

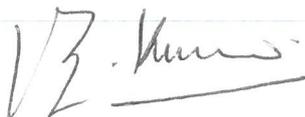
Aide-Mémoire

ISA/M.01/WD.02
2nd-6th September, 2019

Lilongwe, Malawi
(*Confidential*)

Aide-Mémoire for Expert Level Visit to Republic of Malawi for Pre-Feasibility Study of Solar Pumps, Rooftop Solar and Solar Mini-Grid Projects by International Solar Alliance Secretariat held from 2-6 September, 2019.

Venue: Lilongwe, Malawi



Aide-Mémoire

Expert Level Visit to Republic of Malawi for Pre-Feasibility Study of Solar Water Pumps, Rooftop Solar and Solar Mini-Grid Projects by International Solar Alliance Secretariat

September 2nd, 2019 to September 6th, 2019

A. Background/ Introduction of the Mission

During 2nd September, 2019 to 6th September, 2019, ISA led Expert team visited Republic of Malawi, hereafter referred to as the Host Country, for pre-feasibility study of demand submitted to ISA Secretariat for Solar Rooftop and Solar Mini grids under the call for Expression of Interest (Eoi) from ISA vide number No. 23/61/2017/NFP/R&D. This Aide-Memoire (AM) summarizes the outcome of stakeholders' meetings with the ISA delegation (as detailed in the Annex-1 to this document) as well as agreements reached therein. The AM was discussed in the wrap-up meeting on 6th September, 2019, in the presence of NFP of Republic of Malawi, ISA expert team and Deputy High Commissioner of Republic of Malawi in India. This AM shall be a point of reference for future planning as well as implementation of the programme.

B. Overall Status of the Programmes

1. Programme for Solar Rooftop

The host country has submitted a demand of 2.65 MW (85 projects) for solar rooftop system for Government buildings. The host country is also interested in installing the solar rooftop system on their Parliament building on priority basis so as to declare it as a Green building. To evaluate and suggest most appropriate business models in rooftop solar projects, ISA Secretariat has engaged consultants to propose the implementation of the rooftop projects under the present scenario of electricity as well as the analysis of institutional capacity of stakeholders. Country templates have been prepared and shared with NFP for collating the demand of solar rooftop electricity generation and required policy framework in the Host Country. Demand of the solar rooftops for off-grid applications, access to electricity and home lighting systems also needs to be aggregated. ISA has requested NFP to gather the required information in the given format to help in the preparation of Pre-Feasibility Report (PFR) and also coordinate with the



concerned departments for required policy and regulatory framework in the country for implementation of such projects.

2. Programme for Solar Mini-Grids

The host country has submitted an aggregated demand of 2.8MW for solar mini-grids. To evaluate and suggest most appropriate business models in solar mini grid projects, ISA Secretariat has engaged consultants for the possibility of solar mini grid projects as well as analysis of institutional capacity of stakeholders in the project and division of responsibility thereof. The Country templates have been shared with the National Focal Point. ISA has requested NFP to collate the required information to firm up the demand of solar mini grid and also coordinate for the required policy and regulatory framework in the country for implementation of such projects.

3. Programme for Solar Water Pumping Systems

The Host Country is predominantly an agro based economy and is heavily dependent on rains for irrigation. The ISA mission team discussed the potential of solar water pumping system for irrigation and the likely transformational change it will bring to agricultural sector by ways of increased productivity and higher income for farmers. The Country templates have been shared with the National Focal Point to consider submitting their demand for Solar Pumping Systems. Additionally, ISA team shared with NFP and Ministry of Agriculture, Irrigation and Water Development about its initiatives in conducting a price discovery bid through Energy Efficiency Services Ltd for 272,579 Solar Pumping Systems based on aggregated demand from 22 Member Countries. It is expected that there shall be a significant reduction of price through demand aggregation. Republic of Malawi has expressed interest in the program and the Department of Energy Affairs will be coordinating with the concerned Ministries and Departments for aggregating requirement of solar pumps which can be used for irrigation, drinking water and sanitation purposes to cover agriculture, health and education sector.

4. Programme for E-mobility and storage

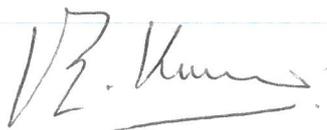
ISA delegation discussed briefly the various aspects of this programme and the benefits that can be derived by the Republic of Malawi in the area of E-mobility and storage. There is a need to initiate actions towards progressive



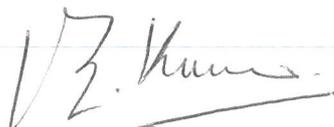
policies and plans and also to gradually create necessary infrastructure in the segment.

C. Outcome of the Meeting(s)

Items on Agenda Discussed	Findings/ Observations	Recommendations	Official/ Agency responsible
Ministry of Natural Resources Energy and Mining (MNREM)			
Solar rooftop	<ul style="list-style-type: none"> ▪ There are no formal guidelines and regulations for grid connected solar rooftops. Off grid applications shall be explored. ▪ There are no rooftop solar systems installed on Government buildings in Lilongwe city 	<ul style="list-style-type: none"> ▪ Guidelines and Regulations for Solar Rooftops to be issued. Projects should be developed for specific industries such as solar rooftops for hospitals. ▪ To explore funding possibilities through grants or other financing options for installation of solar rooftop 	<ul style="list-style-type: none"> ▪ MNREM ▪ ISA
Solar roadmap	A well-defined solar roadmap for development of Solar Energy based projects in the country with clear milestones and targets in the short, medium and long term has not been prepared.	NFP to prepare the solar roadmap. ISA has shared the template with NFP.	MNREM




Items on Agenda Discussed	Findings/ Observations	Recommendations	Official/ Agency responsible
Solar mini grid	Malawi has developed a minigrid framework. The tariff settings are also required to be done by the regulator on case to case basis.	Tariffs to be approved by the regulatory authority	MNREM
ISA Star Center	The selection of university is underway. Malawi University of Science and Technology is an option	The application to be routed through the NFP and the recommendations to be given by the NFP.	NFP
Solar water pumping system	NFP yet to submit the demand for solar water pumps. No financing is available from the government. There are certain aid agencies which provide funding and loan guarantees.	NFP to coordinate with different concerned departments to collate the demand	MNREM
Assessment of requirement for preparation of Pre-feasibility report	Questionnaires have been shared on Rooftop solar system, solar water pumping system and solar mini grid	To compile the required information and share with ISA	NFP
Ministry of Agriculture, Irrigation and Water Development			
Solar Water Pumping System	3000 hectares have been covered till date under solar initiatives.	Submit the demand to NFP	MAIWD
National Irrigation Master Plan	Prepared in 2015 to attract investments which has projections till 2035	National Irrigation Master Plan needs to be shared with ISA through NFP	MAIWD



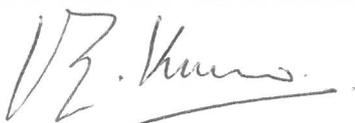

Items on Agenda Discussed	Findings/ Observations	Recommendations	Official/ Agency responsible
Regulatory authorities, relevant government departments			
Off-grid solar rooftop and mini-grid solutions deployed in the rural areas including tariff determination methodology.	Regulations to be framed for rooftop, net metering and tariff settings	The process maybe expedited.	MNREM

D. Role of Implementation agencies

No.	Name of agency	Role
1.	Ministry of Natural Resources Energy and Mining (MNREM)	Nodal ministry for coordination and implementation of solar related projects.
2.	Ministry of Agriculture, Irrigation and Water Development (MAIWD)	Assess the requirements for solar pumps and monitor the implementation of the projects.
3.	Ministry of Foreign Affairs and International Cooperation (MoFA)	Coordination between the Government of Malawi, private sector and ISA.

E. Financing of Projects

- i. Implementation Model to be adopted
 - a) Government Funded
 - b) PPP
 - (i) Private Sector Participation
 - (ii) Cooperative institutions
 - c) OPEX
 - d) CAPEX
 - e) Entrepreneurship based
- ii. Financing Options
 - a) Grant Based
 - b) Grant-Debt Hybrid




c) Debt Based

The above suggested options have already been discussed with Government of Malawi and NFP. They shall deliberate further for the appropriate model and modalities. For any further information required in the model, ISA shall support Government of Malawi and NFP. ISA will also facilitate the structuring of the model with the financial partners basis the requirement and decision by Government of Malawi.

F. Capacity Building and Skill Development

i. Consultations with Ministries

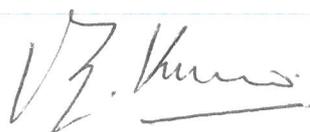
- a) Capacity building is required for technicians, bankers and academicians in the area of solar based applications.
- b) ISA and NFP will work together to sensitize other Ministries such as Agriculture, Health and Education among others.
- c) Awareness amongst farmers with regard to solar applications and business models is also required for the uptake of these appliances.
- d) ISA may support the capacity building programmes and awareness creation initiatives for solar applications through iSTAR-Cs and ISA partner.

ii. Consultations with Academic Institutions

- a) Expectations of ISA from iSTAR-Cs' and possible support to iSTAR-Cs was also shared.
- b) ISA shall share concept note and consent form for iSTAR-Cs and Government of Malawi shall identify the iSTAR-Cs.
- c) Mobilisation support shall be done from foundations, multilateral banks and ISA partners such as UNDP, WB for iSTAR-Cs.

iii. Consultations with MDBs/DFIs and inter-governmental organisations

ISA had consultations with UNDP, World Bank, AfDB and USAID and they are supportive of ISA programs to be implemented in the Republic of Malawi.



G. Site visit to solar mini grid project setup in Sitolo and Parliament building

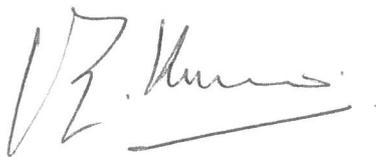
ISA team visited the Solar Mini Grid project set up at village Sitolo in Mchingi district of Malawi and the Parliament building.

Findings:

- This mini grid project in Sitolo will help in discovering the right cost of electricity for sustainability of the project and lead to replication of projects.
- The rooftop solar system on the Parliament building is a good proposition from the Government of Malawi and enable them to declare it a Green building and also create awareness.
- NFP requested ISA for exploring funding possibilities

H. Details and Agenda of next Review Visit

This will be mutually discussed between Government of Malawi and ISA Secretariat and accordingly finalised.



Rakesh Kumar
Director, (Programme) ISA



Joseph O. Kalowekamo
National Focal Point of ISA for Malawi

Place: Lilongwe, Malawi
Date: 06th September, 2019

Annexure 1

Members of ISA Delegation

S.No.	Name	Organisation	Designation
1	Mr. Rakesh Kumar	ISA	Director (Program)
2	Mr. P.K Mahapatra	ISA	Adviser
3	Mr. Patrick Mphepo	High Commission of Republic of Malawi in India	Deputy High Commissioner
4	Mr. P C Sharma	ISA	Deputy Director (RE)
5	Ms. Aissatou D. Sonko	ISA	Consultant, International Relation
6	Mr. Murali Krishna	KPMG India on behalf of ISA	Associate Consultant



**Minutes of Meetings**ISA/M.01/WD.02
2nd-6th September, 2019**Lilongwe, Malawi**
(Confidential)

Minutes of Meetings of Expert Level Visit to Republic of Malawi for Pre-Feasibility Study of Solar Pumps, Solar Rooftop and Solar Mini-Grid Projects by International Solar Alliance Secretariat held from 2-6 September, 2019.

Venue: Lilongwe, Malawi

Minutes of Meetings

Expert Level Visit to Republic of Malawi for Pre-Feasibility Study of Solar Water Pumps, Rooftop Solar and Solar Mini-Grid Projects by International Solar Alliance Secretariat

September 2nd, 2019 to September 6th, 2019

A. Day 1 - Date of the meeting – 02 September 2019

Ministerial Consultations

ISA Expert team met with Stakeholder Ministries/Regulatory authority (List of Ministerial/Regulatory Consultations provided in Annex 2 to the AM document) for understanding the role and responsibilities of various departments with respect to ISA programs.

i. Consultation with the officials of the Ministry of Foreign Affairs

Agenda – Debriefing H E Mr. Ben Botolo, Principle Secretary for Foreign Affairs and International Cooperation, Ministry of Foreign Affairs on the objectives of the visit

Venue – Ministry of Foreign Affairs, Lilongwe

- a) The Republic of Malawi has had discussions with a number of IPPs in the country and signed many MoUs but it has not resulted in projects on-ground. Fund raising has been a major challenge for such IPPs.
- b) The Republic of Malawi has plans to increase their total installed generation capacity from 364 MW to 5,000 MW and willing to increase the share of solar in its energy mix. It looks forward to ISA in linking up with reputed IPPs who have a proven track record.
- c) The Republic of Malawi is intending to setup a coal-based thermal power plant for base load operations, by sourcing coal either from Mozambique or through domestic mining. The mining industry is facing power shortage and until the power supply situation improves, the sector will continue to face production problems.



- d) The harsh reality of the Republic of Malawi is that bulk of the power generation is from hydro projects and due to unpredictable rains, the rivers are drying up, thus adversely affecting power generation. In emergency situations, diesel generation is resorted to which is quite costly.
- e) The Republic of Malawi wishes to enhance co-operation with ISA on increasing solar applications in the country.

ii. **Consultation with Ministry of Natural Resources Energy and Mining**

Agenda – Debriefing the Hon'ble Minister of Natural Resources Energy and Mining, Mr. Bintony Kutsaira and Principal Secretary, Ministry of Natural Resources Energy and Mining, Mr. Patrick Matanda on the objectives of the visit and discuss policy level initiatives for increasing penetration of solar energy in the country

Venue – Ministry of Natural Resources Energy and Mining, Lilongwe

- a) Formation of a Task Force, under the Hon'ble Minister of Energy, consisting of representatives of different ministries/ departments.
- b) Establishment of a solar policy for the country which includes the following elements:
- c) ISA programs: Solar Agricultural Pumps, Solar Rooftops, Solar Mini Grids.
- d) Strengthening of regulations including issue of guidelines for determining different types of tariff: gross metering, net metering, feed-in, general (through reverse auctions), in context to Solar Rooftop Programme, Solar Pumping Programme and other Solar Grid Connected Projects.
- e) A well-defined solar roadmap for development of Solar Energy based projects in the country with clear milestones and targets in the short, medium and long term.
- f) Overarching plan across ministries for the penetration of solar energy in the country.
- g) ISA team shared information about EXIM Bank of India extending \$2 billion line of credit for implementing solar projects in Africa and AFD announcing 1.5 billion euros for member countries. Project preparation facility by EXIM Bank of India for preparing draft DPRs free of cost was also informed.



- h) For capacity building of master trainers, nomination from the Republic of Malawi for ITEC program is still pending. It was requested to expedite this as soon as possible so that the Republic of Malawi can send 5 representatives to India for training under I-TEC program.
- i) I-Star C program and its advantages were also discussed during the meeting.
- j) ISA team informed that utility scale solar projects could be setup since solar projects have low gestation period of 15-20 months. Battery storage could be a costly proposition and the grid having hydro resources may serve as a cost-economic storage facility.
- k) There are a lot of challenges in power sector. Less than 50% of the total population has access to electricity. The government wants to ensure that they are able to supply at least 50% of the requirement by 2025
- l) The rivers are drying due to inadequate rainfall and also their mining activities have become very difficult due to shortage of power. This leads to a need for sustainable power generation accompanied by storage capacity
- m) The Hon'ble Minister reiterated that they are in desperate need of additional power generation capacity.
- n) He said that their Government is looking for IPPs and investors who have sound financial credibility and can help in getting additional generation capacity in a short period of time.
- o) The Secretary requested the ISA team to sensitize the Ministry of Agriculture, Irrigation and Water Development regarding the Solar Water Pumping System program.
- p) The Secretary mentioned that the Ministry of Finance has limited resources and cannot provide any credit support to IPPs.
- q) A National Task Force can be formed as suggested by ISA under the chairmanship of Hon'ble Minister of Natural Resources, Energy and Mining. However, the composition of such a task force having representation of other Ministries would be decided in consultation with them

iii. Consultations with Ministry of Agriculture, Irrigation and Water Development

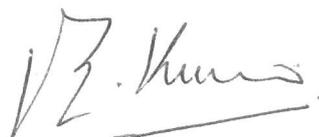
Agenda – Discuss the objectives of Scaling Solar Applications for Agricultural use and policy level initiatives for increasing penetration of solar energy in the



country with Chief Director, Ministry of Agriculture, Irrigation and Water Development, Dr. Yanira Ntupanyama.

Venue – Ministry of Agriculture, Irrigation and Water Development

- a) ISA team shared case studies of Government of Rajasthan and Haryana highlighting the transition from traditional water pumping systems to Solar Water Pumping System for agricultural purposes and irrigation and how it benefited the farmers.
- b) ISA team proposed to the Republic of Malawi to undertake large scale deployment of solar irrigation pumps to reduce dependence on rains for irrigation purpose and improve productivity and income of farmers.
- c) She mentioned about a National Investment Plan which intends to transform the current state of affairs of the agricultural sector in the country.
- d) The Republic of Malawi has only one rainy season and sometimes if the weather conditions lead to less rainfall, it results in tremendous shortage of water and power thus adversely affecting the agriculture sector. She was positive about the idea of installation of solar pumps in the country, both for irrigation and drinking water purposes.
- e) There is a need for developing innovative financing schemes. Lowering cost of finance is possible through demand aggregation.
- f) New solar schemes can be launched by each concerned ministry. Eg. Adoption of solar pumps by agriculture/irrigation/hydraulic ministry, solarisation of schools by Education Ministry, solarization of hospitals by Health Ministry etc.
- g) A National Irrigation Master Plan was prepared in 2015 to attract investments which has projections till 2035 and it was agreed to share the same with ISA team.
- h) 3000 hectares have been covered by solar pumps so far, which includes 300 hectares of one large farm estate and the rest includes small farmers with farm area of 1-2 hectares.
- i) There is a potential of covering 400,000 hectares and they have already set a target of covering 220,000 hectares by 2025.
- j) Various multilateral organizations like World Bank, AfDB have initiated small projects but have not been able to scale up the program so far.
- k) Currently, majority of the irrigation is carried out using diesel pumps.



- l) Government has come out with key initiatives like Malawi Drought Recovery Plan to cover an additional area of 900 hectares under solar power. A few NGOs are also lending a helping hand.
- m) Most of the large scale solar pumps are along the river bank due to favourable terrain. Further, he mentioned that there has been a positive trend in adoption of solar pumps and has spread into each district in the Republic of Malawi.
- n) There are three layers of farming systems in Malawi
 - Small farming land of 1-2 hectares (which is the majority)
 - Medium farming land up to 10 hectares (for commercial purposes)
 - Large farm estates (minority, who can afford electricity from the grid)
- o) Three solar pump projects have been implemented by the Government so far which are as follows:
 - 11 large pumps covering 70 hectares
 - 36 small pumps covering 5-20 hectares
 - 1-2 hectares by NGOs
- p) World Bank was the major financial contributor for these projects.
- q) Lake Malawi is the third largest fresh water lake in Africa and a major source for irrigation and drinking water.
- r) The average underground water level varies from 13m-45m.
- s) The average cost of solar pumps per hectare is \$11,000-\$15,000.
- t) The solar water pumps could be deployed in large scale for drinking water

B. Day 2 - Date of the meeting – 03 September 2019

Consultations with Inter-Governmental Institutions Findings

ISA Expert team met with Stakeholder (List of Inter-Governmental Institutions provided in Annex 3 to the AM document) for understanding the role and responsibilities of various departments with respect to ISA programs



i. Meeting with UNDP representatives

Agenda – Debriefing Mr. Andrew C Spezowka, Portfolio Manager, Resilience and Sustainable Growth on the objectives of the visit and ISA programs

Venue – UNDP Centre, Lilongwe

ISA Director briefed UNDP officials along with customary introductions.

Mr. Andrew made the following remarks:

- The timing of ISA team visit is very crucial since there is an upcoming UN Climate summit in New York.
- UNDP has been running some solar mini grid programs and this phase is going to be over by December 2019.
- Many initiatives were started by NGOs and one of the major challenges how to carry out Business Development into mini grid space.
- UNDP is extending grant support to mini grid operators. The objective is to have a portfolio of investments for mini grids in Malawi. Currently there are 4 mini grids that are operational.
- There are structural barriers in the Republic of Malawi since the social enterprises lack credibility of their own.
- UNDP is collaborating with Malawi Electricity Generation Agency for tariff setting of solar mini grids. There is also possibility of integrating mini grids with cold chains.
- UNDP is ready to support a number of companies under Private sector development program which are interested in transitioning to solar. A market survey of 35 companies has been carried out to support the program.
- UNDP is designing the second phase of project to be submitted to GEF with the help of Rocky Mountain Institute. UNDP is leading the Business Development support for emerging Malawian renewable energy companies.
- USAID is carrying out household solar projects in the Republic of Malawi.
- There is a challenge of import of substandard products. To tackle this, UNDP is collaborating with EU and Malawi Bureau of Standards to focus on quality standards.
- UNDP has carried out energy audits of 39 health facilities and 3 large hospitals.



- Malawi Innovation Challenge Fund for Solar Water Pumps has been operating for last 4 years. UNDP is putting a 50% minimum cost and are able to leverage from the private sector to invest the balance.
- Next 5 year program would be to lower the cost for solar mini grid installations.
- There is a possibility of synergy between UNDP and ISA programs and need for better sharing of information on all the programs.

ii. Meeting with World Bank representatives

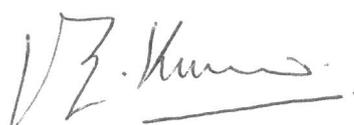
Agenda – Debriefing Mr. Kagaba Paul Mukiibi, Energy Specialist, World Bank Group on the objectives of the visit and ISA programmes

Venue – Malawi Country Office, Mulanje House, Lilongwe

ISA Director informed that there is a joint declaration signed between ISA and World Bank for collaborating in the field of solar.

Mr. Kagaba shared the following information:

- Projects worth 87 million USD have been sanctioned in the Republic of Malawi, which cover three areas:
 - **Generation** - Feasibility studies of two hydro projects have been undertaken, which includes development of 300-340 MW in Batamanga and co-generation in sugar mills.
 - **Transmission** - Supporting a 400 KVA transmission interconnection project between Mozambique and Malawi. The initial power transfer would be about 150MW.
 - **Distribution** – Setting up of various sub stations and rural distribution network.
- World Bank assisted the Republic of Malawi in developing a Solar Resource Map and a report on Energy Sector Support Project which is available on their website.
- Technical assistance is being offered to ESCOM for training and development, and capacity building.
- Electricity Access Project was recently approved in June 2019



- 60% of household are within 2.5 kms of the main grid.
- Based on these studies, projects are being planned to connect to both main grid and off grid.
- A target of access to electricity for 280,000 people has been set for the next 5 years
- Additional USD 105 million under IDA has been sanctioned to ESCOM for on-grid, USD 30 million for off grid and USD 5 million for technical assistance/capacity building.
- An off grid market assessment has been done for providing 2-10 W of solar devices to individual households.
- USD 10 million dollars have been earmarked for solar mini grid projects. They are evaluating various models such as PPP, private sector to commence implementation in the next one year. Documents like National Electrification Strategy (draft) would be shared over mail.

iii. Meeting with African Development Bank representatives

Agenda – Debriefing s. Eyerusalem Fasika, Prinicpal Country Program Officer, African Development Bank, Mr. Jonathan Kamkosi Banda, Senior Investment Officer, African Development Bank on the objectives of the visit and ISA programmes

Venue – Malawi Country Office, Kang'ombe House, Lilongwe

ISA Director briefed various ISA programmes along with customary introduction. He also informed that there is a joint declaration signed between ISA and AfDB for collaborating in the field of solar

Ms. Eyerusalem Fasika made the following observations:

- AfDB has come out with a Country Assistance Strategy (2018-2022)
- 2 pillars have been identified
 - Supporting Infrastructure
 - Improved Governance
- First solar project was financed by AfDB which unfortunately got washed away by last year's cyclone.
- AfDB is working with Malawi Government to strengthen the governance, fix the loopholes and make it robust.



- The Republic of Malawi doesn't benefit from private sector window. So they get only USD 100 million which they have to channelize for various projects.
- Feasibility and environmental studies have been undertaken by AfDB. 100% grant has been provided to Malawi for public sector projects. AfDB is also supporting energy sector through feasibility studies.
- AfDB has formed African Investment Forum for bringing in various stakeholders to make investment deals. ISA can participate in this forum and also avail support for feasibility studies.

Mr. Jonathan Kamkosi Banda's remarks are as follows:

- One of the key areas of support to Malawi is in improving energy efficiency and clean cooking.
- AfDB has approved one solar project of 60MW capacity in Salima. There is a power purchase agreement in place with ESCOM with a tariff of about 11 cents per unit.
- AfDB is in talks with the government for some small solar projects with wind hybrid system (1MW and 600KW).
- ISA can help in making bankable projects by intervening at the design stage and sharing best practices.

iv. Meeting with USAID representative

Agenda – Debriefing Mr. Andrew, USAID on the objectives of the visit and ISA programmes

Venue – US Embassy, Lilongwe

ISA Director briefed various ISA programmes along with customary introductions.

Mr. Andrew made the following observations:

- A project of 36,000 MW (under Power Africa scheme of USAID) in Sub Saharan region needs to go online before 2030.
- Few corporations from the private sector are involved in getting low cost capital projects and also do some feasibility studies.
- USAID is doing feasibility study for developing a 20 MW solar IPP in Malawi.
- Deloitte and McKinsey are working closely with USAID to undertake few projects in Republic of Malawi under the Southern African Regional Programme which is funded by USAID.



- USAID is working with ESCOM for a USD 350 million investment in transmission and distribution sector that covers 26 upgraded sub stations under SAPP along with 400 KVA transmission inter connection in the Western part of Malawi.
- 150,000 solar home systems will be distributed using results based financing model. These solar home systems can support four light bulbs, mobile phone charging and ceiling fan. This can be upgraded to support television as well. Facility to supply electricity for cooking and refrigerators have not been included.
- It was agreed that USAID would share the specifications of the solar home system kit. Each kit costs \$120 with provision for a subsidy of at least \$20 which can go up to \$30-\$35 per unit based on performance of the supplier. The by-product or off spin of this project would enable local financing.
- There is a huge potential for Rooftop Solar System, especially in the tobacco and sugar industry. He mentioned about how a tobacco firm in Malawi has used rooftop solar system to provide electricity and a mobile charging system for its employees.
- He also suggested that around five to six embassy buildings can be roped in for the rooftop solar project. ISA requested USAID to support in scaling up rooftop solar system.
- USAID is constructing 120 schools in Malawi which is in need of off grid electricity. And felt that ISA could partner with them in this initiative.

C. Day 3 - Date of the meeting – 04 September 2019

Agenda – One day consultative workshop on ISA country framework

Venue – Bingu International Convention Centre, Lilongwe

One day consultative workshop on ISA country framework was organized in Lilongwe which was hosted by Ministry of Energy. The workshop was well attended by the relevant stakeholders including officials from government, the academicians, industry players and funding agencies. The key objective of the workshop was to sensitize the stakeholders in Malawi on the focus areas of ISA, update on the activities that have been undertaken, share the proposed roadmap going forward and detail out areas wherein involvement of Malawi shall be required to take forward the implementation of various programmes. A number of interactive sessions were held wherein presentations were delivered on the various subjects and queries of the stakeholders were discussed.

The session wise details are as follows:



1. Welcome address by National Focal Point

The NFP welcomed the ISA delegation and the stakeholders highlighting the objective of the workshop. He mentioned that the key agenda of the workshop is to know about ISA and the purpose is for ISA to know about Malawi and put a framework to work together towards the benefits that can be realized from the platform. He emphasized on the need to come out with actionable items during the course of visit of ISA delegation, which could be taken forward for the programme level implementation.

2. Speech by Mr. Rakesh Kumar, Director (Programme), ISA

The Director explained the mission and objectives of ISA Programmes. He mentioned that the ISA framework currently is inter-governmental and ISA would also like to engage with private sector. ISA has joint declaration with multi-lateral banks who have agreed to support ISA programmes.

3. Key note speech by Mrs. Chimwemwe Gloria Banda, Chief Director, Ministry of Natural Resources Energy and Mining (MNREM)

Chief Director welcomed the participants. She mentioned that the Ministry is keen to work closely with ISA in meeting its objectives. There are prospects of setting up of 50 mini grids by 2025 and also rooftop solar systems on government buildings and requested ISA to support their activities in Malawi.

4. Presentations on ISA Programs, ISA delegation

ISA team made presentations on ISA and its different programs namely ISA Rooftop and Mini Grid, solar water pumping system, i-STARCs/ infopedia. The sessions were interactive and the queries raised by the participants were addressed by the team.

The workshop was brought to a close with concluding remarks by the Chief Director, MNREM

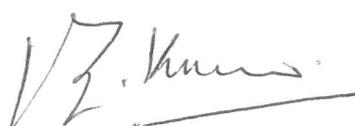
Note –

- i. Schedule of Program is attached as Annexure 1
- ii. List of participants is attached as Annexure 2

5. Key takeaways and action points

Following key action points were agreed:

- i. After the presentations, the NFP expressed interest in preparing the solar roadmap for the country.



- ii. Private sector should be involved in the formulation of policies.
- iii. ISA can support through STAR-C program in addressing the concerns raised about substandard solar products in Malawi.
- iv. Malawi University of Science and Technology (MUST) representative expressed his desire to set up STAR-C with facilities like testing, capacity building and joint R&D in Malawi. ISA requested MUST to route their application along with the scope to be covered through NFP for setting up of STAR-C in their campus.
- v. Private players were very keen on taking up Rooftop Solar Systems for individual household.
- vi. After Solar Water Pumping System presentation, participants asked if this can be scaled up to other industries as well. In response, the ISA team requested various Ministries like Education, Drinking Water Development, Health and Agriculture, can be roped in to cover irrigation, drinking water and sanitation use.
- vii. Government of Malawi expressed interest in working on the solar water pump program on priority. They have already given demand for rooftop and mini grid projects and would like ISA support in speedy implementation of the same.

D. Day 4 - Date of the meeting – 05th September 2019

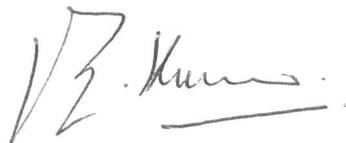
Agenda - Field visit of Mini grid project

Venue - Sitolo.

ISA team visited the Solar Mini Grid project set up at village Sitolo in Mchingi district of Malawi having total installed capacity of 80 KW with 24/7 battery backup with three days autonomy. The project has been funded as grant on aid by UNDP and GEF. After the arrival of materials and equipment at site, it took about three months for completion of the project. The plant was commissioned in July 2019. So far, 150 connections have been given. Due to lack of demand, the plant is underutilized at this stage and there are plans to extend supply to other local communities and provide power for productive use such as drinking water and irrigation pump. The prepaid digital meters have been provided for the connections. The total project cost is USD 535,000 including distribution network. Community energy, Malawi, a registered society will collect the energy charges from the villagers which will be utilised for operation & maintenance of the project. The per unit charges for the users are yet to be decided by the regulatory authorities. The project is very beneficial for the local community and such mini grid projects can be replicated in other regions of the Republic of Malawi.

Agenda - Field visit of Parliament building

Venue - Parliament building



- The ISA Delegation had a meeting with administration and finance officials from the Parliament of Malawi to discuss the possibilities of solar rooftop installation on the Parliament building. The Chairperson of the meeting affirmed that they are willing to use as much solar as possible and make the Parliament a green building within two years.
- It was informed that the main issue faced by the Parliament is frequent power blackouts which affects the activities and deliberations of the Hon'ble Parliamentarians and committee meetings. They want solar power with storage system as a backup support for uninterrupted power supply.
- An assessment of 130 KWp solar rooftop capacity was done by the Energy Department and a tender was also floated by the Parliament Secretariat. But due to high system costs (USD 800,000) and limited budget provision, the proposal was shelved.
- ISA informed that solar can be the main source of energy supply for the building and grid supply could be the backup system. It is important to have an optimal system design including storage for which data/consumption pattern for last one year is required to be submitted in the given format as shared with National Focal Point. ISA also requested to share the proposals given by the bidders for evaluation of the proposal. On receipt of the desired information, ISA would endeavour to prepare a pre-feasibility report within 4-6 weeks duration and submit to Ministry of Energy.
- NFP requested ISA for exploring funding possibilities through grants or other financing options for installation of solar rooftop system on the Parliament building.
- The Parliament Secretariat would prefer the CAPEX model for implementation of the project.

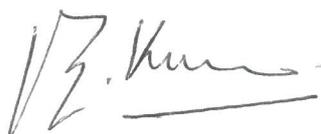
E. Day 5 - Date of the meeting – 06th September 2019

Agenda – Meeting with the Secretary to the Treasury, Ministry of Finance, Economic Planning and Development and the Director of Economic Affairs, on the objectives of the visit and discuss policy level initiatives for increasing penetration of solar energy in the country

Venue – Ministry of Finance, Economic Planning and Development, Lilongwe

The Secretary informed that Energy sector is the most critical for economy's growth and is among the top most priorities of the Government.

- ISA team shared some of the financial incentives and subsidies for promotion of solar programs in India and other countries.
- Solar energy can play a critical role in development of agriculture, education and health sector. Rooftop solar system can be deployed on Government



buildings and give initial push to the solar program besides creating awareness among the general public.

- They were further requested to consider providing incentives/subsidies in the solar sector for rapid promotion by announcing incentives in the upcoming budget.
- On the request of Secretary to the Treasury to provide a concept paper, ISA informed that the NFP has already been provided with the template to prepare a solar roadmap for Malawi and they have the in-house capability to prepare such a concept paper. However, ISA may assist NFP in preparing the concept paper.
- Budget presentation is on Monday and hope to include solar initiatives in the budget.
- The Director of Economic Affairs informed that there are tariff concessions on certain solar equipment.



Rakesh Kumar

Director, (Programme) ISA



Jospeh O.Kalowekamo

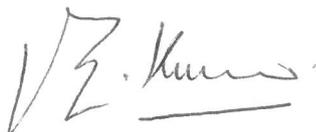
National Focal Point of ISA for Malawi

Place: Lilongwe, Republic of Malawi

Date: 06th September, 2019

Annexure 1

TIME	ACTIVITY	MODERATORS
08:30 – 09:00 am	Registration	
09:00 – 09:10 am	Welcome remarks	National Focal Point
09:10 – 09:30 am	Speech by ISA Team Leader	National Focal Point
09:30 – 09:50 am	Speech by Secretary for Natural Resources, Energy and Mining	National Focal Point
09:50 – 10:00 am	Group photo	National Focal Point
10:00 – 10:30 am	COFFEE/TEA BREAK	ALL
10:30 – 11:00 am	ISA presentation	ISA
11:00 – 11:30 am	Open discussion	ISA
11:30 – 12:00 am	Energy Status in Malawi	ISA
12:00 – 12:15 pm	Open Discussion	ISA
12:15 – 12:45 pm	Scaling up Solar Roof-top & Mini –grid systems	ISA
12:45 – 01:00 pm	Open discussion	ISA
01:00 – 02:00 pm	LUNCH BREAK	ALL
02:00 – 02:30 pm	Scaling up Solar applications for agricultural use with special emphasis on pump bid	ISA
02:30 – 03:00 pm	Open discussion	ISA
03:00 – 03:30 pm	(ISA Solar Technology Application Resource Centers) i-STARCs	ISA
03:30 – 04:00 pm	Open discussion	ISA
04:00 – 04:30 pm	COFFEE/TEA	ALL
04:30 – 05:00 pm	Networking	




Annexure 2

S. No	Name	Organization	Email address
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