmission and distribution – and the stated focus on renewable energy at the time of Additional Financing – constitute intermediate investment activities and are not development objectives keyed to final outcomes.

b. Were the project objectives/key associated outcome targets revised during implementation?

Yes

Did the Board approve the revised objectives/key associated outcome targets?

Yes

Date of Board Approval

01-Jun-2011

c. Will a split evaluation be undertaken?

No

d. Components

1. Generation: (estimated cost at appraisal: US\$226.7 million, revised to US\$460.0 million. Actual cost: US\$454.7 million)

This component aimed to support the rehabilitation of the hydroelectric facilities at Inga, including rehabilitation of turbines, and dredging and civil works on the intake canal to improve water flow through the



plant. The objective was to raise the power generation capacity, on an incremental basis, from about 700 MW to about 1,300 MW of reliable production.

2. Transmission (estimated cost at appraisal: US\$93.8 million; revised marginally to US\$92 million. Actual cost: US\$24.2 million)

This component supported construction of a 400 KV transmission line from Inga to Kinshasa. The line would complement the existing 220 KV line, thereby increasing the amount of power that could be delivered to Kinshasa.

3. Distribution: (estimated cost at appraisal: US\$88.5 million; revised to US\$189.9 million. Actual cost: US\$118.2 million)

This component supported the rehabilitation and expansion of the power distribution system in Kinshasa, including (a) the acquisition of low-voltage (LV) cables and transformers, (b) extension of the power grid into unelectrified areas of Kinshasa, (c) connection of about 50,000 new users to the power grid, and (d) installation of about 50,000 meters and 10,000 prepayment meters.

4. Capacity Building and Governance: (estimated cost at appraisal US\$41.2 million; revised cost: US\$81.3 million. Actual cost: US\$38.7 million)

This component had two sub-components: (A) Strengthening of Societe National d'Electricite (SNEL)'s operational capabilities, notably on billing and collection, planning and maintenance. The component also aimed to finance capacity building activities designed to enhance governance within the utility, as well as in the sector. (B) Strengthening the Ministry of Energy (MoE)'s capacity to develop sector reform and further development of the Inga site.

5. Project Execution: (estimated cost at appraisal: US\$48.8 million; revised to US\$59.8 million. Actual cost: US\$61.1 million)

The component aimed to support the effective implementation of the project's works, including the appointment of a supervisory engineering consultant and of the procurement and financial management (PFM) agent.

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

Project Cost: Final project costs at closing (US\$497.4 million) were significantly lower than costs at appraisal, revised upwards at the time of the Additional Financing (to US\$883.0 million). According to the Project Paper (2011), the Additional Financing (AF) was intended to cover (i) an underestimation of costs at appraisal, resulting from the discovery that Inga's generating units were found to be in worse shape than assessed at appraisal; (ii) cost escalation on account of market factors -especially because of an unforeseen increase in international prices of power equipment; and (iii) the addition of new activities within existing components. The restructuring in 2011 introduced some adjustments to the scope of the Distribution component (Component 3), to alleviate network congestion and increase domestic power supply, especially in Kinshasa, and scaled up the resources available to Components 1, 3, 4 and 5. At the same time, the scope of the rehabilitation of the Inga plants was considerably reduced, with the number of



turbines to be rehabilitated being cut back from 10 to 8. Additionally, for various reasons, much of the anticipated expenditure on capacity building and governance at SNEL and the Ministry of Energy did not take place.

Financing: The sources of funding for this project at appraisal consisted of an IDA grant of SDR 196.1 million (US\$296.7 million equivalent), supplemented by resources from the European Investment Bank (US\$92 million), the African Development Bank (US\$85.3 million, US\$32 million of which were added at the time of the Additional Financing), and KfW (US\$88.0 million, added during the Additional Financing). The Additional Financing itself added another grant of SDR 174.6 million (US\$283 million equivalent), in 2011, making for a total IDA contribution of US\$579.7 million.

Borrower Contribution: A borrower contribution of US\$38.0 million (of which US\$26 million at the time of the Additional Financing) was envisaged for this project. Actual contributions by project closing ended up being nil.

Dates: The project was originally envisaged to close on June 30, 2013. The closing date of the project was extended in 2011, as a result of the Additional Financing, and again in November 2015, through a restructuring. From Board approval on May 29, 2007 to project closing on June 30, 2018, including the extension on account of the Additional Financing, the project took just over 11 years to complete.

3. Relevance of Objectives

Rationale

Country Context: DRC is a country with extensive mineral, energy and natural resources, most of which have so far remained untapped. Beset by a legacy of conflict and poor governance, the country has neither managed to capitalize on the opportunity of significantly higher electricity exports across Africa nor to provide adequate energy services to the vast majority of its own population. In part this has been the result of the state of DRC's electricity infrastructure, much of which deteriorated extensively in the 1990s as a result of theft as the security situation worsened, direct conflict damage and a lack of maintenance. Underlying these factors was a weakening of the institutional capacity of the electricity utility, SNEL, which faced wide-ranging financial, management and operational challenges. Improving the supply and quality of electricity in DRC would require not only extensive investments in rehabilitation of facilities but also major improvements in SNEL's operations and maintenance program. The project's objective of improving operational efficiency in the sector seems to be consistent with this priority. The rehabilitation of the generation, transmission and distribution facilities managed by SNEL, along with capacity building and governance improvements, as envisaged by the project, would help bring about a sustainable improvement in the supply and quality of electricity produced and distributed.

Alignment with Strategy:

The objectives of the project, as conceived at appraisal, were consistent with the objectives of the Southern Africa Power Market Program (SAPMP), which aimed to promote regional integration and facilitate an increase in investment in the power sector in the Southern African region. The program was based on the



highest priority investments in the Integrated Regional Power Master Plan prepared by the Southern African Power Pool (SAPP), and this project was recommended by both NEPAD (New Economic partnership for Africa's development) and SADC (Southern African Development Community) as a priority for regional development. As conceived, the project was the second phase of the larger regional program to increase the availability and reliability of low-cost, environmentally-friendly electric energy in the Southern African region, helping to increase competitiveness and foster economic growth.

The project's objectives were also consistent with the World Bank's strategy for the DRC and for the SADC region. In the FY2013-16 Country Assistance Strategy, increased generation of power and improved access to cheaper sources of energy was mentioned as an important component of the competitiveness agenda. Towards this end, the World Bank's energy strategy, as expressed in "Towards a Sustainable Energy Future for All: Directions for the World Bank Group's Energy Sector" (2013), identified regional integration as one of the ways to accelerate the pursuit of more affordable and sustainable energy supply solutions, including through such approaches as power pool arrangements, especially through cross-border arrangements such as the power pool development in Sub-Saharan Africa (p.15).

That said, the project's objectives were better aligned with the World Bank's country strategy after restructuring, when the emphasis was changed to focus on domestic supply as the priority, rather than prior to when it was focused on facilitating export of power to neighboring countries in the power pool. As the 2018 Systematic Country Diagnostic for DRC pointed out, the electricity access rate in the country was only 15.2 percent, which was far below the Sub-Saharan African average of 35 percent, and the country was a net importer of electricity. The few households and businesses that were connected to the grid experienced power outages on average of more than three hours a day for more than 180 days a year. Hence, the focus on potential export of power may have been premature in a situation of unmet demand.

Rating

Substantial

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective

PDO1: "To improve operational efficiency in the sector"

Rationale

Theory of Change:

The ICR presents the project's theory of change, with a diagrammatic description of the results chain, indicating the linkages between activities and outputs, and between outputs and outcomes. The bulk of DRC's power generation capacity (totaling 2,400 MW at the time of appraisal) was accounted for by the two Inga hydro plants, which together accounted for 1,775 MW. On account of outdated and unreliable machinery and a lack of regular maintenance or repair, only 48 percent of this capacity was actually available. For similar



reasons, the transmission system was under significant strain, as was the distribution system, resulting in significant system losses for SNEL's network. As such, a broad causal link can be drawn between the project's activities, which included investments and interventions to rehabilitate generation capacity, whilst implementing an effective maintenance program for the facilities at Inga, augment transmission capacity through construction of a second 400 kV line, construct a new substation and take steps to reduce network congestion, and strengthen SNEL's operational and financial management capabilities, and the expected outcomes of improvements in operational efficiency and expansion of generation, transmission and distribution capacity. These in turn would be linked to the longer-term level outcomes of better serving regional and domestic demand.

While the activities themselves seem to be appropriate to achieve the desired outcomes, the theory of change discussion does not analyze whether they were of adequate scale to generate a critical mass for change, though it does touch upon the counterfactual of what would have not been possible without implementation of these activities.

Outputs:

Improvement in the operational efficiency of the electricity sector would be reflected in improvements in SNEL's technical and commercial management ability. The following intermediate outcomes were achieved:

- There was progress in revenues collected by SNEL per generated kWh (US\$0.069 per kWh, exceeding the target of US\$0.039 per kWh). However, collection rates for accounts receivable remained a problem, reaching 72 percent and 82 percent for medium-voltage and high-voltage clients respectively, but only 46 percent (against a target of 80 percent) for low voltage clients. Collections from public clients and state-owned enterprises (SOEs) remained a major problem, the utility managing to collect only 16.5 percent from SOEs, against a target at project closing of 75 percent.
- Transmission losses on the Inga-Kinshasa lines were contained (3.12 percent, against a target of 3.0 percent). After completion of the second transmission line and upgrading of the network, losses were brought down below 3 percent. That said, SNEL's overall technical losses were of the order of 17 percent and non-technical losses, of 9 percent by project closing.
- Electricity availability was restored on both the lines – with load shedding significantly reduced. Annual hours of unavailability of the Inga-Kinshasa transmission lines were brought down to nil by project closing, implying that delivery of electricity was continuous, and availability fully warranted.

Outcomes:

Based on the intermediate outcomes achieved, the objective of improving operational efficiency in the sector was modestly achieved. The drive to improve operational efficiency in the sector achieved little progress in the initial years up to restructuring in 2011, on account of difficulties in coordination between key stakeholders and weaknesses in implementing arrangements, leading to delays in implementation. After the restructuring, efforts to improve operational efficiency were articulated around three contracts entered into by SNEL – a



performance contract between the utility and the Government, a service contract with Manitoba Hydro International (MHI), and an audit contract with KPMG, and subsequently with Deloitte.

Results were somewhat disappointing, overall. The service contract with MHI produced no significant improvements in SNEL's procurement management, IT environment or financial management performance. In the commercial department, key unresolved weaknesses included the absence of a recovery action plan for old claims, lack of monitoring of income from pilot Sales & Service Centers, and no improvement in the counting of LV customers (who were billed together with MV customers at a flat rate, despite changes in the 2014 electricity law). Planned trainings and overseas study trips were not carried out, partly for bureaucratic reasons, partly on account of a lack of suitable candidates.

In addition, SNEL's financial health remained 5 weak. SNEL had a cumulative stock of debt of US\$1.6 billion as on August 2017, with electricity sales covering only 77 percent of total operating expenses. To improve revenue collection, some 70,000 traditional meters had been acquired, as well as 50,000 prepayment meters; however, only 19,000 meters were installed.

Finally, in terms of technical performance, the availability rate for Inga 1 & 2,m at 49 percent average during the first three quarters of 2017, fell well below the target of 75 percent.

Based on the above, efficacy of this objective is rated **Modest**.

Rating
Modest

OBJECTIVE 2

Objective

PDO2: "To better meet domestic power demand "

Rationale

Meeting this objective required the expansion of generation, transmission and distribution capacity. As such, the following outputs were achieved:

Outputs:

Generation: The 2011 restructuring reduced the scope of the rehabilitation of the Inga plants (from 10 turbines to 8), whilst increasing focus on dam safety and maintenance.

- 632 MW of renewable capacity (at the Inga plants) was rehabilitated, though short of the (revised) target of 860 MW.

- 1,432 MW of capacity at these plants became available as a result of the rehabilitation of the Inga plants, exceeding the (revised) target of 1,310 MW.

Transmission:



- 277 km high-voltage (HV) transmission lines from Inga to Kinshasa (financed by EIB) were completed, resulting in a 45 percent increase in transit capacity for Kinshasa metropolitan area
- a double circuit 400 kV line from Inga to Kingantoko, with a fiber optic line, was constructed
- a double circuit 220 kV line from the substation at Inga to the Inga site, with a fiber optic line, was constructed
- a double circuit 220 kV line from Kingatoko to the end-point in Kwimenza-Lingwala line (single circuit) in the Kinshasa area, with a fiber-optic line, was constructed
- a 220 kV line from the end-point of the Kimwenza-Maluku line to the end-point in Kimbanseke was constructed

Overall, 832 km of transmission lines were constructed or rehabilitated – in excess of the target 620 km.

Distribution:

- Seven substations in the Kinshasa suburbs were provided with new transformers and associated equipment
- Six substations were rehabilitated and provided with upstream and downstream protection systems and equipment
- To facilitate the expansion of electricity connections, seven 30 kV electric cable lines were laid to link the Liminga station to substations in Masina, Limete, Sendwe, Makala, and Badiadingui. Similar underground cables were installed to connect the Lingwala post to Kinsuka, Limete and Lemba substations. Five electric cable lines (20 kV) were installed from the Funa power station, along with installation of 35 new medium-voltage (MV) transformers in electric cabins and rehabilitation of 33 existing MV transformers to boost LV electrification in Kinshasa neighborhoods.

Outcomes:

The project's objective of better meeting power demand was substantially achieved. Renewable energy generated at Inga – as the result of the rehabilitation and tuning up undertaken - increased from a base of 3,715 GWh to 9,801 GWh, exceeding the original target of 7,600 GWh and the revised target of 9,039 GWh. The rehabilitation of the turbines at Inga 1 & 2, along with the completion of the 400 kV second line from Inga-Kinshasa and the HV line linking Inga and Kolwezi (completed under the South Africa Power Market Program) resulted in an increase in the renewable energy actually delivered to Kinshasa and Bas Congo, and Katanga region to the tune of 5,778 GWh, though this considerably less than the target of 8,593 GWh.

Secondly, the construction and rehabilitation work on the transmission lines (277.38 km constructed, against a target of 260.00 km) and distribution network resulted in improvements in the quality of electricity distribution. Key impacts included (a) a significant reduction in MV load-shedding in Kinshasa, (b) improved reliability and availability of substation equipment, with associated MV and LV networks, (c) improvement in operating conditions through reduction in downtime due to disturbances, and (d) reduction in LV load-shedding, and security and supply continuity of the 30 kV loop.



In terms of energy access, new connections fell below target (22,900 households against 35,000). On the assumption of 8 members per household, the number of beneficiaries under the project reached 183,200, against a target of 280,000, or a 65.4 percent level of achievement.

Despite its shortcomings, based on the fact that the project was ultimately able to increase the supply and quality of energy delivered to Kinshasa and Katanga, efficacy of this objective is rated **Substantial**.

Rating

Substantial

OBJECTIVE 3

Objective

“To support regional power market integration”

Rationale

Meeting this objective required the same expansion of generation, transmission and distribution capacity required to meet Objective 2.

Outputs:

The generation, transmission and distribution outputs outlined under PDO2 above apply here as well. However, it should be noted that:

1. The reduction in scope of rehabilitation of the Inga plants at the time of the restructuring in 2011, from 10 to 8 turbines, in favor of increased expenditure on maintenance, meant a reduction in electricity production, which negatively affected the objective of increasing exports to the SAPP countries.
2. The possibility of expanding generation through larger-scale development of the Inga site, through a possible Inga 3 project, coupled with investment in midsize power plants, did not materialize because a parallel World Bank project (the DRC Inga 3 and Mid-Size Hydropower Development TA) did not materialize. A difficult dialogue between the Bank and DRC authorities broke down the consensus among key stakeholders to pursue this agenda.

Outcomes:

Due to unmet electricity demand, additional energy production resulting from the project was diverted to domestic consumption. Renewable energy was delivered to Kinshasa and Bas Congo and the Katanga region, on account of the resumption of copper mining. The diversion of generated energy to meet domestic demand meant that despite a reduction in target for export of electricity during the restructuring – from 2,650 GWh to 1,349 GWh – the amount of electricity actually exported to the SAPP was an insignificant 3.97 GWh (down from a base of 97 GWh in 2010).



Based on the above, efficacy of this objective is rated **Negligible**.

Rating
Negligible

OVERALL EFFICACY

Rationale

The efficacy of PDO1 was rated Modest, for PDO2 Substantial, and for PDO3 Negligible. The operation achieved some of its objectives, arising from the rehabilitation of the Inga plants and enhanced transmission and distribution infrastructure and networks. This allowed for a higher volume of energy to be delivered to Kinshasa and the mining region of Katanga. The project however made only modest progress towards improving operational efficiency in the sector, and negligible progress towards achieving the objective of supporting regional integration. As such, overall efficacy is rated **Modest**.

Overall Efficacy Rating
Modest

Primary Reason
Low achievement

5. Efficiency

Administrative and Operational Efficiency:

The project experienced delays and cost overruns, taking more than 11 years to implement. Even allowing for the Additional Financing (AF) in 2011, the project closed 60 months after its original closing date. Though it was approved by the Board in May 2007, it took over a year for the project to become effective, on account of various delays. Cost escalations due to market factors, especially following the 2008 financial crisis, contributed to the need for an AF; however, a serious underestimation of project costs at appraisal also contributed, plus the fact that the initial budget had lacked any physical or price contingencies.

The multiplicity of project stakeholders created major coordination challenges. Each developmental partner contributing to the project's financing had to be on board and associated with the approval of implementation procedures. Bringing together the numerous representatives of government agencies (Ministry of Energy, Ministry of Portfolio, COPIREP (Steering Committee for Public Enterprise Reform), SNEL and the Project Implementation Unit (PIU) and the various financiers was a difficult task and the ICR reports (p.26) that it took many years to work out arrangements agreeable to all parties involved.

Economic and Financial Efficiency:

Economic analysis of the project at appraisal indicated an estimated economic internal rate of return (EIRR) of 29 percent, with a Net Present Value (NPV) of US\$501 million, and a financial internal rate of return (FIRR) of 20 percent. At the time of the 2011 restructuring, the EIRR was re-estimated for the entire project at 27.3



percent, with an NPV of US\$881.2 million, and the FIRR at 19.5 percent. Ex-post analysis of the project, conducted by the ICR, using the same methodology and actual costs, indicates a much lower EIRR, estimated at 13.1 percent, and an NPV of US\$16.7 million. This decline reflected an expected considerable delay in project benefits, since the last two turbines that were added became operational only in 2018. The FIRR for the project worked out to an even lower – 1.9 percent.

Taken together, the shortcomings in administrative and operational efficiency and the weak results in terms of the project’s economic and financial rates of return, overall project efficiency is rated **Modest**.

Efficiency Rating

Modest

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal	✓	29.00	0 <input checked="" type="checkbox"/> Not Applicable
ICR Estimate	✓	13.10	0 <input checked="" type="checkbox"/> Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

The project’s objectives were substantially relevant to the Government’s strategy, as well as to the World Bank’s strategy for SADC and DRC. Overall efficacy was found to be Modest, as the project achieved some of its developmental objectives, but not all. Efficiency was rated Modest, on account of shortfalls in both administrative and operational efficiency and economic and financial efficiency. Taking all of this into account, the overall project outcome rating is Moderately Unsatisfactory.

a. Outcome Rating

Moderately Unsatisfactory

7. Risk to Development Outcome

Actual achievements of the project included the increased production of electricity, arising from the rehabilitation of the Inga plants, and improvements in the transmission and distribution network – resulting in an increase in power available and delivered to Kinshasa and Katanga region. Other outcomes, including export to the SAPP and improvements in governance and efficiency of the sector, met with limited success.



The key risks that could affect the results actually achieved are governance and political risks. Against the background of the country's political instability (which had already been identified as a critical risk in the PAD), any internal troubles would be likely to worsen the economic and financial situation of the country, as well as SNEL. Achievements in electricity generation, transmission and distribution could be jeopardized if investments in maintenance and electricity networks are not maintained.

8. Assessment of Bank Performance

a. Quality-at-Entry

The project arose from a realization by SADC countries that the development of the Inga site was a priority for their regional energy development and integration. The Southern Africa Power Market Program (SAPMP) was launched with the intention of facilitating the production of energy within the region in the context of an interlinked energy pool. The project was a complement to the SAPMP, aiming to enhance energy production through rehabilitation of the Inga 1 & 2 plants. On its side, the Government of DRC found that the rehabilitation of these plants provided an opportunity to improve the reliability and quantity of supply of energy for both domestic and export markets. In retrospect, given the shortfall in energy availability that existed within DRC at the time, it is clear that the project should have been designed with a view to prioritizing domestic energy needs over exports to the power pool.

The project faced technical and financial challenges that were not clearly anticipated at appraisal. For one thing, its design and costing were completed without a precise knowledge of the tasks needed to be undertaken. This was on account of the fact that the exact scope of the rehabilitation could not be determined until the plants were disassembled so as to be able to identify which parts needed to be replaced or rehabilitated. That being the case, it is not clear why the budget did not provide for any physical or price contingencies. Secondly, the project implementing arrangements overestimated the ability of the PIU to manage fiduciary oversight. In practice, the procurement of goods for the physical investments delayed project launching, slowed down disbursement and complicated the project's financial management. While these challenges had been identified in the PAD, among the critical risks facing the project; however, the mitigation measures mentioned proved to be inadequate. For instance, too many agencies were identified at appraisal to play a role in supporting project implementation, including the Ministry of Energy through the Project Coordination Unit and CATE (*Cellule d'Appui Technique s l'Energie*), SNEL, overseeing the PIU, the Owner's Engineer, the PFM agent and the Services Contractor, and COPIREP (Steering Committee for PE Reform), to oversee the performance and service contracts. This multiplicity of agencies broke down the coordination of the implementation structure, and led to delays in launching and implementing the project.

Quality-at-Entry Rating
Moderately Unsatisfactory

b. Quality of supervision



The project appears to have been adequately supervised, with the Bank team carrying out 20 supervision missions, post effectiveness, over 10 years. Implementation support provided by the World Bank team was undertaken in a challenging, post-conflict environment, and the team was required to interact and coordinate with multiple shareholders. Project supervision was facilitated by the existence of two World Bank operations overlapping with this project – the SAPMP and the Electricity Access and Services Expansion project. The former operation was implemented in parallel with this project, and the latter, which was approved by the Board in 2017, was expected to continue implementation and supervision of unfinished work in 11 new and rehabilitated substations under this project after its closing.

The team was fairly proactive in preparing a restructuring for an Additional Financing in 2011, when it became clear the project's components had been underbudgeted at appraisal. However, the team did not utilize the opportunity of the restructuring to adequately adjust the project's Results Framework. Although revisions were made to individual targets to reflect the impact of the added investment resources, the objective and outcome targets for electricity exports to the SAPP were retained even when it had become clear due to changed circumstances this objective was unlikely to be realized.

One point of concern identified by the government and other stakeholders was the rapid turnover of task team leaders (TTLs) in the Bank team. Seven TTLs were involved in the design and implementation of the project. Coupled with the absence of a resident TTL in the country office, this made the task of providing continuity in implementation support to a fairly complex operation that much more difficult. The lack of smooth coordination and communication between key stakeholders made fiduciary oversight a challenge, reflected in delays in procurement of goods for the physical investments, and in the fact that FM and procurement risks remained substantial throughout the period of implementation.

Quality of Supervision Rating

Moderately Unsatisfactory

Overall Bank Performance Rating

Moderately Unsatisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design

The design of the M&E system broadly reflected the results chain and included relevant PDP-level and intermediate-level indicators to monitor the progress of activities and outcomes. Some of the indicators were adjusted during the 2011 restructuring for the AF. Both the PAD and the Project Paper for the AF provided baselines, annual targets, frequency of data reporting and allocated responsibilities to individual agencies for data reporting. However, key targets for electricity export were not adjusted at the time to reflect the shift towards domestic energy access and governance. The PCU in the Ministry of Energy, was ultimately responsible for the overall monitoring of the project.



b. M&E Implementation

The 2011 restructuring provided for improved M&E arrangements, with some new indicators added to the results framework and some targets for existing indicators being revised to accommodate the extension of time period to project closing. The PIU was instrumental in coordinating the collection of data and information related to the results indicators and progress of project implementation in general, though it faced some coordination challenges in dealing with the multiplicity of stakeholders. Data collected in this way was helpful to TTLs to update the status of results indicators when preparing the Implementation Completion & Results Reports (ISRs). The close monitoring of the project led to two Level 2 restructurings in 2014 and 2015, which introduced a resource-reallocation and change in timeline for project closing (though they failed to scale down the indicators for electricity export or identify more appropriate indicators to assess progress in governance and capacity building).

c. M&E Utilization

The project's M&E findings were communicated to key stakeholders, helping them stay abreast of implementation challenges and contributing to agreements to move toward the completion of key project components. The findings were used by the Bank team, through supervision missions, to monitor progress of the project. They also contributed to the team's efforts to restructure the operation (including introducing the Additional Financing) at different points in time during the life of the project.

M&E Quality Rating

Modest

10. Other Issues

a. Safeguards

Environmental and Social Compliance

The project was classified as Environmental Category B, as the anticipated environmental impacts of the rehabilitation of Inga 1 & 2 hydropower plants were moderate and manageable. The following safeguards policies were triggered: Environmental Assessment (OP/BP 4.01), Pest Management (OP 4.09), Physical Cultural Resources (OP/BP 4.11), Involuntary Resettlement (OP/BP 4.12), Safety of Dams (OP/BP 4.37) and Projects on International Waterways (OP/BP 7.50).

The following steps were taken at the outset to mitigate potential adverse environmental and social impacts:

- An Environmental and Social Management Framework (ESMF) and an Environmental and Social Impact Assessment (ESIA), containing an Environmental and Social Management Plan (ESMP) were prepared describing the environmental management structure of SNEL and the environmental and social management aspects of the project that would need to be managed.
- The rehabilitation of Inga 1 & 2 was not expected to involve the acquisition of land or resettlement, though some 270 households were expected to be affected through land acquisition by the construction of the transmission line and some 129 households by the work on the Distribution component of the project. Resettlement Action Plans (RAPs) were accordingly prepared for these anticipated resettlements.
- A consultant dam safety engineering firm that conducted a review of the Inga site identified no significant concerns and recommended a strengthened



program of maintenance, following which an *Inga Emergency Preparedness Plan* was prepared, as agreed under the IDA grant financing. d) As regards international waterways, since the Inga dam was a Órun of the riverÓ dam, the project was exempt from the requirement to notify other riparian states. e) The vector control program for black flies at the Inga site would involve use of the pesticide Permethrin, which was to be effected according to the approved Pest Management Plan (PMP). f) Finally, the MCHF framework for managing cultural properties was prepared, disclosed and released in-country.

The ICR provides little detail on the status of compliance with individual safeguard policies. However, it indicates that at project closing, all triggered safeguards were rated Moderately Satisfactory, but there were several pending social and safeguard issues relating to dam safety, the arrangements to get rid of hazardous materials linked to the control of the black fly nuisance, and claims from Kimbanseke project-affected persons (PAPs). SNEL did confirm that the rehabilitation of the people affected by the construction of the second Inga-Kinshasa T-Line was completed, and there was agreement with stakeholders on how to close the process (the line would not be put into operation until the payment process was concluded).

b. Fiduciary Compliance

The Financial Management (FM) risk was assessed as high from project inception. Accordingly, the FM function was initially outsourced to the Bureau Central de Coordination (BCECO), which was familiar with the World Bank's requirements. This arrangement worked out well; however, in 2012, these responsibilities were transferred to SNEL, following a period of capacity-building. This latter arrangement worked less well. A World Bank review of the fiduciary management of this and the SAPMP projects indicated that: a) SNEL had systematically failed to apply the recommendations of the external auditors and/or World Bank supervision teams, b) several ineligible expenditures had been identified, c) project financial management of both operations was unsatisfactory.

FM issues continued to be identified through project closing, for which due diligence was poorly initiated by the PIU. Unresolved FM issues have continued to prevail even after closing, including non-compliance with legal requirements. The 2017 project audit reports were overdue by several months, and arrangements had yet to be made for the final audit report covering the period up to closing on December 31, 2018. Documentation on the use of all funds in the Designated Account had still to be done, leaving the project with an outstanding balance yet to be documented.

Procurement of goods and services was also an issue from project inception. The absence of smooth coordination between key stakeholders (SNEL, Government, BCECO, World Bank and the Owner's Engineer, FICHTNER) led to repetitive back-and-forth of procurement documents between them, which resulted in delays up and down the line and challenged the credibility of the procurement plan. The large number of initial emergency contracts led to inconsistencies between several of the procurement operations, resulting in additional costs on account of the fragmentation of tenders. The procurement function did make some progress over time, especially after the 2011 restructuring. However, while regular financial semi-annual audits were completed by the project closing date, disbursements were still on-going and the final external audit was still under way.



c. Unintended impacts (Positive or Negative)

d. Other

11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Moderately Satisfactory	Moderately Unsatisfactory	No disagreement. ICR has rated it MU
Bank Performance	Moderately Satisfactory	Moderately Unsatisfactory	No disagreement. ICR has rated it MU
Quality of M&E	Modest	Modest	
Quality of ICR	---	Modest	

12. Lessons

- IEG derives the following lesson, drawn from the ICR: **Attempting to address multiple objectives in a megaproject in a fragile environment with limited technical capacity is likely to lead to implementation difficulties:** This large-scale project (over \$800 million, after the Additional Financing) included multiple objectives and components. The two key objectives of meeting regional demand as well as domestic demand for energy were mostly at conflict with one another, leading to the non-achievement of one objective and less-than-optimal achievement of the other. Performance in achieving the overarching objective of improved efficiency and governance was also modest, with implementation taking over a decade. A disaggregation of the project into a series of smaller operations, with more focused objectives and more in keeping with the limited technical capacity of national counterparts, designed within an overall electricity reform framework, might conceivably have produced better outcomes and more timely implementation.
- **In the design of investment projects aimed at rehabilitating electricity infrastructure, detailed feasibility studies need to be undertaken during preparation, to minimize cost overruns:** Much of the overruns in cost and implementation delays that took place on account of contract modifications and procurement problems could be attributed to an absence of knowledge regarding the extent and real costs of repair and rehabilitation of critical equipment. For rehabilitation projects, it is essential to carry out detailed feasibility studies during project preparation, to better determine the scope and associated cost and timeline of the rehabilitation work.

13. Assessment Recommended?



No

14. Comments on Quality of ICR

The ICR is generally clearly written, concise and consistent with guidelines. It provides a good description of the project's activities and a detailed theory of change. The analysis is broadly evidence-based. There are however several weaknesses. There are inconsistencies between figures in the project cost table in Annex 3 and the Data Sheet (p.2), particularly between total costs at closing and amounts actually disbursed. Secondly, there are serious shortcomings in the information provided under Environmental, Social and Fiduciary Compliance. For instance, the ICR identifies four safeguards policies as having been triggered at approval; however, a comparison with the PAD reveals that these were the only four that were actually not triggered. This raises questions as regards the relevance and accuracy of the information on compliance of the policies triggered. Also, when discussing Bank performance, particularly the quality of supervision, some additional information – for instance on the adequacy of supervision resources and inputs – would have been useful in support of its conclusions.

It should also be mentioned that there is a disconnect between the ratings for Outcome and Bank Performance in the Data Sheets of the ICR (page 3) and those in the main text. The Data Sheets indicate Moderately Satisfactory for both criteria, whereas the main text assign ratings of Moderately Unsatisfactory for Outcome (paragraph 75) and Bank Performance (ICR, paragraph 124).

a. Quality of ICR Rating Modest