



Aide-Mémoire

Dakar, Senegal (*Confidential*)

Aide-Mémoire for Expert Level Visit to Senegal for Pre-Feasibility Study of Solar Pumps, Rooftop and Mini-Grid Projects by International Solar Alliance Secretariat held from 30th September – 4th October 2019

Venue: Dakar, Senegal

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1. Background of the Mission

The International Solar Alliance (hereinafter referred to as "ISA") is a treaty based inter-governmental organisation which was launched on 30th November 2015, in Paris, France, with Headquarters in India (UN Registration No. 54949). To make better use of harnessing solar energy across regions and to coordinate efforts between developing and developed countries, to achieve a more equitable energy transition, International Solar Alliance (ISA) was conceptualized. ISA aims to utilize its international network to enable greater use of solar energy in its member countries at an affordable cost. ISA is currently working towards coordinating a joint and collaborative effort amongst member countries so that strategies suited to the requirements of individual countries can be formed, and feasible solar technologies can be deployed. ISA is acting as a facilitator to contribute to the solar deployment efforts of individual member country. For this, ISA has formed a framework of programs and initiatives to develop a dedicated approach towards scaling up of various solar technologies. All the Programmes of ISA are member driven. The current programmes of ISA are:

1. Affordable finance at scale
2. Scaling Solar Applications for Agricultural Use
3. Scaling Solar Mini-Grids
4. Scaling Solar Rooftop
5. Scaling solar supported e-mobility and storage

A five-member ISA Delegation (details of team members provided in Annexure) visited Senegal during 30 September to 4 October to sensitize the relevant ministries and stakeholders regarding ISA's efforts and also to understand the current on-ground energy scenario to better assist the member country in their various solar initiatives.

The objectives of the Mission were:

1. To create awareness of ISA Programme and its activities among all the important Ministries/ Departments and other stakeholders in Senegal under the guidance of the National Focal Point (NFP) of ISA in Senegal
2. To compile the required information and interact with officials to carry out pre-feasibility studies for implementation of demand of 4,000 number of Solar Water Pumping Systems, expressed by Senegal against the call for Expression of Interest issued by the Secretariat of ISA
3. To discuss and understand the possibilities of undertaking solar rooftop and mini-grid projects in Senegal

4. To discuss and explain the role played by iSTAR - Centres and to understand capacity building and training requirements of officials in various ministries and agencies in the solar sector
5. To understand the existing energy scenario and policy & regulatory framework in the country to prepare and fine tune a customized solar roadmap for Senegal

The meetings were coordinated through National Focal Point (NFP) of ISA in Senegal (herein referred to as 'Host Country'). This Aide-Memoire (AM) summarises the outcome of stakeholders' meetings with the expert team (as detailed in the Annexure) as well as agreements reached therein. The AM was discussed in the wrap-up meeting on 4th October 2019, chaired by National Agency for Renewable Energies (ANER). This AM shall be a point of reference for future planning as well as implementation of various ISA's programme.

2. Senegal's Participation in ISA's Programmes

A. Programme for Solar Water Pumping Systems

Senegal has submitted a demand for 4,000 Solar Pumping Systems against the call for Expression of Interest from ISA. The project will be implemented in Niayes region in Senegal which is spread over an area of 8000 hectares. The demand was given considering 50% of the area with an estimation of one pump per hectare. A pilot project of around 100 solar water pumps has already been implemented by National Agency for Renewable Energies (ANER) in the region. Another 100 solar water pumps installation have also been realised by farmers themselves. In response to the demand aggregation submitted by the Government of the Host Country, ISA Secretariat has engaged consultants from KPMG India for feasibility study of the projected demand as well as analysis of institutional capacity of stakeholders in the project and division of responsibility thereof. Country templates have been prepared by the consultants for surveying the institutional and policy framework in the Host Country as well as for assessment of potential deployment of solar energy-based applications in agriculture and electricity sectors. The Country Templates have been shared with the National Focal Point and the Embassy of the Host Country in India with the expectation that it would provide the Government of Host Country, an opportunity to plan relevant meetings with various stakeholders during the visit as well as gather the requisite data in the pre-visit to enable a comprehensive pre-feasibility study. Additionally, ISA has conducted a price discovery bids for 272,579 Solar Pumping Systems based on aggregation of demand from 22 Member Countries. It is expected that there shall be a significant reduction of price through demand aggregation.

B. Programme for Solar Rooftop and Mini-Grids

Senegal has only participated in the demand aggregation exercise for solar water pumping system and has not submitted any demand for solar rooftop and mini-grids. However, during the discussions held throughout the mission, it was assessed that there is a potential to support Senegal in solar rooftop and mini-grids as well. Solar rooftop is an emerging area in Senegal with currently capacity of less than 3 MW in public buildings. The mini-grids are used extensively in Senegal in remote areas and villages. ISA Secretariat has engaged consultants for feasibility study of the projected demand as well as analysis of institutional capacity of stakeholders in the project and division of responsibility thereof. Data templates have been prepared by the consultants to gauge the potential of solar rooftop

and mini-grids in Senegal and to identify possible business models for project implementation. The ISA Mission Visit team has requested the National Focal Point (NFP) to provide the relevant information as contained in the data template for better assessment of the areas of support that ISA can provide.

C. Programme for E-mobility and storage

During the consultations held during the mission, it was highlighted that storage is an important area for the government and has significant potential in country. The country also lacks local manufacturing in the automotive sector and hence the switch over from IC engines to electric vehicles should not be too challenging for the government. The details of ISA's programme in E-mobility and storage was discussed briefly during each of the meetings. Policy & Regulatory support for deployment of storage technology and capacity building were the identified areas of support for ISA. The details of future collaboration and support in the areas of E-mobility and storage needs to be worked out in consultation with NFP.

3. Key Discussions

A. Consultations with Ministries and Regulatory Bodies

ISA Expert team met with Stakeholder Ministries/Regulatory bodies (List of Ministerial/Regulatory Consultations provided in Annexure to the AM document) for assessment of institutional capacity, division of responsibility and coordination for successful implementation of the project as well as exploring implementation models and financing avenues to be deployed for the project.

(i) Ministry of Foreign Affairs and Senegalese Abroad (MAESE) (30th September 2019)

The ISA team commenced the mission by visiting the office of Ministry of Foreign Affairs and Senegalese Abroad (MAESE) and briefed about the objectives of the Mission. This was followed by a brief introduction by ISA team regarding formation of ISA, its activities and the various programmes and initiatives undertaken till date. The key points covered were as follows :

- Demand Aggregation Initiatives being undertaken by ISA for solar pumps, solar rooftop and solar mini-grids and the advantages of cost reduction through the same
- Extent of further support by ISA through assistance in project implementation
- Earmarking of USD 2 billion funding by EXIM Bank and USD 1.5 billion by French Development Agency (AFD)
- Capacity Building Initiatives being undertaken by ISA including details of training programs for technicians and trainers
- Role and importance of iSTAR - Centres and commitment of various private players such as Schneider Electric and Tata Power towards such centres
- Infopedia Portal
- Possible support by ISA for policy & regulatory decision making in the solar space

The brief introduction concluded with a discussion on the Aide memoire and a request for ratification of the amended framework agreement of ISA and invitation for the second general assembly to be held during 30 October- 1 November 2019 in India.

Key Takeaways and Action Points

Ministry of Foreign Affairs and Senegalese Abroad (MAESE) to expedite the process for ratification of the amended framework agreement.

(ii) Ministry of Petroleum and Energies (MPE) (30th September 2019)

ISA Mission Team met the representatives from the Ministry to Petroleum and Energies to discuss on the existing energy scenario in Senegal and to explore the possibilities of key collaboration areas between ISA and Govt. of Senegal. The meeting was chaired by the Chief of Staff, MPE, Mr Abdoulaye DIA. The key discussion points were as follows:

1. Currently, the installed capacity of solar stands at 160 MW which is 20% of the overall energy mix. The current project in wind capacity stands at 150 MW in which 50 MW will be commissioned this year. There are currently five hydro plants (3 commissioned and 2 under-construction) and five more are expected to come up in the next five years. The hydro power currently contributes 7% to the energy mix and most of the hydro power is imported from Mali. The government has set a target to achieve 30% of RE share in energy mix by 2030. Further the government aims to utilize local manpower for the construction of RE based power plants
2. A total of 9 PPA's were signed in the solar space out of which currently six have been executed and two are under execution. In 2014, the State utility SENELEC was involved in setting up of 2 MW of solar plant in Diamniadio. Recently, the government awarded 160 MW of solar capacity to Engie at a tariff of 3.98 Euro Cents/ kWh. Almost all of the projects are IPP based; private sector contributes 60% to generation which is expected to increase to 80% by end of next year. However, the project implementation has been taking longer time of around 3 years posing challenges for the Ministry.
3. The peak power of Senegal reached about 650 MW.
4. The transmission and distribution sectors are entirely controlled by the government. The government has plans to unbundle the state utility SENELEC to open the sector to private sector participation.
5. Financial assistance for special projects such as in schools or hospitals is provided by the Ministry of Finance on a case to case basis
6. Senegal has worked with German government through cooperation arrangements in the past. KfW Development Bank was involved in financing of 25 MW of solar project. US based MCC has recently agreed a second component of funding of USD 550 million which will cover areas of transmission, energy management and rural energy access. The program also includes setting up of a local agency and hiring of local manpower for project implementation.





7. Despite the initiatives being taken by the government, the dominant power is still based on oil supply and hence is costly for the consumers. The combination of RE and gas-based power is expected to bring down costs significantly. The government plans to convert all existing IPP projects to gas based in coming years. The current rate of gas-based power is about 9 Euro Cents/kWh.
8. Post Paris Agreement of 2015, the government has been pushing for new capacity additions through renewables and complementing the same with gas-based power plants for meeting the base load requirements
9. The energy access situation has improved substantially in Senegal with power cuts coming down from 38 days in 2011 to 1.6 days in 2018. Various other steps have also been taken particularly in improving ease of doing business in the energy sector. Earlier 8 approvals were required, which have now been merged to facilitate single window clearance for power projects. The tax structure has also been simplified and integrated online to facilitate investments in the sector.
10. Senegal is part of the ECOWAS and there are plans to develop a power market within ECOWAS countries. The country plans to sell gas-based power to other countries through this market. Senegal is also exploring a inter country grid with countries of Gambia and Guinea-Bissau so as to enable greater energy access in the region.
11. Senegal is also working in the RE integration space in the areas of forecasting, energy management, diversification and storage. In storage, 2 projects have been sanctioned via the second MCA programme.
12. Department of Renewable Energy, University of Dakar are doing some pioneering work in the RE space
13. The Plan for Emerging Senegal (PES) provides a roadmap in government's focus areas of infrastructure, energy and agriculture
14. Next year, the Government is also organizing a conference of financing institutions for attracting investments for various rural electrification projects.
15. Mr. Abdoulaye DIA, Chief of Staff, Ministry of Petroleum and Energies also listed down the key support areas expected from ISA as per below:
 - Assistance in selection of new and best technologies
 - Assistance in setting up and financing of projects
 - Best practices and training that can be imparted to technicians of the country

Key Takeaways and Action Points

As discussed in the meeting, the support is primarily required for ground mounted solar systems. ISA informed the Ministry that government should facilitate land acquisition and grid connectivity to enable timely completion of projects. ISA can support the Ministry in standardization of documents such as PPAs and various implementation agreements, the negotiation of which currently takes lot of time.





Further, Senegalese government can explore development of solar energy through solar parks for which ISA can provide necessary help.

(iii) National Agency for Renewable Energies (ANER) (30th September 2019)

ISA Mission Team met the representatives of National Agency for Renewable Energies (ANER) to discuss on the activities undertaken by ANER in the renewable energy space in Senegal and to discuss the status of solar pumps, solar rooftop and mini-grids. The meeting was chaired by the Director of Projects and Programmes, ANER, Mr Moussa SECK. The key points discussed in the meeting are as below:

1. The key area of concern is to meet growing consumer demand especially in the agriculture sector
2. The key crops grown by the farmers in the Niayes zones include mainly potatoes, tomatoes, onions, and carrots, etc. The Niayes zones have about 20,000 farmers for 8,000 hectares under cultivation. Fossil energy-based irrigation sources has led to low income levels of farmers and hence sustainable business models needs to be deployed.
3. The agency and government are well aware of the advantages and benefits of solar water pumping systems and hence wants to explore ways to scale up implementation of solar water pumps in the country
4. ANER is already implementing pilot project for replacement of diesel pumps with solar pumps. About 100 solar pumps have been deployed in the pilot projects
5. While certain exemptions can be provided for solar pumps, it will be challenging for the government to provide any subsidy or sovereign guarantee for providing financial assistance for solar projects. Hence ANER wanted to explore business models which are not dependent on any subsidy.
6. ANER had shortlisted the Niayes zone locality which covered 8000 hectares of farm land. A demand of 4,000 solar pumps was given through ISA aggregation demand process. This was done by considering 50% of the area with an estimation of one pump per hectare.
7. ANER needs assistance in collecting information related to sizing aspects of solar pumps
8. There has been minimal deployment of solar rooftop in the country. Till date, less than 5 MW of solar rooftop capacity has been installed by ANER in public buildings. However, there is also a 2 MW solar rooftop that had been installed in the conference center "CICAD" located in Diamniadio. Also, new capacities of solar have been added in the new administrative buildings in Diamniadio.
9. The tariff for mini-grids has been harmonized with the tariff of normal grid power. The current tariff for normal grid power is about CFA 110/ kWh. The additional tariff (over and above the normal grid tariff) is paid by the government to the mini-grid developer.

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Key Takeaways and Action Points

ISA team informed that since tariff is now harmonized at 18 Euro Cents/ kWh, implementation of solar pumps would be a viable alternative. The benchmarking of costs demand aggregation model should help in further reduction of costs. ISA will explore ways to support ANER in the below mentioned indicative aspects:

- Identification of suitable and non-subsidy driven business models in solar pumps sector
- Further ISA can assist ANER in identification of best technology for implementation of various solar projects
- Support knowledge transfer and identification of better technology through B2B meetings
- Separate training programme in Senegal for a duration of 2-3 weeks for training of 30-50 technicians and training of trainers

It was decided that ANER will provide ISA the required information as stipulated in the data collection template for solar pumps and solar rooftop for detailed feasibility assessment of the two technologies. Further, it was agreed that ANER will nominate representatives for the Master's Training Program organized by ISA.

(iv) Regulatory Commission for the Electricity Sector (CRSE) (1st October 2019)

The main objective of the meeting was to discuss on the policy and regulatory framework for the solar sector in Senegal. The meeting was chaired by Mr Abdou MBAYE, Senior Power Expert, CRSE. The key points discussed in the meeting are provided below:

1. There is no specific regulation for solar sector in Senegal and common legal framework as adopted for overall power sector is followed for solar sector as well. The government is exploring setting up of pilot capacities to explore the impact and use of various types of renewable energy technologies in the country.
2. As on date, SENELEC is the only utility authorized to buy, transmit and distribute power in the country. The developers sign PPA's with SENELEC in IPP based projects. SENELEC gets subsidy from the government to enable lower tariffs for consumers
3. CRSE is working on new regulation of third-party and group captive model to grid access open up private participation in the sector. The regulation is expected to come into force by end of 2020 and it will enable private developers to sell power to any customer
4. CRSE is currently working on a new programme of Feed-in-Tariff (FiT) for residential and agriculture consumers who will be incentivised for the portion of power being fed back into the grid. CRSE has also determined the FiT in the range of 7-8 Euro Cents/ kWh and is exploring robust regulatory framework including uniform contract with common technical conditions to support the programme. The programme is expected to be finalised by end of the current year.
5. The FiT programme will be supported by net-metering provisions along with Real Time Monitoring (RTM) to analyze the generation from the control room. A single window clearance mechanism is also being thought of to facilitate ease in application process for the consumers.



6. The current tariff for Hydro Power is 5 Euro Cents/ kWh and that for thermal power is in range of 13-16 Euro Cents/ kWh
7. It was highlighted that despite the regulatory provisions, financial support from the government will still be required. An example from Tunisia was cited, wherein the government provides financial assistance for incentivizing the consumers'
8. The control period for revision of tariffs is 3 years. The revised tariffs are applicable for the new projects/ customers
9. There is no separate policy for promotion of mini-grids in the country and currently discussions are underway with diverse stakeholders to come up with regulations specifically catering to mini-grids
10. A dedicated programme for solar rooftops on government buildings is planned by the government and currently there is no separate programme for commercial and industrial consumers
11. African Power Pool is working on inter-connection of grids between countries of Senegal, Mali and Mauritania which will be followed by wider grid integration of more than 40 countries in the region
12. CRSE shared that benchmark studies have highlighted the huge potential opportunity in the storage space for Senegal and the organisation is exploring whether separate regulatory and legal framework will be required for storage space. CRSE requested the ISA team for their support in relation to the same
13. CRSE stressed on the need of a capacity building programme in areas of policy and regulations and requested ISA for their support in the same

Key Takeaways and Action Points

Policy Advocacy, capacity building and institutional strengthening were identified as the key areas where ISA can support CRSE. In this regard, ISA mentioned the below possibilities for supporting CRSE:

- Organising regional and global seminar of regulators of various countries to facilitate knowledge exchange pertaining to various policies and regulations
- Support CRSE in policy and regulatory framework pertaining to energy storage space
- Support in capacity building programs in the areas of policy and regulations

(v) Economic and Financial Cooperation Department (DCEF), Ministry of Economy, Planning and Cooperation (1st October 2019)

The main agenda of the meeting was to discuss the various financing avenues being tapped for renewable energy in the country and to identify various financing mechanisms adopted by the government. The meeting was chaired by the Deputy Director of DCEF, Mr Babacar NDIAYE. The key discussion points were as follows:



1. The main role of the DCEF is to handle cooperation aspects in financing with multilateral agencies and other areas. With regards to financing, DCEF shall act as an interface between ANER and various multilateral agencies.
2. DCEF is committed to support ANER in financing of various solar projects given they are provided with finer technical details of the project to help them ascertain the extent of financing requirement. ANER should prepare and submit detailed project proposals to DCEF which will subsequently take forward the same to various financial institutions.
3. While green funds are widely available, there is still lack of clarity on ways to avail the funds for development of RE projects.
4. US based MCC funding is already available in the areas of transmission, energy management and rural energy access and DCEF will explore funding avenues in other areas not currently covered under MCC line of funding.

(vi) Ministry of Employment, Vocational Training and Crafts (MFPA) (3rd October 2019)

The ISA team met the Secretary General of the Ministry of Employment, Vocational Training and Crafts (MFPA), Mr Mouhamadou Moustapha THIOUNE, Secretary General, MFPA to sensitize the Ministry about the various capacity building initiatives being undertaken by ISA and to explore the areas of support that ISA can provide to the Ministry. The ISA team briefed the Secretary General on the formation of ISA, its programmes, various activities being undertaken in the capacity building space and the concept of iSTAR Centres. The details on the different training programs being undertaken by ISA was also discussed including details of the support being provided by Schneider Electric and Tata Power for technicians training.

Key Takeaways and Action Points

It was agreed that ISA will share the detailed concept note regarding iSTARc programme and subsequent discussions will be conducted with the help of NFP.

(vii) Ministry of Fisheries and Maritime Economy (4th October 2019)

The ISA team met Madame Aminata MBENGUE NDIAYE, Hon'ble Minister, Ministry of Fisheries and Maritime Economy to discuss on the possibility of integration of solar solutions in the fisheries sector and also the required support areas for the Ministry. The key discussion points were as follows:

1. Many of the fishing ports lack access to reliable or affordable electricity thus creating a sense of insecurity amongst the fishermen. Solar solutions can be deployed for providing reliable access to power to these ports
2. There are currently 100 cold storage facilities in Senegal, but they are not being utilized properly due to high cost of electricity. This has led to many fishing products being rendered unusable
3. Solar solutions may also be explored in the fish drying and other associated applications



4. India is supporting Senegal in development of cold storage facilities. The first phase of the programme involved support of USD 10 Million and second phase will involve a support of USD 17 Million. The second phase includes setting up of 19 cold storage complexes across 9 regions and these complexes can be solarized for better operation.
5. The funds are available with the Ministry and there is a need for suitable transfer of technology for solarization of cold storage facilities. ISA can also support the Ministry in capacity building and training in the areas of solar cold storage

Key Takeaways and Action Points

Meeting the fisheries minister was also significant because fisheries accounts for almost USD 500 Million to Senegal's economy out of a total GDP of USD 16 Billion. There is a large captive opportunity for integration of solar solutions in the fisheries sector in the areas of cold storage, ports, lighting and fishing trawlers. ISA will explore the possibilities of providing the required support to the Ministry especially in feasibility assessment and capacity building. The same will be finalized through subsequent discussions with the help of NFP.

B. Consultations with bilateral agencies and international development institutions

ISA Expert team met with international development institutions and bilateral agencies to identify synergies with ISA and to identify areas for future collaboration.

(i) Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH/ Energising Development program (2nd October 2019)

The ISA Delegation met the Executive Manager of EnDev, Ms Mireille Afoudji EHEMBA. The main agenda for the meeting was to discuss on the work undertaken by GIZ in Senegal and to identify opportunities for future collaboration between GIZ and ISA. The key points discussed were as follows:

1. GIZ is operational in Senegal since 1977 and opened its Office in Dakar in 1987. GIZ started with an objective of enabling greater energy access in the remote areas and villages of the country. This was initially targeted through deployment of pilot and demonstration projects. Subsequently, GIZ/ EnDev is now targeting revenue generating and sustainable projects for the rural population
2. GIZ/ EnDev provides support in two key areas of Rural Electrification and Improved Cookstoves. The support is provided through cooperation of various multilateral agencies including BMZ, Swedish International Cooperation Agency (Sida) and many others. The key activities undertaken by GIZ/ EnDev in Senegal include support to Senegalese Agency for Rural Development, deployment and implementation of mini-grids, solar home systems and on-grid systems etc.
3. The off-grid and grid-connected interventions are decided basis the existing situation prevalent in the village along with its geographical distance from the main grid
4. GIZ has selected 5 Senegalese companies through competitive bidding process for implementation of projects in more than 287 villages

5. GIZ/ EnDev has contributed up to 80% of the required financing for pilot projects
6. The mini-grids projects include hybrid systems (solar and diesel), solar mini-grids and solar in combination with the main grid. For the hybrid systems 5 kWp of solar system is deployed in conjunction with a 15-kVA backup diesel generator. Some wind based mini-grids systems are also present. Besides, German government has recently in 2018 committed funds for setting up 300 mini-grids in the country. The project is being implemented by GAUFF GmbH
7. GIZ informed that bulk of the project equipment are imported and have been found to be unreliable. Battery systems with a life of 15 years are operational only for 5 years

Key Takeaways and Action Points

ISA team informed that considering the current uniform tariff of 18 Euro Cents/ kWh, there will be minimal subsidy requirement for achieving viability of mini-grid projects. It was agreed in the meeting that ISA and GIZ will work together in the areas of capacity building and technology identification for development of sustainable projects in the country. Further, GIZ also showed interest in nominating personnel for technician level training being conducted by ISA. Additionally, GIZ will share detailed information on the tariffs discovered for mini-grids with ISA so that detailed feasibility assessment of the mini-grids projects can be undertaken.

(ii) The World Bank (2nd October 2019)

The ISA team had an informal meeting with Country Director of World Bank in Senegal Mr. Nathan M. Belete to discuss on the work undertaken by World Bank in Senegal and to identify opportunities for future collaboration between World Bank and ISA for financing of solar projects. Mr. Belete showed keen interest in various activities undertaken by ISA and expressed his willingness for collaboration with ISA to enable financing of various projects. He also informed that World Bank has earmarked USD 800 million for the five countries i.e. Senegal, Cabo Verde, Guinea-Bissau, Mauritania and The Gambia.

Key Takeaways and Action Points

It was decided to take forward the discussions related to financing of solar projects in Senegal in much greater detail post completion of the mission visit.

(iii) United Nations Development Programme (UNDP) (4th October 2019)

The ISA team met the Team Leader, Environment and Climate Change, UNDP, Ms Ndeye Fatou Diaw GUENE to discuss on the work undertaken by UNDP in Senegal and to identify opportunities for future collaboration between UNDP and ISA. UNDP provided an overview of the various activities being undertaken in the energy sector as provided below:

1. In the energy sector, UNDP is working in two broad areas i.e. Supporting implementation of local projects involved in providing energy access through solar applications and Rural Electrification



through solar. The projects are being implemented under PUDP programme involving UNDP as well as Govt. of Senegal

2. While projects are being financed by rural banks, UNDP is providing support primarily in project implementation. UNDP has also previously worked with ANER for strategic planning of their various capacity building initiatives
3. UNDP is currently working on a common platform for providing capacity building to various stakeholders such as scientists, researchers, private players etc. in the RE and more particularly in the solar sector. UNDP has also provided support to a training centre in Diamniadio for training of technicians
4. UNDP has also supported training centre to enhance the capacity of youth and women particularly in the RE sector. They have also worked with local Senegalese agency for developing different standards in the RE space. UNDP also has a component for supporting deployment of solar water pumping programme

Key Takeaways and Action Points

During the meeting it was identified that lot of synergies exists between UNDP's work in Senegal and ISA's programs, especially in capacity building activities. It was decided to take forward the collaboration effort between ISA and UNDP in greater detail in subsequent meetings.

(iv) United States Agency for International Development (USAID) (4th October 2019)

The ISA team met USAID to discuss on the work undertaken by USAID in Senegal and to identify opportunities for future collaboration between USAID and ISA. The meeting was chaired by the Power Africa Team Leader, USAID, Senegal, Ms Cheryl VOISARD. USAID provided an overview of the various activities being undertaken in the energy sector as mentioned below:

1. USAID is currently implementing 'Power Africa' program in Senegal which involves deployment of off-grid technologies. Under the program various technologies such as mini-grids, solar pumps and solar home systems are being promoted in the country. More recently, Millennium Challenge Corporation (MCC) and Govt. of Senegal has executed a new five-year MCC Senegal Power Compact which involves development of future energy sector roadmap for Senegal
2. There is comparatively higher level of local taxation in Senegal which is hindering the development of off-grid technologies particularly solar home systems. There is a need of providing support to the government for devising enabling policy provisions to enable greater penetration of these technologies in the country
3. The national grid is not stable and hence grid stability issues needs to be taken into consideration while planning for deployment of renewable energy. In this regard, USAID has provided support to the state utility SENELEC for training of engineers and officials from dispatch department on grid stabilization concepts



4. USAID is undertaking lot of initiatives in the capacity building space. Most notably, USAID is organizing a four week long Young African Leadership Programme for training of women leaders in the energy sector. USAID is also working on demand modelling and training for investors and bankers to enable greater financing in the RE space
5. The critical enablers for transformation of energy sector in Senegal were highlighted as below:
 - A. Revamping and unbundling of SENELEC
 - B. Greater capacity and responsibility for regulators
 - C. Capacity building of the energy ministry for handling coordination of various diverse stakeholders

Key Takeaways and Action Points

During the meeting it was identified that lot of synergies exists between USAID's work in Senegal and ISA's programs. It was decided to take forward the collaboration effort between ISA and USAID in greater detail in subsequent meetings.

C. Visits to potential iSTAR Centres

ANER has identified two potential institutions for nomination as iSTAR-Centres under the ISA programme. In the same regard, ISA Mission Team visited the two centres to understand the work being undertaken by them and to understand the synergies of the institutions with respect to the role to be undertaken by iSTAR-Centres. The findings of the visit along with brief profile of the institutes is summarized as below:

(i) Centre de Formations Professionnelles et Techniques (CFPT) (2nd October 2019)

1. The CFPT centre was established in 1984. It provides training at two levels i.e. BTI- Pre-High School Training and BTES- Post High School Training. Under BTI, training is provided on electrical, mechanical and automotive areas; whereas under BTES, training is provided on Information Technology, Electro-Mechanic and Maintenance & Installation areas. CFPT can host up to 1000 students for training with programmes spanning both day and evening trainings. The centre also provides training on installation and maintenance of solar panels.
2. Japan is supporting the centre through JICA line of credit. The support also includes assistance in equipment supply, maintenance and internal capacity enhancement of CFPT. The total project duration is of 4 years with expected completion by 2021
3. CFPT has been organizing seminars for private sector as well as international seminars for master trainers. More recently, the institute organized training programme for 24 technicians from 11 countries in mini-grid operation and maintenance aspects
4. The electro-mechanic training got support in the form of financing of solar PV equipment from GIZ and the centre is keen to explore further collaboration opportunities with ISA and similar organisations

5. The centre will work with ANER to provide all the necessary information for completion of required modalities for its nomination as a iSTAR - Centre

(ii) Ecole Polytechnique, Cheikh Anta Diop University of Dakar (2nd October 2019)

1. The institute has 6 departments consisting of Civil, Mechanical, Chemical, Bio-technology, Computer Science and Management areas. Till date the institute has trained more than 4000 students and organized more than 70 training programs
2. The vocational training program being undertaken by the institute is for a duration of 2 years. There are some specific bachelor training programs in the field of renewable energy including solar. More recently, the institute also organized short courses of duration of 1 month in energy management
3. Currently, 3 laboratories are working in the field of solar energy research & development. The German government through PTB has supported ESP in setting up a control laboratory for monitoring of batteries and control of solar PV system while the Switzerland government has supported in setting up laboratory for control of solar panels
4. The institute is also involved in the ECOWAS program for imparting certifications and training of technicians. Ecole has also tied up with a local private solar energy company for imparting training to 100 technicians and 100 engineers in the solar space.
5. The research currently being undertaken at the institute includes aspects related to monitoring of solar panel characteristics and Smart Grids

Key Takeaways and Action Points

It was assessed that both the institutions had the potential to be nominated as STAR Centres. In the same regard, it was agreed that ANER will coordinate with both institutions for getting the relevant information and data required as a part of STARc nomination process. Based on the information provided by the centres, ISA will deliberate with ANER and shortlist one of the two centres as STAR Centre.

D. Site Visit to solar pumping system installed in Thiès (3rd October 2019)

The ISA Mission Team visited an off-grid solar water pumping system installed in Thiès to assess the current ground level situation pertaining to solar pumps in Senegal and to collect necessary data related to technical details of the system. Before the site visit, the team had a meeting with Association of Niayes Vegetable Trade Unions (AUMN) at Niayes. The meeting was chaired by Mr Mamadou Diarra NDIAYE, Coordinator of AUMN. During discussions, ISA team obtained information on various aspects of the system for preparation of pre-feasibility reports. The information as shared by AUMN is as below:

1. The association comprises of 22 unions and 20,000 farmers cooperatives. The producers of AUMN use water pumping systems to grow vegetables, legumes and fruits on the farmland. The





key crops include onions, carrots and other vegetables. On an average 2-3 crops are grown by the farmers every year.

2. The crops are either sold to other producers or to commercial organisations which are promoting the local produce
3. Almost 60% of the vegetables grown in Senegal and 80% of vegetables export from Senegal comes from the Niayes zone.
4. The main advantages of Niayes zone include appropriate weather conditions, optimum water table depth and close proximity to buyers
5. There are approximately 20,000 farmers spread across 8000 hectares of land in the region with one pump being installed for each hectare. Almost every farmer has either a diesel pump or solar pump installed in his/ her field.
6. The water table depth is in the range of 6-15 m below ground level. The rainy season in the region is between July-October while sunny days are present almost all throughout the year
7. Currently, there are 200 solar pumps in the region and around 80 solar pumps were installed through support from ANER. The systems were installed last year itself. Around 1000 nos. of diesel pumps are also operational in the region. The Indian company Batliboi has supplied majority of the diesel pumps in the region. The price of diesel is CFA 550/ litre
8. The solar pumps are of Lorentz make having a discharge of approximately 60 m³/ day. The pumps are used for almost 10 hours each day
9. The price of motor pumpset is in the range of USD 130 - USD 1200 while the price of entire solar water pumping system is in the range of USD 5000- USD 8000 depending on the size of the system
10. The farmers have purchased solar pumps directly from the market through a loan from local bank at an interest rate of 12% per annum with a repayment period of 3 years
11. The average yield for onion is 35 tonne/ hectare. The market price for onion is around CFA 175/ kg and that for potato is CFA 200/ kg. On an average, the producers are able to earn almost USD 1000 per hectare
12. The farmers extensively use fertilizers for their crops. Approximately 900 kg per hectare of fertilizer is used for each of the crops. The price of fertilizer is CFA 300/ kg with farmers getting 30% subsidy from the government
13. The farmers of the association have to pay a yearly membership fees of CFA 75,000
14. Local taxes are paid by the farmers whose rate vary in each district. The tax rates for individuals is around 18% for highest slab and between 22-30% for corporates.
15. Minor subsidies are provided by the government for buying diesel and other equipment
16. The water in the Niayes zones contains iron and hence robust pumps are needed for irrigation

17. One of the risk factors highlighted was the crop failure which occurs once in every five years. Crop Insurance is available to the farmers and forms approximately 2-3% of the system cost

Key Takeaways and Action Points

Based on the initial assessment and the data provided by AUMN, the solar water pumping systems seems to be a viable project opportunity. Based on the information provided, ISA will conduct detailed pre-feasibility study to establish the feasibility of implementing solar pumps in the Niayes zone. It was also agreed that detailed water analysis including study of various chemical compositions in the water (including Iron) needs to be undertaken and provided to developers to enable them to align their systems as per the requirement of the local conditions.

4. Components of Action

A. Implementation Agencies Involved

The various implementation agencies that will be closely involved in implementation of various ISA's programmes are as below:

S.No.	Name of Agency	Role
1	Ministry of Foreign Affairs and Senegalese Abroad (MAESE)	Coordination between Government of Senegal, private sector and ISA
2	Ministry of Petroleum and Energies	<ul style="list-style-type: none"> Policy making body for the energy sector including renewables Nodal ministry for coordination and implementation of RE projects
3	National Agency for Renewable Energies (ANER)	<ul style="list-style-type: none"> National Focal Point for ISA projects and activities Monitoring and coordination of solar projects
4	Regulatory Commission for the Electricity Sector (CRSE)	Drafting of regulations and determination of tariffs for the electricity sector including solar
5	Ministry of Economy and Finance	<ul style="list-style-type: none"> Planning and budgetary allocation for solar projects Mobilise and approve the financing for solar related projects in Senegal
6	Directorate General for Cooperation and External Financing and Private Sector Development	<ul style="list-style-type: none"> Handle cooperation aspects in availing external financing for solar projects Act as an interface between ANER various multilateral agencies
7	Ministry of Employment, Vocational Training and Crafts (MFPA)	<ul style="list-style-type: none"> Policy making body for aspects related to capacity building and training

S.No.	Name of Agency	Role
		<ul style="list-style-type: none"> Nodal ministry for coordination of various capacity building initiatives

B. Financing of Projects

(i) The implementation models that may be adopted are:

- Government funded
- PPP
 - Private Sector Participation
 - Cooperative Institutions
- OPEX
- Capex
- Entrepreneurship based

(ii) The various financing options can be as under:

- Grant based
- Grant-Debt Hybrid
- Debt based

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

C. Skill Development and Capacity Building

Capacity building and training were identified as one of the key areas of support that ISA can provide to the Government of Senegal. During various discussions, stakeholders showed keen interest in availing ISA's support for various training programs especially for training of technicians. In the respect, the key support areas for ISA are as follows:

- Providing training to technicians nominated by NFP
- Supporting capacity building of two prospective iSTAR Centres namely Centre de Formations Professionnelles et Techniques (CFPT) and Ecole Polytechnique, Cheikh Anta Diop University of Dakar through participation from Schneider Electric and Tata Power
- Imparting training through Master's Training program of ISA
- Seminar of regulators of various countries to facilitate knowledge exchange pertaining to various policies and regulations
- Separate capacity building programs in the areas of policy and regulations

D. Information to be provided by the host country to ISA Secretariat

S.No.	Information Needed	Responsible Agency
1	Status of energy and generation mix	Ministry of Petroleum and Energies
2	Electricity Access Expansion Plan	Ministry of Petroleum and Energies
3	Rural Electrification Plan and budget	Ministry of Petroleum and Energies
4	Details of The Senegal Development Programme (PEC)	Ministry of Petroleum and Energies
5	Roadmap and plan for bidding in renewable energy sector	National Agency for Renewable Energies (ANER)
6	Technical details and status of various solar IPP projects and costs	National Agency for Renewable Energies (ANER)
7	Policy document related to renewable energy	National Agency for Renewable Energies (ANER)
8	Details of mini-grid projects implemented in the country along with details of tariffs and cost structure	National Agency for Renewable Energies (ANER)
9	Past studies undertaken for assessing rooftop potential in the country	National Agency for Renewable Energies (ANER)
10	Regulatory structure and provisions in the solar sector	Regulatory Commission for the Electricity Sector (CRSE)
11	Details of MCC line of funding	Directorate General for Cooperation and External Financing and Private Sector Development
12	Details of existing line of credit being availed in the renewable energy sector	Directorate General for Cooperation and External Financing and Private Sector Development
13	Current budgetary provisions for solar	Ministry of Economy and Finance
14	NDC Budget	Ministry of Economy and Finance
15	Tax structure for solar products	Ministry of Economy and Finance

E. Compliance Norms

- (i) Environmental and Social Norms
 - Environmental Impact Assessment (EIA)
 - Social Impact Assessment (SIA) (if applicable)
- (ii) Technical Standards
- (iii) Grievance Redressal Mechanisms

The current scope of the mission did not cover the above-mentioned norms and the same may be covered during future visits.



F. Details and Agenda of next Review Visit

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

G. Summary of Agreed Action Items

S.No.	Agreed Action	Responsible Institution	Budgetary Provision
1	Participation and consent of Government of Senegal to participate in all five programmes of ISA	Government of Senegal	Not required
2	Ratification of the amended framework agreement of ISA	Government of Senegal	Not required
3	<ul style="list-style-type: none"> Setting up task force at country level with Hon'ble Minister of Energy or any representative nominated by Hon'ble Minister as Chair & NFP as Convener under Article 2 and Article 3 of the Framework Agreement. For other ministerial departments, general/ permanent secretary or any other representative may be members of task force. ISA to share office memorandum and ToR 	Government of Senegal	<p>To be decided.</p> <p>(Govt. of Senegal could allocate the necessary budgetary provisions, if required. ISA will also explore technical assistance/ grant from multilaterals/ bilaterals and other partners, if required...)</p>
4	Preparation of pre-feasibility reports for solar pumps, solar rooftop and mini-grids	ISA in coordination with National Agency for Renewable Energies (ANER)	Through various development agencies working in Senegal
5	Seminar of regulators of various countries to facilitate knowledge exchange pertaining to various policies and regulations	ISA in coordination with Regulatory Commission for the Electricity Sector (CRSE) via NFP	To be decided
6	Separate capacity building programs in the areas of policy and regulations	ISA in coordination with Regulatory Commission for the Electricity Sector (CRSE) via NFP	To be decided
7	Special technician level training in Senegal for training of 30-50 technicians	ISA in coordination with National Agency for	To be decided

S.No.	Agreed Action	Responsible Institution	Budgetary Provision
		Renewable Energies (ANER)	
8	Benchmarking and knowledge dissemination of international best practices in solar space	ISA	Not required
9	Support in installation of solar rooftop through replication of demand aggregation model in the solar rooftop space	ISA in coordination with National Agency for Renewable Energies (ANER)	Mobilisation of support from foundations, multilateral banks and ISA partners such as AfDB/ UN agencies by Govt. of Senegal and ISA
10	Support in transferring GIS based technology for assessing potential of solar rooftop in Senegal	ISA	Mobilisation of support from foundations, multilateral banks and ISA partners such as AfDB/ UN agencies by Govt. of Senegal and ISA
11	Implementation of 4000 nos. of solar water pumping systems in Senegal	ISA in coordination with National Agency for Renewable Energies (ANER)	Mobilisation of support from foundations, multilateral banks and ISA partners such as AfDB/ UN agencies by Govt. of Senegal and ISA
12	Supporting in developing policy & regulations in energy storage space	ISA in coordination with Regulatory Commission for the Electricity Sector (CRSE)	Mobilisation of support from foundations, multilateral banks and ISA partners such as AfDB/ UN agencies by Govt. of Senegal and ISA
13	Support knowledge and technology transfer through separate B2B	ISA in coordination with National Agency for Renewable Energies (ANER)	To be decided
14	Identification of suitable and non-subsidy driven business models in solar pumps sector	ISA in coordination with National Agency for Renewable Energies (ANER)	Not required
15	Capacity building and training to support the government in expediting the implementation of projects	ISA in coordination with Ministry of Petroleum and Energies	To be decided

S.No.	Agreed Action	Responsible Institution	Budgetary Provision
16	Shortlisting of iSTARc centre in Senegal	ISA in coordination with National Agency for Renewable Energies (ANER)	Not required
17	Support to government in identification of best technology for implementation of various solar projects	ISA in coordination with Ministry of Petroleum and Energies via NFP	To be decided
18	<p>Participation in Assembly/ outreach event/ capacity building programmes:</p> <ul style="list-style-type: none"> • Invitation for participation in the ISA Assembly (Delhi NCR, 30th October to 2nd November 2019), RE-Invest (Delhi NCR, 30th October to 2nd November 2019), and SunWorld (Peru, Lima, 12-14 November 2019) • Invitation for participation in other outreach events such as COP-25 and World Future Energy Summit 2020. • Invitation for training under Master Trainers Programme, ISA fellowship for Master's Degree and other relevant programmes. 	ISA	Mobilisation of support from foundations, multilateral banks and ISA partners such as AfDB/ UN agencies by Govt. of Senegal and ISA
19	Financial assistance to NFP for better coordination of ISA programme and activities	ISA	To be decided
20	NFP to provide filled in data templates for solar pumps, solar rooftop and mini-grid programme	ISA in coordination with National Agency for Renewable Energies (ANER)	To be decided
21	<p>Infopedia:</p> <ul style="list-style-type: none"> • Structure for country profile for Infopedia to be provided to NFP • Country profile for uploading on Infopedia. 	National Agency for Renewable Energies (ANER)	Not required



S.No.	Agreed Action	Responsible Institution	Budgetary Provision
	<ul style="list-style-type: none"> Sharing of best practices and videos on solar energy in Senegal to be uploaded on Infopedia 		
22	<p>Solar roadmap for Senegal:</p> <ul style="list-style-type: none"> Sharing of format for solar roadmap National solar roadmap shall be developed by the Govt. of Senegal Completion of draft solar roadmap by involving different ministries agricultural department, water department, academic institutions, Co-operatives, Associations and other relevant stakeholders and referring to implementation plans, economic plan, national electricity plan, strategic plan and other relevant plans 	ISA in coordination with Govt. of Senegal	Mobilisation of support from foundations, multilateral banks and ISA partners such as AfDB/ UN agencies by Govt. of Senegal and ISA

Done at Dakar, the Republic of Senegal on this 4th day of October 2019 in two originals, each in English and French languages, both texts being equally authentic.

Mr. K S Popli

Advisor, ISA



Place: Dakar, Republic of Senegal

Date: 4th October 2019

Mr. Djiby NDIAYE

Director General of ANER

National Focal Point for ISA





Annexure 1

Expert Team

S.No.	Name	Organisation	Designation
1	Mr. Kuljit Singh Popli	ISA	Advisor, (Head of Team)
2	Mr. Prasanta Kumar Mahapatra	ISA	Advisor
3	Ms. Aissatou Sonko	ISA	Consultant, International Relation
4	Mr. Paritosh Moghe	KPMG India on behalf of ISA	Senior Consultant
5	Mr. Papa Assane Mbengue	Embassy of Senegal in India	Second Counsellor

Annexure 2
Details of Consultations

Name of Institution	Date of Meeting	Agenda	Participants
Ministry of Foreign Affairs and Senegalese Abroad (MAESE)	30 th September 2019	To sensitize the MAESE about the objectives of the visit	<ul style="list-style-type: none"> • Mr. Ansoumane Bayo DIENG, Counsellor, Ministry of Foreign Affairs and Senegalese Abroad (MAESE) • Mr. Fadel TRAORE, National Agency for Renewable Energies (ANER) • Mr. Kuljit Singh Popli, Advisor, International Solar Alliance (ISA) • Mr. Prasanta Kumar Mahapatra, Advisor, International Solar Alliance (ISA) • Ms. Aissatou Sonko, Consultant, International Solar Alliance (ISA) • Mr. Paritosh Moghe, Senior Consultant, KPMG on behalf of ISA • Mr. Papa Assane Mbengue, Second Counsellor, Embassy of the Republic of Senegal in India
Ministry of Petroleum and Energies	30 th September 2019	To discuss on the existing energy scenario in Senegal and to explore the possibilities of key collaboration areas between ISA and Govt. of Senegal	<ul style="list-style-type: none"> • Mr. Abdoulaye DIA, Chief of Staff, Ministry of Petroleum and Energies • Mr. Cheikh NIANE, Coordinator of Power Plant Projects, Ministry of Petroleum and Energies • Ms. Fatma SOW, Ministry of Petroleum and Energies • Mr. Moussa SECK, National Agency for Renewable Energies (ANER) • Mr. Fadel TRAORE, National Agency for Renewable Energies (ANER) • Mr. Kuljit Singh Popli, Advisor, International Solar Alliance (ISA) • Mr. Prasanta Kumar Mahapatra, Advisor, International Solar Alliance (ISA) • Ms. Aissatou Sonko, Consultant, International Solar Alliance (ISA) • Mr. Paritosh Moghe, Senior Consultant, KPMG on behalf of ISA • Mr. Papa Assane Mbengue, Second Counsellor, Embassy of the Republic of Senegal in India
National Agency for Renewable Energies (ANER)	30 th September 2019	To discuss on the activities undertaken by ANER in the renewable energy space in Senegal and to discuss the	<ul style="list-style-type: none"> • Mr. Moussa SECK, National Agency for Renewable Energies (ANER) • Mr. Fadel TRAORE, National Agency for Renewable Energies (ANER) • Mr. Ibrahima B. Mane, National Agency for Renewable Energies (ANER) • Mr. Libasse NIANE, Director General, Energieco Afrique

Name of Institution	Date of Meeting	Agenda	Participants
		status of solar pumps, solar rooftop and mini-grids	<ul style="list-style-type: none"> • Mr. Youssouf Ndiaye, Secretary General, Centre De Test Des Systems Solaires (CT2S) • Mr. Kuljit Singh Popli, Advisor, International Solar Alliance (ISA) • Mr. Prasanta Kumar Mahapatra, Advisor, International Solar Alliance (ISA) • Ms. Aissatou Sonko, Consultant, International Solar Alliance (ISA) • Mr. Paritosh Moghe, Senior Consultant, KPMG on behalf of ISA • Mr. Papa Assane Mbengue, Second Counsellor, Embassy of the Republic of Senegal in India
Regulatory Commission for the Electricity Sector (CRSE)	1 st October 2019	To discuss on the issues related to the policy and regulatory framework for the solar sector in Senegal	<ul style="list-style-type: none"> • Mr. Abdou MBAYE, Senior Power Expert, Regulatory Commission for the Electricity Sector (CRSE) • Ms. Constance Guignane DIONE, Junior Electrician Expert, Regulatory Commission for the Electricity Sector (CRSE) • Mr. Fadel TRAORE, National Agency for Renewable Energies (ANER) • Mr. Kuljit Singh Popli, Advisor, International Solar Alliance (ISA) • Mr. Prasanta Kumar Mahapatra, Advisor, International Solar Alliance (ISA) • Ms. Aissatou Sonko, Consultant, International Solar Alliance (ISA) • Mr. Paritosh Moghe, Senior Consultant, KPMG on behalf of ISA • Mr. Papa Assane Mbengue, Second Counsellor, Embassy of the Republic of Senegal in India
Ministry of Economy, Planning and Cooperation	1 st October 2019	To discuss the various financing avenues being tapped for renewable energy in the country and to identify various financing mechanisms adopted by the government	<ul style="list-style-type: none"> • Mr. Babacar NDIAYE, Deputy Director, Economic and Financial Cooperation Department (DCEF), Directorate General for Cooperation and External Financing and Private Sector Development, Ministry of Economy, Planning and Cooperation • Mr. Fadel TRAORE, National Agency for Renewable Energies (ANER) • Mr. Kuljit Singh Popli, Advisor, International Solar Alliance (ISA) • Mr. Prasanta Kumar Mahapatra, Advisor, International Solar Alliance (ISA) • Ms. Aissatou Sonko, Consultant, International Solar Alliance (ISA)



Name of Institution	Date of Meeting	Agenda	Participants
			<ul style="list-style-type: none"> Mr. Paritosh Moghe, Senior Consultant, KPMG on behalf of ISA Mr. Papa Assane Mbengue, Second Counsellor, Embassy of the Republic of Senegal in India
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH	2 nd October 2019	To discuss on the work undertaken by GIZ in Senegal and to identify opportunities for future collaboration between GIZ and ISA	<ul style="list-style-type: none"> Ms. Mireille Afoudji EHEMBA, Responsible for Execution, Energising Development (EnDev), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH Mr. Fadel TRAORE, National Agency for Renewable Energies (ANER) Mr. Kuljit Singh Popli, Advisor, International Solar Alliance (ISA) Mr. Prasanta Kumar Mahapatra, Advisor, International Solar Alliance (ISA) Ms. Aissatou Sonko, Consultant, International Solar Alliance (ISA) Mr. Paritosh Moghe, Senior Consultant, KPMG on behalf of ISA Mr. Papa Assane Mbengue, Second Counsellor, Embassy of the Republic of Senegal in India
Centre de Formations Professionnelles et Techniques (CFPT)	2 nd October 2019	To explore the opportunities of nominating CFPT as an iSTARc centre and to discuss on the various activities being undertaken by the institute	<ul style="list-style-type: none"> Mr. Babacar SECK, Director, Centre de Formations Professionnelles et Techniques (CFPT) Mr. Papa Abdourahmane FOFANA, Coordinator of Electrical Department, Centre de Formations Professionnelles et Techniques (CFPT) Mr. Shinichi MORI, President, International Management Group Mr. Fadel TRAORE, National Agency for Renewable Energies (ANER) Mr. Kuljit Singh Popli, Advisor, International Solar Alliance (ISA) Mr. Prasanta Kumar Mahapatra, Advisor, International Solar Alliance (ISA) Ms. Aissatou Sonko, Consultant, International Solar Alliance (ISA) Mr. Paritosh Moghe, Senior Consultant, KPMG on behalf of ISA Mr. Papa Assane Mbengue, Second Counsellor, Embassy of the Republic of Senegal in India
Ecole Polytechnique, Cheikh Anta Diop University of Dakar	2 nd October 2019	To explore the opportunities of nominating Ecole as an iSTARc centre and to	<ul style="list-style-type: none"> Mr. Papa Alioune Sarr NDIAYE, Director, Ecole Polytechnique Mr. Fadel TRAORE, National Agency for Renewable Energies (ANER)

Name of Institution	Date of Meeting	Agenda	Participants
		discuss on the various activities being undertaken by the institute	<ul style="list-style-type: none"> • Mr. Kuljit Singh Popli, Advisor, International Solar Alliance (ISA) • Mr. Prasanta Kumar Mahapatra, Advisor, International Solar Alliance (ISA) • Ms. Aissatou Sonko, Consultant, International Solar Alliance (ISA) • Mr. Paritosh Moghe, Senior Consultant, KPMG on behalf of ISA • Mr. Papa Assane Mbengue, Second Counsellor, Embassy of the Republic of Senegal in India
The World Bank	2 nd October 2019	To discuss on the work undertaken by World Bank in Senegal and to identify opportunities for future collaboration between World Bank and ISA for financing of solar projects	<ul style="list-style-type: none"> • Mr. Nathan M. Belete, Country Director (Senegal, Cabo Verde, Guinea-Bissau, Mauritania, The Gambia), The World Bank • Mr. Kuljit Singh Popli, Advisor, International Solar Alliance (ISA) • Mr. Prasanta Kumar Mahapatra, Advisor, International Solar Alliance (ISA) • Mr. Paritosh Moghe, Senior Consultant, KPMG on behalf of ISA
Association of Niayes Vegetable Trade Unions (AUMN)	3 rd October 2019	To visit the solar pumping system installed in Cayer and to discuss the various technical aspects of the system for undertaking pre-feasibility analysis	<ul style="list-style-type: none"> • Mr Mamadou Diarra NDIAYE, Coordinator, Association of Niayes Vegetable Trade Unions (AUMN) • Mr. Fadel TRAORE, National Agency for Renewable Energies (ANER) • Mr. Kuljit Singh Popli, Advisor, International Solar Alliance (ISA) • Mr. Prasanta Kumar Mahapatra, Advisor, International Solar Alliance (ISA) • Ms. Aissatou Sonko, Consultant, International Solar Alliance (ISA) • Mr. Paritosh Moghe, Senior Consultant, KPMG on behalf of ISA • Mr. Papa Assane Mbengue, Second Counsellor, Embassy of the Republic of Senegal in India
Ministry of Employment, Vocational Training and Crafts (MFPA)	3 rd October 2019	To sensitize the Ministry about the various capacity building initiatives being undertaken by ISA and to explore the areas of support that ISA	<ul style="list-style-type: none"> • Mr. Mouhamadou Moustapha THIONE, Secretary General, Ministry of Employment, Vocational Training and Crafts (MFPA) • Mr. Fadel TRAORE, National Agency for Renewable Energies (ANER) • Mr. Kuljit Singh Popli, Advisor, International Solar Alliance (ISA)




Name of Institution	Date of Meeting	Agenda	Participants
		can provide to the Ministry	<ul style="list-style-type: none"> Mr. Prasanta Kumar Mahapatra, Advisor, International Solar Alliance (ISA) Ms. Aissatou Sonko, Consultant, International Solar Alliance (ISA) Mr. Paritosh Moghe, Senior Consultant, KPMG on behalf of ISA Mr. Papa Assane Mbengue, Second Counsellor, Embassy of the Republic of Senegal in India
United Nations Development Programme (UNDP)	4 th October 2019	To discuss on the work undertaken by UNDP in Senegal and to identify opportunities for future collaboration between UNDP and ISA	<ul style="list-style-type: none"> Ms. Ndeye Fatou Diaw GUENE, Team Leader Environment and Climate Change, United Nations Development Programme (UNDP) Mr. Fadel TRAORE, National Agency for Renewable Energies (ANER) Mr. Kuljit Singh Popli, Advisor, International Solar Alliance (ISA) Mr. Prasanta Kumar Mahapatra, Advisor, International Solar Alliance (ISA) Ms. Aissatou Sonko, Consultant, International Solar Alliance (ISA) Mr. Paritosh Moghe, Senior Consultant, KPMG on behalf of ISA Mr. Papa Assane Mbengue, Second Counsellor, Embassy of the Republic of Senegal in India
United States Agency for International Development (USAID)	4 th October 2019	To discuss on the work undertaken by USAID in Senegal and to identify opportunities for future collaboration between USAID and ISA	<ul style="list-style-type: none"> Ms. Cheryl Voisard, Power Africa, Team Leader, United States Agency for International Development (USAID) Dr. Oumou Kouloum Ly, Environment Specialist, United States Agency for International Development (USAID) Mr. Fadel TRAORE, National Agency for Renewable Energies (ANER) Mr. Kuljit Singh Popli, Advisor, International Solar Alliance (ISA) Mr. Prasanta Kumar Mahapatra, Advisor, International Solar Alliance (ISA) Ms. Aissatou Sonko, Consultant, International Solar Alliance (ISA) Mr. Paritosh Moghe, Senior Consultant, KPMG on behalf of ISA Mr. Papa Assane Mbengue, Second Counsellor, Embassy of the Republic of Senegal in India
Ministry of Fisheries and Maritime Economy	4 th October 2019	To discuss on the possibility of integration of solar solutions in the	<ul style="list-style-type: none"> Madame Aminata MBENGUE NDIAYE, Hon'ble Minister, Ministry of Fisheries and Maritime Economy Mr. Fadel TRAORE, National Agency for Renewable Energies (ANER)






Name of Institution	Date of Meeting	Agenda	Participants
		fisheries sector and required support areas for the Ministry	<ul style="list-style-type: none"> • Mr. Papa Assane Mbengue, Second Counsellor, Embassy of the Republic of Senegal in India • Mr. Kuljit Singh Popli, Advisor, International Solar Alliance (ISA) • Mr. Prasanta Kumar Mahapatra, Advisor, International Solar Alliance (ISA) • Ms. Aissatou Sonko, Consultant, International Solar Alliance (ISA) • Mr. Paritosh Moghe, Senior Consultant, KPMG on behalf of ISA

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