Report Number : ICRR0021334

1. Project Data

Project ID	Project Name
P101645	TZ-Energy Development & Access Expansion

Country	Practice Area(Lead)	Additional Financing
Tanzania	Energy & Extractives	P117260,P125824,P153689

L/C/TF Number(s)	Closing Date (Original)	Total Project Cost (USD)
IDA-43700,IDA-47260,IDA-49600,TF-96436,TF-99806	31-Mar-2012	143,671,685.12

Bank Approval Date	Closing Date (Actual)
13-Dec-2007	29-Sep-2017

	IBRD/IDA (USD)	Grants (USD)
Original Commitment	105,000,000.00	0.00
Revised Commitment	105,000,000.00	0.00
Actual	134,583,952.75	0.00

Prepared by	Reviewed by	ICR Review Coordinator	Group
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Project ID	Project Name
P092154	TZ-GEF Energy Dvpt and Access Expansion (P092154)

L/C/TF Number(s)	Closing Date (Original)	Total Project Cost (USD)

6,441,050.29

Bank Approval Date
13-Dec-2007

Closing Date (Actual)

	IBRD/IDA (USD)	Grants (USD)
Original Commitment	0.00	6,500,000.00
Revised Commitment	0.00	6,441,050.29
Actual	0.00	6,441,050.29

2. Project Objectives and Components

a. Objectives

The Project Development Objective (PDO), as cited on p.5 of the original Financing Agreement (FA), was "to support the Recipient's efforts to improve the quality and efficiency of the provision of electricity service within its territory, and to establish a sustainable basis for energy access expansion". It should be noted however that in the PAD (p.7), unlike the FA, the geographical area was explicitly defined as the three main growth centers, Dar es Salaam, Kilimanjaro and Arusha. This discrepancy was however addressed in the restructuring that followed.

The Project's Global Environment Objective (GEO), under the GEF Grant, was "to abate greenhouse gas emissions through the use of renewable energy in rural areas to provide electricity".

During restructuring, at the time of additional financing (2010), the PDO was "slightly reformulated" (on p.4 of the project paper, though not in the new financing agreement) as follows: "to improve the quality and efficiency of the electricity service provision in the three main growth centers of Dar es Salaam, Arusha and Kilimanjaro and to establish a sustainable basis for energy access expansion and renewable energy development in Tanzania". While the inclusion of this clarification at restructuring took care of the above-mentioned discrepancy, it is clear that the PDO could have been better defined in the original financing agreement, to avoid any ambiguity regarding the intended scope of the project.

The GEO was not revised.

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
04-Mar-2010

c. Will a split evaluation be undertaken?
Yes

d. Components
The project had the following components funded by an IDA Credit and a GEF Grant:
A. On-grid investments (estimated cost at appraisal US$85.8 million, financed by IDA)
The original project was intended to support investments to support investments in the transmission and distribution (T&D) networks of the Tanzania Electricity Supply Company (TANESCO) in Dar es Salaam, Arusha and Kilimanjaro. This component included adding, replacing or upgrading T&D lines, substations and medium and low voltage equipment, meters, spare parts and tools. It also supported investments aimed at improving (a) corporate performance; (b) customer interface of TANESCO; and (c) access expansion in urban areas. The main rationale of these investments was to create value in the electricity business and to demonstrate its viability in a replicable manner. Key sub-components included (a) T&D investments, (b) distribution system upgrade investments, (c) on-grid access expansion, (d) commercial and institutional capacity development, and (e) on-grid technical assistance for project implementation.
During the project restructuring of 2010, when the Additional Financing of US$25 million was approved, this component remained unchanged.

B. Off-grid investments (estimated cost at appraisal US$59.6 million, US$22.5 million of which financed by IDA and GEF)
This component was to support an institutional set-up for the newly-established Rural Energy Agency (REA) and help develop, test and demonstrate new electrification approaches, which could be easily scaled up. It consisted of the following sub-components: (a) Small Power Generation & Distribution (SPGD) sub-projects, including renewable power generation and mini-grids; (b) Sustainable Solar Market Development (SSMD), supplying PV systems for public institutions and individual households/businesses in rural areas; (c) Technical Assistance to REA and other stakeholders.
During the restructuring of 2010, this component underwent the following changes: The component was renamed the Small Power project component. Sub-component B1 (Small Power Generation & Distribution) was modified to expand the matching grant window to include technical assistance (TA) to the participating financial institutions (PFIs) for capacity building, and to introduce a low-cost distribution pilot to develop new techniques and approaches to reduce the costs of distribution networks. In addition a Renewable Energy Credit Line was added as new sub-component (B4), to provide local currency term-financing.to PFIs for eligible renewable energy projects.

C. Technical Assistance (estimated cost at appraisal US$3.2 million)
This component was intended to fund (a) the training needs assessment for TANESCO with subsequent selected capacity building implementation; (b) increasing the Governments capacity to develop public and private generation projects through provision of legal, technical, financial, environmental and social advisory services. The key sub-components were (a) TA provided to TANESCO and (b) TA provided to the Government.
During the 2010 restructuring, this component remained unaffected.

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

Project Cost: The project went through two restructurings - in March 2010 and March 2015 respectively - to implement (separate) Additional Financings (AFs), as well as three restructurings to change disbursement categories and extend the closing date. The restructuring for the initial AF (2010) resulted in a reformulation of the PDO. The other restructurings took place in September 2016 and July 2017, and resulted in a change in the results framework, as well as a reallocation between disbursement categories, and two further changes in closing date. The final project cost, after the various restructurings and additional financings, amounted to US$181.5 million (ICR, Annex 3, p.69), of which US$131.73 million or 72.6 percent was actually disbursed.

Financing: The sources of funding for this project at appraisal consisted of IDA resources of US$105.0 million plus a grant from the Global Environment Facility (GEF) of US$6.5 million. An additional US$25.0 million of IDA funding was made available through the March 2010 restructuring and a further US$27.88 million added in May 2011. These resources were supplemented by two trust funds: (a) US$6.5 million provided through the Russian Energy Small and Medium Enterprise (ESME) Grant project, approved in November 2011, and (b) US$1.0 million through the Lighting Rural Tanzania Project approved in June 2010.

Borrower Contribution: No borrower contribution was envisaged for this project, nor was any provided during the life of the project.

Dates: The project was originally envisaged to close on March 31, 2012. However, the closing date was extended by three years at the time of the March 2010 restructuring. This was further extended by 18 months, to September 30, 2016, at the time of the third restructuring in March 2015. It was subsequently extended during the final restructuring to September 29, 2017, to allow TANESCO the opportunity to process outstanding claims and change orders necessary to complete the T&D works by project closing. From project approval in December 2007 to project closing in September 2017 the project took almost 10 years to complete.

3. Relevance of Objectives

Rationale

Original Project (2007-2010): Substantial. The project was prepared just after Tanzania had recovered from an energy crisis (2006), which highlighted the importance of reliable energy for economic growth and

poverty alleviation. The objectives of the project at appraisal were consistent with the 2005 National Strategy for Growth and Reduction of Poverty (NSGRP) in Tanzania, prepared by the Government in consultation with the IMF and World Bank. A sub-goal of this strategy (p.41) was to ensure provision of reliable and affordable energy to consumers, as a means of contributing to the quality of life. The project, which would contribute to the objective of reducing Greenhouse Gas (GHG) emissions, was also broadly consistent with the UN Framework Convention on Climate Change, which Tanzania had ratified earlier in 1992. It was consistent also with the objectives of the Joint Assistance Strategy (JAST), adopted in March 2007 (at approval, the project targeted six of the World Banks eight JAST milestones relating to achieving Goal 6 of the NSGRP, including passage of the new Electricity Act and creation of the Rural Energy Agency (REA). The project objectives remained consistent with the World Bank's subsequent Country Assistance Strategy, FY2012-2015, the second objective of which (p.20) was to build infrastructure and deliver services with improvement of access, quality and sustainability of electricity as a key outcome, and with the most recent Country Partnership Framework, FY2018-22, Objective 1.4 of which (pgs. 21-23) was to increase access to energy services, ensure adequate, reliable and sustainable supply at the lowest cost, improve sector operations and reinforce regional integration.

Revised Project (2010-2017): Substantial. The project's objectives changed slightly to focus on the three main growth centers of Dar es Salaam, Arusha and Kilimanjaro, and to establish a sustainable basis for energy access expansion and renewable energy development in Tanzania. The project remained aligned with the Governments energy sector priorities - of improving efficiency and quality of access to energy and of expanding rural electrification and renewable energy. It was also consistent with the World Bank's Country Partnership Framework, FY2018-22, as mentioned above, as well as Tanzania's National Development Plan, 2016/17-2010/21, which identified low access to both urban and rural populations as a key challenge facing the energy sector. To address the challenge the Bank Group's strategy, as outlined in the CPF, included a strong focus on leveraging private partnership in energy, especially in renewable technologies to optimize the power generation mix.

Relevance of the Global Environment Objectives: The project's Global Environment Objectives of abating GHG emissions through use of renewable energy in rural areas remained unchanged. These objectives continued to be substantially relevant to the Governments broader policy objectives of encouraging greater sustainability in energy production.

The Government of Tanzania's Roadmap for the Electricity Supply Industry Reform Strategy for 2014 -2025 for instance emphasized the need to diversify the countrys energy sources, with a strong focus on renewables. Also important is the fact that in 2012 Tanzania opted to become one of the early movers for Africa, as part of the UN Secretary General's Sustainable Energy for All Initiative, which set ambitious targets for improving access and increasing the share of renewable energy in the global energy mix (see: Tanzania's SE4ALL Action Agenda, December, 2015).

Rating

Substantial

4. Achievement of Objectives (Efficacy)

Objective 1

Objective

"To improve the quality and efficiency of the provision of electricity service within its territory."

Rationale

Theory of Change

The PAD (Annex 3) provided a Results Framework with indicators for development outcomes and intermediate outcomes. Baselines and targets for the various indicators were specified, as were responsibilities for collecting performance data. The PAD did not however present a specific analysis of the causal chain linking inputs, outputs and outcomes. The ICR (Figure 1, p.9) does however present a detailed Theory of Change, outlining the results chain for the operation, linking the various activities under the project and the outputs, outcomes and longer-term outcomes that they were expected to lead to. A direct causal link can be drawn between the project's major activities, which included investments in T&D infrastructure and distribution system upgrades, technical assistance to implement on-grid expansion, and establishment of a functioning regulatory framework for rural electrification, and the expected outcomes in terms of reduction in losses, improvements in end-user voltage, improvements in sector coordination and establishment of a sustainable basis for energy access expansion in rural areas, which in turn were associated with various longer term outcomes, including improvement in quality and efficiency of electricity service, in TANESCO's ability to manage the project, and in the capability of the institutions supporting rural energy access and renewable energy expansion. The project's theory of change and associated results framework was basically sound, although the ICR does not specifically analyze whether these activities were the most appropriate to achieve the projects developmental objectives (i.e. whether any other activities might have been more efficient in achieving the desired results).

Outputs: Specific outputs from the project covered both transmission and distribution infrastructure, and included the following:
(Transmission infrastructure):
- Upgrade of two existing 220/132/33/11 kV substations at Ubongo and at Factory Zone III in Dar es Salaam.
- Erection of three new 132/33 kV substations at Factory Zone II, Mbagala, and Kurasinin substations in Dar es Salaam.
- Upgrade of the KIA (Kilimanjaro International Airport) substation, energized with 6x33 kV feeders and 2x20 MVA power transformers.
- Installation of 57 km of transmission lines in Dar es Salaam and from the KIA substation.

It should be mentioned however that some of these outputs had yet to be completed at the time of project closing. Cabling and wiring works at the Mbagala substation were still in progress and the connections of the 132 kV transmission lines, as well as their commissioning awaited the completion of the Mzinga Creek crossing. Similarly, completion of 13 km of the Ubongo-Kurasini portion was pending on account of a road expansion project by the Tanzania National Road Authority, which affected the wayleave. It is not clear

when these would be completed, although the ICR team was informed that TANESCO is committed to their completion.
(Distribution infrastructure):
- Construction of six new substations in Dar es Salaam, located at City center, Factory Zones I and II, Mbuarahti, Mikocheni and Oysterbay.
- Rehabilitation of five substations in Dar es Salaam (Ubongo, Kariakoo, Kurasini, Changombe and Mbagala).
- Installation of plant and equipment at eight substations in Arusha and Moshi.
- Installation of distribution lines (184 km) in Dar es Salaam, Arusha and Kilimanjaro suburbs (33 kV/11 kV overhead lines and 33 kV underground cables).
Towards improving operational efficiency, the project supported the installation of 85,000 pre-paid credit meters and identified institutional capacity development needs. Technical assistance (TA) was provided, through the hiring of a consultant firm to supervise T&D works, training, preparation of bidding documents and evaluate detailed design documents. The also enabled TANESCO to hire a procurement expert to augment contract management processes, and acquired a corporate information technology (IT) system.

Outcomes:
These various investments, combined with measures to improve transparency and accountability in TANESCO's operational performance, led to a considerable reduction in total T&D losses, which declined to 16.44 percent at project closing vs. a target of 22 percent (2007 baseline: 28 percent). A further decline is expected to take place when all T&D upgrades become fully operational. A significant improvement was also observed in collection rates: TANESCO's revenue collection increased from 70 percent in 2007 to 91.61 percent in 2017 (though this fell 3.6 percent short of the target). This helped improve TANESCO's financial bottom line (gross and operating profit margins), moving from negative territory to the positive by 2014-15.

An improvement in service quality was observed, as measured by end-user voltage, which reached 220 volts, slightly in excess of the target, by project closing. The upgrade of KIA 132 kV substation helped bring about improved stability of voltage in the Arusha and Kilimanjaro regions, thereby providing consumers with better service. However, it was not possible to confirm customer satisfaction through feedback via customer survey, since no baseline or target had been set at appraisal.

Rating
Substantial

Objective 1 Revision 1
Revised Objective
“To improve the quality and efficiency of the electricity service provision in the three main growth centers of Dar es Salaam, Arusha and Kilimanjaro”.

Revised Rationale
Outcomes under the revised project did not differ fundamentally from those achieved under the original project. (As mentioned earlier, the geographical area of the project did not fundamentally change as a result

of the restructuring, notwithstanding the apparent discrepancy arising from the PDOs, as cited in the FA). T&D investments financed under the revised project (which accounted for 80 percent of funds disbursed) led to the improvements in operational efficiency, reflected in reduction in total T&D losses and improvements in quality of power supplied, listed above.

Revised Rating
Substantial

Objective 2
Objective
"To establish a sustainable basis for energy access expansion"

Rationale
Outputs: REA became operational in 2006-07, after its establishment under the Rural Energy Act, 2005, with a mandate of promoting, stimulating and facilitating rural energy development. The project provided support to improvement of REA's functionality, including a strengthening of its Procurement Management Unit and a review of its organizational structure. Towards this end, the project helped establish REA's institutional set-up, develop new, scalable approached to electrification, and set up a regulatory framework for commercially-oriented service delivery in renewable energy and small renewable projects that could be scaled up.

Outcomes: This strengthening helped REA increase its support to small-scale rural power generators, expand rural connections and develop a pipeline of new rural household connections. REA supported installation of 25 MW of renewable energy capacity, exceeding the target by 47 percent, and 4,685 connections to the grid, and the pipeline of rural connections reached 71,966 households, exceeding the target by 80 percent.

Rating
Substantial

Objective 2 Revision 1
Revised Objective
"To establish a sustainable basis for energy access expansion and renewable energy development in Tanzania".

Revised Rationale

The additional resources brought in under the additional financing were intended to enhance the financing mechanisms supporting small power projects (SPPs) in rural areas, and (through additional trust fund

resources) the Clean Development Mechanism (CDM) and other renewable energy activities in favor of the poor.

Outputs: The (US$25 million) credit line to SPPs that was provided was extended to 4 SPPs, supporting 7.2 MW of installed capacity. However, only 23 percent of funds ended up being disbursed by project closing. A green generation performance grant (US$6.5 million) was extended to 7 beneficiary SPPs, supporting 14 MW of generation. However, as many of the identified eligible projects did not reach the benchmark level of preparedness to access the grant, only 26 percent of funds available were actually disbursed. The projected annual generation of the 7 beneficiaries was of the order of 52,185 MWh, with a contract volume of 297,324 carbon emissions reductions (tCO2) and a green generation performance value of 1.2 million euros. Only the US$1.0 million AFREA grant was fully disbursed, to 25 SPPs, supporting 305 kW of micro-generation, and potential for electricity connections to 20,875 households, 50 health centers, 100 schools and 4 water pumps.

Outcomes: The project was largely successful in establishing a sustainable basis for energy expansion and renewable energy development. REA became fully functional under the project, with the capacity to develop, finance and implement pilot schemes, and develop a pipeline of new household connections. A number of small power projects were identified and financed through the credit line and trust funds, with generally positive results, though the pipeline was somewhat slow to develop on account of capacity constraints and failure of the credit line to fully disburse, as mentioned above.

Revised Rating
Substantial

Objective 3
Objective
GEF Objective: To “abate greenhouse gas emissions through the use of renewable energy in rural areas to provide electricity”.

Rationale
The GEF objective of reducing GHG through use of renewable energy in rural areas was substantially achieved.

Towards the creation of favorable conditions for small power projects (SPPs), the project provided matching grants to assist SPP developers to prepare feasibility studies, coupled with performance grants (of US$500 per connection) to help them provide electricity services to potential rural consumers. A total of 38 grants were provided in this way to SPP developers, generating potential connections to 122,000 households which could potentially lead to a total installed capacity of 108 MW. Seven performance grants were provided to private promoters in 5 districts to assist in construction of distribution networks to connect power to a possible 10,860 households in district villages.

The Sustainable Solar Market Packages (SSMPs) financed by the GEF proved less successful. Winning bidders, who were given small grants to promote their own brand of quality-certified solar home systems to local households, were unable to undertake effective marketing beyond the public sector (i.e. to private households). As a result, the initial SSMP packages proved ineffective in stimulating the local home market for solar home systems, while SSMP-2, which funded the provision of solar equipment to remote rural communities, met with mixed results.

TA provided by the project contributed to building capacity in REA and EWURA (the Energy and Water Regulatory Authority), and helped modernize the regulatory environment for renewable SPPs.
Three out of four targeted outcomes under the GEO were exceeded under the project. (a) The target for CO2 emission reduction, as measured by the capacity of renewable energy installed, was exceeded by 47 percent. Against a target of 17 MW (baseline zero), 25 MW grid-connected SPPs were actually installed; (b) The target for new rural household and business connections to modern electricity services through off-grid electrification models with the SPP was exceeded, as some 144,600 rural households were connected; (c) The target for using standard SPPAs/SPPTs methodology for small renewable power projects was exceeded, with 12 SPPAs being signed with a potential installed capacity of 58.3 MW; (d) The target of new public institutions electrified through new off-grid models with SPPs was missed by 17 percent, as an estimated 996 community connections were completed against a target of 1,200.

Rating
Substantial

Rationale

To summarize, the project's efficacy is rated Substantial for achievement of both original and revised objectives. Substantive progress was made towards achievement of the objective of improving the quality and efficiency of electricity service within the borrower's territory (effectively, in the three key growth areas). The project was largely successful in establishing a sustainable basis for expanding energy access, although the performance of the renewables sub-component that was added during the restructuring was mixed. Substantive progress was made towards achieving the GEF objective of reducing GHG emissions through use of renewable energy in rural areas.

It should be mentioned that project implementation had slowed down during 2015/16 as a result of earlier-mentioned issues with contractors and the wayleave for T&D lines in Dar es Salaam, and this had resulted in Moderately Unsatisfactory ratings being given in the Implementation Status & Results Reports (ISRs) in September 2015 and April 2016. However, these issues were resolved in 2017, following transfer of the undisbursed credit line resources to TANESCO and completion of the distribution upgrade investment works in the three growth areas, as a result of which the project's performance was upgraded to Moderately Satisfactory in the closing ISR.

Overall Efficacy Rating
Substantial

5. Efficiency

Administrative and Operational Efficiency:
The project's efficiency was impacted negatively by delays in implementation and cost overruns. The initial additional financing in 2010 expanded the off-grid component (Component B) of the project and extended the time frame of the operation by three years, whilst scaling up targets for outcome indicators. However, implementation of the main grid component fell behind schedule, with cost overruns resulting from unanticipated increases in the cost of T&D rehabilitation contracts and of contracts for various consulting assignments (including addition of an extra consultancy). The time frame of the project was eventually extended by another two and a half years, at the end of which some 14 percent of aggregate IDA resources remained undisbursed. Key factors affecting implementation of the project included procurement delays related to the scaling up of Component B, and safeguard adjustments related to the change of the wayleave for T&D lines.

Economic and Financial Efficiency:
Economic analysis of the project at closure, based on reduction of technical system losses following the upgrade of Component 1, indicated an Economic Internal Rate of Return (EIRR) of 17 percent for the TANESCO grid component and a net present value (NPV) of US$23 million. In comparison, the EIRR at appraisal was an estimated 31 percent and the NPV, an estimated US$87 million though these were estimated on a somewhat more generous assumption of consumer willingness to pay than at closure. For the off-grid component, which took the form of: (a) two isolated mini-grids (Ngombeni biomass power plant and Mawengi small hydropower), estimates of EIRR at closure differed widely ranging from 111 percent to negative 9 percent, in comparison to an EIRR of 36 percent, estimated at appraisal (based on a survey of Rukwa region); (b) solar home and institutional systems, for which estimated EIRR was 85 percent (NPV: US$1.6 million) at closure relative to an appraisal estimate of 59 percent (NPV: US$9 million), for home systems, and an EIRR of negative 13 percent (NPV: negative US$2 million) at completion vs. 21 percent (NPV: US$0.3 million) for PV installations in institutions. The negative returns for photovoltaic (PV) systems reflected the reality that the SSMP (Sustainable Solar Market Packages) contracts provided for negligible spare parts; hence, the completion analysis assumed a gradual decline of the functioning PV systems up to 2030). Finally, (c) for small power generation & distribution (SPGD): estimates of EIRR for 10 of the 11 SPGDs constructed by completion varied widely, ranging from negative 9 percent to 111 percent, compared to a range of 15 percent to 48 percent at appraisal.

Taking into account the above, the project's efficiency is rated Modest, in light of the negative EIRRs for PV systems and the lower range of estimates for the off-grid component, as well on account of implementation delays and cost overruns..

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	✓	31.00	0 ☑Not Applicable
ICR Estimate	✓	17.00	0 ☑Not Applicable

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

6. Outcome

The project's relevance of objectives was rated as Substantial, and continues to be so. Efficacy of the Original project is rated Substantial, as also for the revised project. Project efficiency is rated Modest. The overall outcome rating is based on a split rating for the Original and Revised project, whereby the project's overall outcome is rated Moderately Satisfactory (or 4.0 on a six-point scale) against both original and revised PDOs, weighted by the disbursements made before and after restructuring (20 percent and 80 percent respectively), i.e., (4.0 x 0.20) + (4.0 x 0.80) = 0.8 + 3.2 = 4.0 or Moderately Satisfactory.

The project's global environment objectives were substantially achieved.

a. Outcome Rating
Moderately Satisfactory

7. Risk to Development Outcome

Most of the risks to the development outcomes achieved by the project are political, i.e., related to the Government's decisions and actions, and the overall political economy. As such, sustainability of the outcomes achieved in the area of service quality and efficiency in the energy sector is dependent on the Government's

continuing commitment to the reform agenda. As regards the upgrading of the T&D infrastructure in the three main cities, the achievements are largely irreversible. However, sustaining service quality and efficiency will also depend on the Government's consistency in continuing reforms to liberalize the sector: in particular its policy towards continued TANESCO reform and greater private sector participation, which still remains unclear. On the positive side, the Government has shown a continuing interest in power sector development, as evidenced by its willingness to commit 65 percent of the resources to be disbursed to the energy sector in the context of the World Bank's program financing of the National Rural Electrification Plan (2016-22), approved in May 2016, to which other donors have also committed resources. Based on the financial commitment of the Government and other donors, the project faces a moderate risk to the development outcomes achieved in the rural and renewable energy sector.

8. Assessment of Bank Performance

a. Quality-at-Entry

As described in the PAD (p.5), the project was intended to be the first in a series of operations aimed at energy development and sustainable access scale-up. It was expected that successful implementation of this project would pave the way for additional private investment in the sector. The actual design of the project, however, while broadly appropriate to the country's needs, resulted - by virtue of bundling together a number of on-grid and off-grid activities - in a relatively complex and somewhat ambitious operation that was difficult to co-ordinate and implement in the field.

Project preparation was based on in-depth analysis of technical, financial and economic aspects. However, some of the underlying assumptions proved to be unrealistic, especially for off-grid investments. These related to the design and approach for stand-alone solar home systems, technical capacity of promoters of small power generation projects, and the ability of the banking system to provide funding on time. Weaknesses in the banking system in the latter led to a new credit line being devised, so that SPPs could receive adequate funding; however, promoters of these small projects faced their own difficulties in designing bankable projects and in handling the social and environmental aspects of their project proposals. All of these difficulties led to delays in implementation of the off-grid component and inability of the credit line to fully disburse.

The project's implementation arrangements related to fiduciary, M&E and social & environmental issues varied from one category to another. Arrangements for the on-grid portion of the project were appropriate and mostly effective, being based on the assumption that borrower institutions had sufficient exposure to World Bank procedures, and could undertake the necessary oversight of the implementation arrangements. Where necessary, action plans were envisaged to improve staff procurement and financial management skills. Arrangements for the off-grid component however suffered from the weaknesses mentioned above.

Key project risks were for the most part correctly identified at appraisal; however, a major unidentified risk was the global financial crisis , which - while difficult to anticipate - did adversely affect the local

banking sector, and hence its ability to provide on-time finance to SPPs, was the global financial crisis. Other unidentified risks included the change in the legislature following the 2015 elections, which weakened the momentum of reform in the power sector. An identified risk was the weakness in TANESCOs procurement capacity, which was fully mitigated only after the hire of a procurement adviser in 2014. Overall, the World Bank overestimated at appraisal TANESCOs capacity to ensure a smooth and rapid implementation of the grid component.

Quality-at-Entry Rating
Moderately Satisfactory

b. Quality of supervision

The Bank team was reasonably diligent and regular in its oversight of the project, with more than 20 supervision missions visiting the country to support the implementing agencies during the projects life. Missions included multisector specialists and consultants, who were capable of advising on the best ways to overcome implementation hurdles. However, the turnover of task team leaders (6) during the implementation period did create its own inefficiencies and delays, which were compounded by the absence of a country office-based TTL during the crucial initial two years of the project. Lack of expertise in the implementing agencies (TANESCO, REA and MEM) was an important factor explaining most of the implementation delays faced by the project, and though the Bank team provided on-going support to these agencies in resolving safeguards and procurement challenges, it could perhaps have done so with greater speed and proactivity at critical junctures. To harness the required experience, the Bank did appoint two co-task team leaders to oversee the on-grid and off-grid activities individually, and thereby share the burden of supervising a complex operation. The project team also carried out a continuous dialogue with key project stakeholders, which proved helpful in achieving its outcomes.

Reporting on the project's progress and results was regular and comprehensive, though the ICR refers (p.47) to a reporting fatigue in the final phase of implementation. A total of 17 Implementation Status and Results reports (ISRs) were filed over the project's life, with regular updates to the Results Framework.

Quality of Supervision Rating
Moderately Satisfactory

Overall Bank Performance Rating
Moderately Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design

While no theory of change was explicitly laid out in the PAD, the results framework provided in Annex 3 presented a reasonably clear argument for a cluster approach, that underpinned the design of the project. The results framework was fairly detailed, showing the arrangements for results monitoring, with baseline and target values for the various indicators. These arrangements were established in the operating guidelines of the project, aimed at evaluating the economy-wide benefits that were expected from improved electricity services. Reflecting the complex nature of the operation, there were a large number of intermediate indicators, which were modified for Component B at restructuring in 2010 (which could if at all have been streamlined to facilitate smoother monitoring).

b. M&E Implementation

As envisaged at appraisal, data collection for M&E purposes was the responsibility of the Ministry of Energy & Minerals (MEM), with support from TANESCO and REA. MEM submitted the evaluation reports compiled to the Government, World Bank and GEF. Performance monitoring included collecting data for the results indicators which were revised in 2010 and 2011, as well as preparation of progress reports on investment programs and execution of contracts. After restructuring in 2010, REA assumed specific responsibility for monitoring Component B. REAs monitoring unit was by then fully staffed and capable of undertaking the task; and for more complex tasks such as verification of Sustainable Solar Market Packages (SSMP), monitoring and evaluation was to be contracted out to specialists. REA visited projects financed under its credit line/grant window at least once a year, to verify compliance with outputs for grant disbursements. Monitoring also included safeguards issues.

The project/'s M&E implementation was rated satisfactory overall in the 17 ISRs prepared during the life of the project.

c. M&E Utilization

M&E data collected fed directly into the Bank teams Aide Memoires and ISRs, which helped the projects stakeholders to remain adequately informed of progress towards expected outcomes. The close supervision facilitated adjustments to be made to the Results Framework, which was revised twice to take account of additional funding and to surmount implementation obstacles.

M&E Quality Rating

Substantial

10. Other Issues

a. Safeguards

Environmental and Social Compliance

The project was classified as Category B for social and environmental purposes. The following policies were triggered at appraisal: (a) Environmental Assessment (OP/BP 4.01), (b) Natural Habitats (OP/BP 4.04), (c) Physical Culture Resources (OP/BP 4.11), (d) Involuntary Resettlement (OP/BP 4.12), (e) Safety of Dams (OP/BP 4.37) and (f) Projects on International Waterways (OP/BP 7.50). An Environmental and Social Impact Assessment (ESIA) was prepared in 2005 for the transmission lines in Component A and an Environmental Audit was conducted at the substations to be upgraded. The findings of the ESIA were updated by TANESCO, and the documents disclosed in 2007.

A Resettlement Action Plan (RAP) was prepared for the transmission lines and substations in Dar es Salaam, Moshi and Arusha under Component A, and disclosed in 2007. A Resettlement Policy Framework and an Environmental and Social Management Framework (ESMF) were prepared for Component B, and disclosed in the same year. The World Bank conducted a resettlement audit in September 2017, just prior to project closing, identifying the number of persons affected by the project as a result of Component A. The audit concluded that the Banks policy on involuntary resettlement had been followed, though poor record-keeping of resettlement activities had impeded effective monitoring of resettlement and its impact. It also assessed that Component A had benefited from closer supervision than the off-grid Component B, on account of TANESCOs better social safeguards, direct implementation and larger impacts involved.

No significant environmental issues were observed for the transmission lines or substations. Contracts for substation work took environmental audit findings into account so that existing environmental, health and safety issues were resolved. At closure, TANESCO had resolved all pending land issues, save for compensation for 3 out of 16 households at Mzinga Creek, which arose on account of last-minute changes in the design of the line, necessitating acquisition of a new corridor, and paperwork to complete the compensation was being finalized. There were no pending safeguards issues at REA. Overall, it was found that TANESCO substantially strengthened its safeguards capacity during project implementation its environmental unit increasing from 4 persons to 18 by closure.

b. Fiduciary Compliance

Financial Management

Though the risk assessment of the borrowers entities to be involved in the financial management of the project was Modest at appraisal, an action plan was approved to mitigate identified financial risks during project implementation. Implementation arrangements were built around the presumption that accounting staff of the borrower agencies (TANESCO, MEM and REA) would assume the responsibility for overall financial management (FM) of the operation. Overall, these agencies implemented the FM function adequately. However, there were some deficiencies: For instance, audits conducted in 2012 for the SSMP-1 component did reveal some shortcomings in payment approvals; however, MEM reimbursed the Bank for the ineligible expenses thereby identified as a result of which the rating for FM in the ISRs was downgraded from Satisfactory to Moderately Satisfactory, between 2013 and 2015. Also, reporting on utilization of resources revealed room for improvement. There were large budget overruns recorded at project close, but neither the ISRs nor the Aide Memoires were detailed enough in presenting information on the sources and uses of the projects resources. Annual audits of TANESCO were completed on time, but final external audits are yet to be completed.

Procurement

Procurement arrangements were the responsibility of the various implementing agencies. An Action Plan was provided for in the PAD to mitigate identified risks and weaknesses. Despite this procurement weaknesses affected the implementation of the on-grid component, with procurement of four distribution packages having to be cancelled in 2009 on account of shortcomings in the bidding process. A procurement consultant was hired by TANESCO in 2010, to help strengthen the Project Management Unit. However, in the off-grid component, delays on account of contract execution under MEM and REA were recorded. A misprocurement was recorded in one instance, whereby a company was found to have submitted false documents as part of the qualification requirements to bid, causing an enquiry to be initiated by the World Banks Integrity Vice Presidency, and resulting in debarment sanctions being imposed against the company in question.

c. Unintended impacts (Positive or Negative)

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d. Other

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11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Moderately Satisfactory	Moderately Satisfactory	---

Bank Performance	Moderately Satisfactory	Moderately Satisfactory	---
Quality of M&E	Modest	Substantial	No disagreement. ICR has actually rated Quality of M&E as Moderately Satisfactory (i.e., Substantial on a 4-point scale)
Quality of ICR		---	---

12. Lessons

IEG derives the following lessons, drawn from the ICR:

- Technical assistance can play an important role in alleviating the constraints imposed by capacity limitations for complex projects. To help the client deal with the large scope and complexity of the project's activities, the project allocated resources to build technical capacity not only of the government implementing agencies, but also of the private sector and participating financial institutions (PFIs). Though not all of the capacity building was fully implemented, this TA was helpful in overcoming some of the capacity challenges arising.

- Less prescriptive approaches allow for better adaptation to dynamic markets. The Sustainable Solar Market Packages (SSMP) sub-component of the project faced challenges in implementation arising predominantly from the design of the project, which relied heavily on government procurement. And was not sufficiently adaptable to changing market circumstances. With the growth of private sector providers in the solar home system market, technological innovation has led to the development of innovative business models. In such a dynamic market, an adaptable approach addressing key market failures without imposing unnecessary constraints is likely to work best. Such an approach is in fact increasingly being adopted across the region for off-grid electrification.

- For projects with transmission and distribution (T&D) infrastructure components, and especially in densely populated settings, social and environmental safeguards aspects need to be systematically addressed and dealt with during preparation and appraisal of the project, in order to ensure smooth implementation. Many of the delays experienced by the project arose from shortcomings in procuring goods and in getting the right-of-way cleared for T&D lines, including related resettlements. Particularly in densely populated settings, the design of T&D infrastructure needs to give priority to identifying RAP requirements at an early enough stage, to make sure that the right-of-way is secured when the project is launched.

- A conducive and consistent operating environment is an important factor for successful implementation. Government policies in favor of lowering connection fees and tariff adjustments increase the ability of the utility to deliver on access and efficiency targets. At the same time, a transparent and comprehensive regulatory framework for SPPs helped stimulate the industry and increased the effectiveness of the support provided under the project. Conversely, the shift in the Government's policy on tariff determination and private sector participation that took place in recent years had adverse implications on the project, putting pressure on TANESCO's finances and its ability to make timely payment of bills of SPPs connected to the TANESCO grid.

13. Assessment Recommended?

No

14. Comments on Quality of ICR

The ICR is clearly written, concise and consistent with the guidelines. It provides a good summary of the storyline of the project, especially of its background, implementation and challenges faced. It also provides details of the results matrix and of the various changes made during restructuring. The analysis of project design and implementation issues is generally evidence-based and candid. The discussion of Environmental, Social and Fiduciary Compliance is comprehensive. The ICR does have some minor weaknesses: for instance, the section on M&E Implementation provides information on the changes that took place in the results indicators rather than on the extent to which M&E data was collected and analyzed in a methodological sound manner. Secondly, the Section 1 on project components does not clarify information on their actual costs at closing. Similarly, the ICR needs to provide clarification of the component-wise costing details provided in Annex 3, as it is difficult to reconcile these with the PAD and information on the project's financing. Finally, the ICR could usefully have provided an update on whether the resettlement compensation that was pending for the three remaining households at project closing (nearly a year ago) has been paid.

a. Quality of ICR Rating
