



TECHNICAL MISSION AIDE MEMOIRE

SCALING-UP RENEWABLE ENERGY PROGRAM IN LOW INCOME COUNTRIES

SREP - TANZANIA



January 14 to 25, 2013

INTRODUCTION

1. Following the scoping mission in September and the submission of the draft SREP Investment Plan (IP) in December, an MDB Technical Mission (“the Mission”) visited Tanzania from January 14-25, 2013, to work with the Government of Tanzania to revise the SREP IP and to reach agreement on the major components for which SREP support will be sought, to further assess other donor support for such investments and to agree on the timeline for submission of the Investment Plan to the SREP Subcommittee. The Mission was led by the African Development Bank and included representatives from the World Bank and International Finance Corporation. The Mission’s members are given in Annex 1.
2. The Mission expresses its deep appreciation to the Government and all parties met (public institutions, civil society organizations, private sector representatives, development partners) for their interest in this program and the quality and transparency of the discussions. Annex 2 provides the names of the officials and stakeholders met during the mission.
3. The Mission would like to commend the very good work that the Government has done in preparing the draft SREP Investment Plan and effective partnership that has evolved between the SREP IP Task Force and the MDB team. The Mission commends close and productive collaboration between the Government’s SREP IP Focal Point and Task Force with the consultant appointed by the AfDB to collaborate and advise the Task Force in revising the SREP Plan. The interest and commitment of the Government for the SREP Program is fully acknowledged.

MISSION ACTIVITIES

4. The Mission was received by Mr. Edward Leonard Ishengoma, Assistant Commissioner for Renewable Energy at the Ministry of Energy and Minerals and SREP National Focal Point; then it conducted several meetings with various stakeholders in accordance with its terms of reference.
5. The mission worked closely with the SREP IP Task Force and reached agreement on the main changes/clarifications needed to be made during the revision of the IP. An agreement was reached on the role to be played by the international consultant recruited to support the Task Force in preparing the IP.
6. The mission also met with the energy sector group to get an update of development partners’ engagement in Tanzania. Of particular note is the significant increased engagement in rural electrification and increased interest in geothermal development. The mission noted that the donors are keen to engage with the Government and the private sector to develop the energy sector through a wide array of products such as guarantees, grants and credits and collaborate with each other to leverage resources.
7. The mission also met with private sector entities that are investing in or considering investing into the renewable energy sub-sector. Although, there is enthusiasm about investing in the sub-sector, there is also a great deal of reservation about Tanesco’s payment risk, as significant delays have been experienced by IPPs in obtaining payments from Tanesco. Such delays will further deter investments in the sector. As this is a sector issue

broader than the SREP or renewable energy, the MDBs will be engaging with the Government on how to resolve this matter. Left unresolved, it will affect the ability of SREP to incentivize private sector investments in renewable energy. It would also interfere with the Government's objective to support rural mini-grids in order to reach ambitious electrification targets, as many of the current mini-grid operators also sell power to Tanesco.

8. Finally, the mission organized a dedicated meeting on Monitoring and Evaluation. The objective of the meeting was to inform the M&E experts of MEM and REA about the SREP M&E preparation process and requirements, and to understand from them what M&E systems already exist in the energy sector. Findings are reflected below.

MISSION FINDINGS AND AGREEMENTS

9. The main findings from mission discussions are presented below.

10. Progress in preparation of the SREP Investment Plan. The international consultant recruited by AfDB has worked closely with the SREP Task Force and MDB technical mission members during January 14-25 to help guide the Task Force to prepare the IP. Agreement emerged on the priority sectors for SREP support, greater clarity on how SREP intervention will be transformative, how SREP (and other co-funding) resources will be deployed to overcome the major barriers, the responsibilities of the Task Force and the consultant, and the revised schedule for preparing the IP.

11. SREP IP Schedule. In the interest of ensuring that the SREP IP is up to the quality acceptable to the Government and necessary for submission to the SREP, and to ensure broader stakeholder consultation and consensus building, it was agreed that the SREP IP would not be submitted to the May 2013 SREP Subcommittee meeting, rather to submit it for intercessional review and approval by the SREP Subcommittee if possible (to be confirmed with the CIF AU and the SREP Sub-Committee). Accordingly, the schedule is revised as follows:

- Revised draft SREP IP submitted to the MDBs for review: February 28, 2013
- Joint SREP Mission: March 11 – 22, 2013
- Finalize SREP IP: March 24 – 29, 2013
- GoT discussions: April 1 - 5, 2013
- Public disclosure: April 8 - 26, 2013
- Independent Technical Review: April 15 - 26, 2013
- MDB Final Review: April 29 – May 8, 2013
- Final revision of SREP IP and printing: May 8 – 17, 2013
- Submission to SREP Subcommittee: May 20, 2013
- Proposed SREP Subcommittee consideration of the Tanzania SREP IP: June 2013. The MDBs will request the SREP to convene an extraordinary session in June, for consideration of the Tanzania SREP IP, so that approval of the IP will not be delayed until the November SREP Subcommittee meeting.

12. SREP IP Priorities. The MDBs acknowledged that principal priorities that are identified in the current draft of the SREP IP continue to be relevant and appropriate. Broad agreement was reached with the Task Force on priority use of SREP funds. These are support for:

- (i) **Geothermal energy sub-sector development** to supply power to the Tanesco national grid. Preliminary supply curve analyses show that if the geothermal resource is confirmed, the cost of power will be competitive with electricity from gas, coal and large hydropower, thus releasing natural gas resources for higher value uses. Unlike hydropower, geothermal is not subject to weather variability. Preliminary indications, subject to resource confirmation, are that the geothermal could prospectively supply about 650 MW of power at very high plant load factors (90%). The proposed priority activities include:
- Preparing a geothermal development strategy and roadmap, and establishing the legislative, regulatory and contractual frameworks;
 - Capacity building to establish world-class capability for geothermal resource management, sector planning and governance that can attract experienced and reputable geothermal firms to Tanzania;
 - After discussion with the Government on its geothermal development plan of action, provide financial support for the high risk phases of geothermal development, principally resource exploration and resource confirmation.
 - Support site remapping and exploration: there is a need to remap the sites with geothermal potential that were studied in 1976, and choose few most promising sites for further in-depth exploration, including exploratory well drilling and resource confirmation; and to support further exploration and resource confirmation at site where work is on-going¹.
 - Support associated technical assistance, including transaction advisory services for bidding out promising geothermal sites for power development.
- (ii) **Support for renewable energy for off-grid rural electrification** to meet electricity needs of communities that cannot be reached through Tanesco's grid extension for economic or technical reasons. The GoT has set an ambitious national goal of bringing electricity services to 50 percent of the rural population by 2020 or thereabouts. In addition to serving about half the rural population through Tanesco grid network extension, it will require supplying electricity services to about 2.5 million households using off-grid means. Off grid options include mini-grids powered principally by renewable energy sources, and stand-alone solar photovoltaic and pico-hydro systems for the more dispersed communities that cannot be practically or cost-effectively served by even a mini-grid. This work will build on the off-grid electrification interventions using renewable energy mini-grids and stand-alone systems that REA is undertaking. If the national goal is to be met, then the key challenge is to increase the pace of off grid electrification by an order of magnitude, while keeping costs down and long term sustainability of the investments high. The types of support under consideration are as follows:
- (a) Investments: SREP funds will leverage other donor, private sector and government resources to invest in renewable energy powered mini-grids and stand-alone systems. Funds are needed for debt financing as well as capital buy-down grants needed to increase the affordability of getting electricity access to the poorer households.
- (b) Improving the investment climate: The SREP project resources will help mitigate key risks and financing constraints. Among them are streamlining

¹ GoT had set aside \$600,000 for Geothermal activities at this site.

approval processes such as obtaining water rights and environmental clearances; Tanesco payment delay risks for projects that also sell power to Tanesco; high equity requirements of domestic banks; currency depreciation; or lack of credible renewable resource data. The human resource capability in both public, private and financial sectors have to be further strengthened.

- (c) Transaction advisory services: Pre-investment services are costly and time consuming, constrained by limited human capacities, and small number of transactions under taken on a project-by-project basis. REA, through TEDAP² funding is supporting such services and positive results are emerging. As the pace of project development has to be accelerated, a more rapid response approach needs to be adopted. The SREP project will set up a world class Transaction Advisory Services Facility (TASF) that will be empowered to undertake project development for a large number of projects by “bundling” services, while also offering transaction services to specific investment projects brought to them by private or NGO developers.

The MDB team requested the Task Force to strengthen the justification for seeking SREP support for these investments and to highlight the transformational and catalytic role SREP will play to ensure efficient scale-up of renewable energy. The Mission advised the Task Force to ensure that the SREP IP clearly shows how these investments address the SREP Investment Criteria.

13. SREP support for Biomass for Heat. The MDB team understands that biomass used as fuel for cooking is by far the major source of energy used in Tanzania and that the unsustainable extraction of fuelwood is leading to deforestation of over 100,000 hectares annually. Unsustainable use of biomass for cooking is the principal contributor of carbon emissions in Tanzania. The Task Force indicated that SREP support for interventions for improving sustainable fuelwood supply and to support use of alternative fuels, particularly those using agricultural residues, would be valuable. The Mission confirmed that SREP can support interventions in the biomass for heat sector. The Task Force will consult with relevant stakeholders, assess other interventions that are ongoing, and will consider biomass sector interventions that are appropriate for inclusion in the SREP IP. If effective interventions are identified, they will include these in the SREP IP. As the resources needed for significantly large and transformative change in the geothermal and rural electrification sectors are enormous, the Task Force may seek SREP Reserve Funds for such biomass interventions.

14. Energy efficiency *per se* is not eligible for SREP financing, though it is well known that energy efficiency is usually the lowest cost form of energy. However, if there are energy efficiency interventions that are closely associated with proposed SREP investment priorities, they can be highlighted and other sources of financing sought for them. Such investments in energy efficiency will count toward the 4:1 or better leverage of SREP funds that the SREP Subcommittee will be seeking.

15. Leveraging SREP resources. The Mission reiterated the importance of demonstrating 4:1 or better leverage of SREP resources with other funds. The leverage can be from co-financing of investments and technical assistance funded by SREP, associated investments such as energy efficiency, and/or investments that are catalyzed through SREP support. A

² World Bank and GEF-assisted Tanzania Energy Development and Access Project

significant portion of this leveraging is expected to come from the private sector. An example of the latter could be the development of geothermal power projects as a result of SREP support for upstream sector development and geothermal field exploration and confirmation.

16. Tanesco payment risk. Over the past few months, Tanesco financial difficulties have resulted in non-payment to IPPs and small power producers (SPPs) for electricity they have supplied and for gas supply. This has placed these firms in difficult financial straits, especially the small SPPs who do not have financial strengths to cover their own loan repayment obligations and typically do not have access to guarantees or other risk mitigation instruments. While these payment delays are hurting companies who are already supplying power to Tanesco, it is creating a heightened state of uncertainty among investors and banks who are considering new SPP investments. If this problem persists, it will stall further private sector SPP investments and negate any initiatives that SREP may fund to accelerate progress in this sector. The Government has acknowledged that this is a serious problem and they are trying to resolve these problems quickly. They are in discussions with the World Bank to seek an emergency credit to cover Tanesco liabilities – a decision is expected very soon (February). Also, under consideration are regulatory changes that will increase revenues for Tanesco. The regulator, EWURA, also informed the mission that they will be communicating to the SPPs to keep them abreast of the efforts the Government is taking to quickly resolve this problem.

17. Status of geothermal development. The MEM has awarded 7 prospecting licenses to Geothermal Power Tanzania Ltd (GPT). GPT is a joint venture between National Development Corporation (NDC) and Geothermal Power, a Mauritius registered company; the Government of Tanzania through NDC is a minority share (5%) in the company. GPT has started exploratory shallow well drilling at Mbaka to 800m, which will eventually generate 10 MW of electricity. GPT is also looking to mobilize finances for the second site (deep exploratory drilling to 2500 m at Ngozi) that could develop at least 100MW in 2 to 3 phases depending on the availability of funds. The German Government, through the Federal Institute of Geosciences and Natural Resource is also supporting geothermal sector development, more broadly.

18. Monitoring and Evaluation. The MDB team had a discussion with M&E experts from MEM and REA. The findings of the discussion are as such:

- There exists an M&E framework at REA that is implemented by an M&E expert – this framework has been shared with the MDB team during the mission; this framework already includes indicators related to RE;
- There exists a draft M&E framework at MEM that is prepared and coordinated by the Department of Planning – the draft is awaiting official endorsement (there seems to have an issue in terms of information for the baselines); it has been shared with MDBs during the mission;
- Data to inform the indicators are provided by the Department of Statistics (baseline survey of 2010), as well as projects (at REA, individual consultants are recruited to collect information and report on a quarterly basis).

In order to follow up, it was agreed that the MDBs will review the documents provided by the MEM and REA M&E experts, and another conference call will be planned in February

in order to discuss the SREP M&E vis-a-vis the existing frameworks, as well as the next steps to prepare the SREP M&E framework.

19. Update on Tanzania Energy Sector Donor Support. The donor community listed the following additional support for Tanzania that may be available to complement or support renewable energy interventions. These are in addition to the donor support shown in Annex 3 in the Scoping Mission aide memoire. It will be important for the SREP IP to show how some of these resources are used to leverage SREP funds and to ensure that there is no duplication of work using SREP funds for work funded by these resources. The sources and uses of funds, in addition to those listed in the Scoping Mission aide memoire, are given below:

- AFD is establishing a €20 million credit line that can be accessed through domestic commercial banks. The banks can obtain financing at six month Eurobond plus 250 basis points. The funds will have up to 12 year tenor with a 2-3 year grace period.
- NORAD is expected to provide about \$120 million equivalent in funding to the REA-managed Rural Energy Fund (REF). NORAD is also funding the preparation of the Rural Electrification Masterplan and Prospectus. The work is underway.
- SIDA is expected to also provide significant funding for the REF.
- DFID has a £30 million regional soft loan facility that could finance renewable energy investments.
- Millennium Challenge Corporation has approved a second MCC Compact for \$400-500 million. The specific investments will have to be agreed with the Government. One of the investments in the first compact was \$5 million for off-grid solar PV for public service facilities and households in Kigoma Region following the Sustainable Solar Market package approach pioneered by REA.
- DFID along with AfDB will be hosting a geothermal workshop in May which will help launch the preparation of a Geothermal Development Road Map.
- JICA expressed interest in financing geothermal activities.
- EU is planning on funding renewable resource mapping covering solar, wind, mini-hydro and biomass. By June 2013, work will be completed for six regions.
- USAID is establishing a US\$50 million fund for financing rural and renewable energy. They will be working with REA and MEM in this work.
- Germany: BMZ is providing €5 million to GIZ to support REA and €1 to BGR to support further work in geothermal exploration. KfW has provided €50 million to the African Union to support geothermal exploration in East Africa. KfW is assisting MEM to prepare a proposal for submission to the AU. KfW is also considering providing support to off-grid electrification in Tanzania.
- EU Energy Initiative is supporting the preparation of a Biomass Energy Sector Development Strategy.
- Finland is investigating in the charcoal value chain. The Swiss have also undertaken charcoal studies. These follow an in-depth investigation by the World Bank that examined sector policy and enabling reforms in the sector.³
- Sida and NORAD are funding the biofuels (Bioenergy) project.

³ The World Bank, *Environmental Crisis or Sustainable Development Opportunity? Transforming the Charcoal Sector in Tanzania*, Policy Note, Washington DC, March 2009
The World Bank, *Enabling Reforms: A Stakeholder-Based Analysis of the Political Economy of Tanzania's Charcoal Sector and the Poverty and Social Impacts of Proposed Reforms*, Washington DC, June 2010.

- UNDP is committing funds in a tune of US\$4-6 million for a Low Carbon Efficient Energy and Climate Change Mitigation Project in Tanzania. Led by Acting Assistant Commissioner for Renewable Energy, Mr. Ishengoma, the the objective of the work is to:⁴
 - “Plan support the low-carbon efficient energy energisation of 10 districts through the RGA including: Kwimba, Mbinga, Misenyi, Geita, Kahama, Mpanda, Mbulu, Kasulu, Ngorongoro, Sumbawanga, Sengerema, and Urambo.
 - Provide plan for the scale-up of modern energy service access maximising the potential for Renewable and Efficient Energy beyond the district demonstrations.”

20. **Preparation of the SREP Joint Mission:** On the basis of the aforementioned planning, the tentative date for the SREP Joint Mission in Tanzania would be around mid-March. Therefore, the Joint Mission’s TORs will soon be sent to the SREP Sub Committee.

⁴ MEM, REA and UNDP, United Republic of Tanzania, “Low Carbon Efficient Energy and Climate Change Mitigation Project in Tanzania”, Period of performance January 2013 to January 2017, UNADP Atlas Award ID 61988.

Annex 1: Mission Members

African Development Bank (AfDB)

1	Florence Richard (from Tunis)	Senior Climate Change Specialist
2	Stella Mandago	Senior Energy Officer
3	Umang Goswami	Private Sector Specialist
4	Anil Cabraal	Senior Consultant in Renewable Energy
5	Mike Mason	Senior Consultant in Energy

World Bank (WB)

1	Dana Rysankova	Senior Energy Specialist
2	Stephanie Nsom	Energy Specialist

International Finance Corporation (IFC)

1	Pepukaye Bardouille	Senior Energy Specialist, Clean Energy
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Annex 2: List of Stakeholders Met

Last Name	First Name	Contacts
Ishengoma	Edward Leonard	Ass Comm. - Renewable Energy, MEM
Mgejwa	Ngereja	MEM
Mkumbo	Elineema	REA
Nyamo-hanga	Gissima	REA
Masanyiwa	Mkoma	Biomass Desk Officer, MEM
Mayalla	Jacob	MEM
Kiboko	Ng'anzi	EWURA
Kabaka	Kato	Tanesco
Rwelengera	Vestina	REA
Mnjokava	Taramaeli	GST
Mbawala	Anastas	EWURA
Ngamlagosi	Felix	EWURA
Mtepa	MSafiri	EWURA
Mason	Mike	Consultant

Development Partners

Last Name	First Name	Institution
Kavanagh	Matthew	MCC, US Embassy
Dosset	Tabari	US Embassy
Bobllier	Baptiste	EU
Banesiak	Magdalena	DFID
Tachibana	Eisuke	JICA
Shimakawa	Hiroyuki	JICA
Munwe	Dennis	AFD
Fayadh	Samer	Embassy of Sweden

Private Sector & NGO Representatives

Last Name	First Name	Contacts
Shuma	Jensen	Tatedo
Robertson	Graeme	Geothermal Power (Tanzania) Ltd.
Kreuter	Horst	Geothermal Power (Tanzania) Ltd.
Simonet	Cedric	Geothermal Power (Tanzania) Ltd.
Steiner	Michael	Intra Energy
Boyce	Tim	Inta Energy
Ochmann	Norbert	BGR
Garofalo	Kristin	BGR
Regall	Jem	Ngombeni project
Gratwicke	Mike	Mwenga hydro project