

ISA ANNUAL REPORT 2019

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FOREWORD



Climate change is unequivocal. Global energy transition efforts need to scale up tremendously to avoid the catastrophic impacts of climate change. Much work also remains to be done to ensure sustainable and affordable energy for all. By 2030, 650 million people are likely to be without clean electricity. With an authoritative global perspective on solar energy, the International Solar Alliance (ISA) has emerged as an effective multilateral organization to support the achievement of universal energy access (SDG7) and to facilitate the implementation of mitigation actions under the Paris Agreement (SDG 13).

Collective action by the ISA has provided an effective and equitable response to these global challenges by offering cost-effective solar energy solutions, leaving behind fossil fuel-based energy production.

The year 2019 was remarkable. The ISA, with 57 member countries, fully operationalized its governance structure. The ISA has eight governing committees to shape the strategic direction of the organization and provide operational guidance. Through its programmes, the ISA supports member countries on policy, regulatory and technical issues, project preparation, and mobilization of funds for solar energy projects.

Responding to the demand from member countries, the ISA has strengthened the four key elements of its network-based business model. It has leveraged its strategic partnership with the UN, Multilateral Development Banks (MDBs), Development Finance Institutions (DFIs), international and regional organizations and foundations, and private sector players.

The ISA's business model comprises four parts. First, the role of an 'enabler' by institutionalizing fellowships for the training of trainers in order to create a ready and skilled workforce. Second, the role of a 'facilitator' by arranging lines of credit worth two billion from the EXIM Bank of India and 1.5 billion from AFD, France, by ensuring MDB investments in solar, and by garnering project preparation support. Third, it functions as an 'incubator' by nurturing initiatives such as the Solar Risk Mitigation Initiative (SRMI).



Fourth, the ISA's role is that of an 'accelerator' that develops tools to aggregate demand for 1000 MW solar roof-tops and 270,000 solar water pumps – in short, a new pipeline of solar projects worth USD 5 billion. Working on the principles of economies of scale, the ISA has launched a global price tender for solar water pumps – the first of its kind – to discover the lowest price for the best quality possible for member countries.

Global solar investment has seen a transformational increase. The average global investment for the past three years in solar energy was about USD 150 billion but concentrated largely in 10 countries. The ISA is working towards providing a roadmap to mobilize USD 1,000 billion in solar investments by 2030. The investment roadmap will provide for more equitable, affordable, and reliable solar energy for all and address the challenges of energy access and climate mitigation.

Recently, the ISA launched the SRMI in partnership with the World Bank-Energy Sector Management Assistance Programme (ESMAP), the Agence Française de Développement (AFD), and the International Renewable Energy Agency (IRENA) at the UN SG Climate Actions Summit. The SRMI will unlock a large amount of private funding to complement the limited public financing available, tackle the critical risks perceived by the private sector, while also minimizing the public sector risk.

Through its extensive outreach programme, the ISA also galvanized the global community, bilateral and multilateral organizations, corporates, industry, and stakeholders to make a positive contribution to the common goal: spreading the use of solar energy in meeting energy needs in the pursuit of sustainable development, energy access, energy security, and low-carbon economic growth and prosperity.

The ISA has made concerted efforts to build capacity through the ISA STAR-C programme, the ITEC Master Trainers Programme, and the fellowship scheme to help member countries create a skilled workforce to deploy solar energy applications on a large scale and spur research, development, innovation, standardization and testing.

With its impressive start, the ISA is uniquely positioned as an effective global platform for supporting member countries for the widespread adoption and use of solar energy as the primary source of energy. This will help the global community to address the twin challenges of achieving universal energy access and effectively addressing climate change by 2030.

Let us all make the sun shine brighter!

Upendra Tripathy
Director General



MISSION AND VISION

According to the IEA World Energy Outlook 2018, last year, for the first time ever, the total number of people without access to electricity fell below 1 billion. Despite all of this progress and success, the world still remains off-track in its efforts to achieve Sustainable Development Goal (SDG) 7.1 to ensure universal access to affordable, reliable and modern energy services by 2030. Solar energy is registering fast and steady growth in ISA Member countries. However, this growth has been associated with some issues related to solar energy deployment and manufacturing ecosystem. ISA's vision is to provide a dedicated platform for cooperation among countries to achieve the common goals of increasing the use of solar power to meet their energy needs in a safe, affordable, equitable and sustainable manner. ISA aims to make solar energy available 24×7 at near-zero cost to all.

The ISA's membership has been limited to countries located fully or partially between the Tropic of Cancer and the Tropic of Capricorn; however, for a more inclusive global solar revolution, in 2018, the First Assembly of the ISA approved an amendment to the ISA treaty, the Framework Agreement on the Establishment of the International Solar Alliance to expand membership to all UN Member countries. As of 28 September 2019, this amendment has not yet been implemented.



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ISA aims to make solar energy available 24×7 at near-zero cost to all.

ISA's mission is to:

Recall the Paris Declaration on the ISA of 30 November 2015 and the shared ambition to undertake joint efforts required to reduce the cost of finance and technology, mobilise more than USD 1,000 billion of investments needed by 2030 for the massive deployment of solar energy, and pave the way for future technologies;

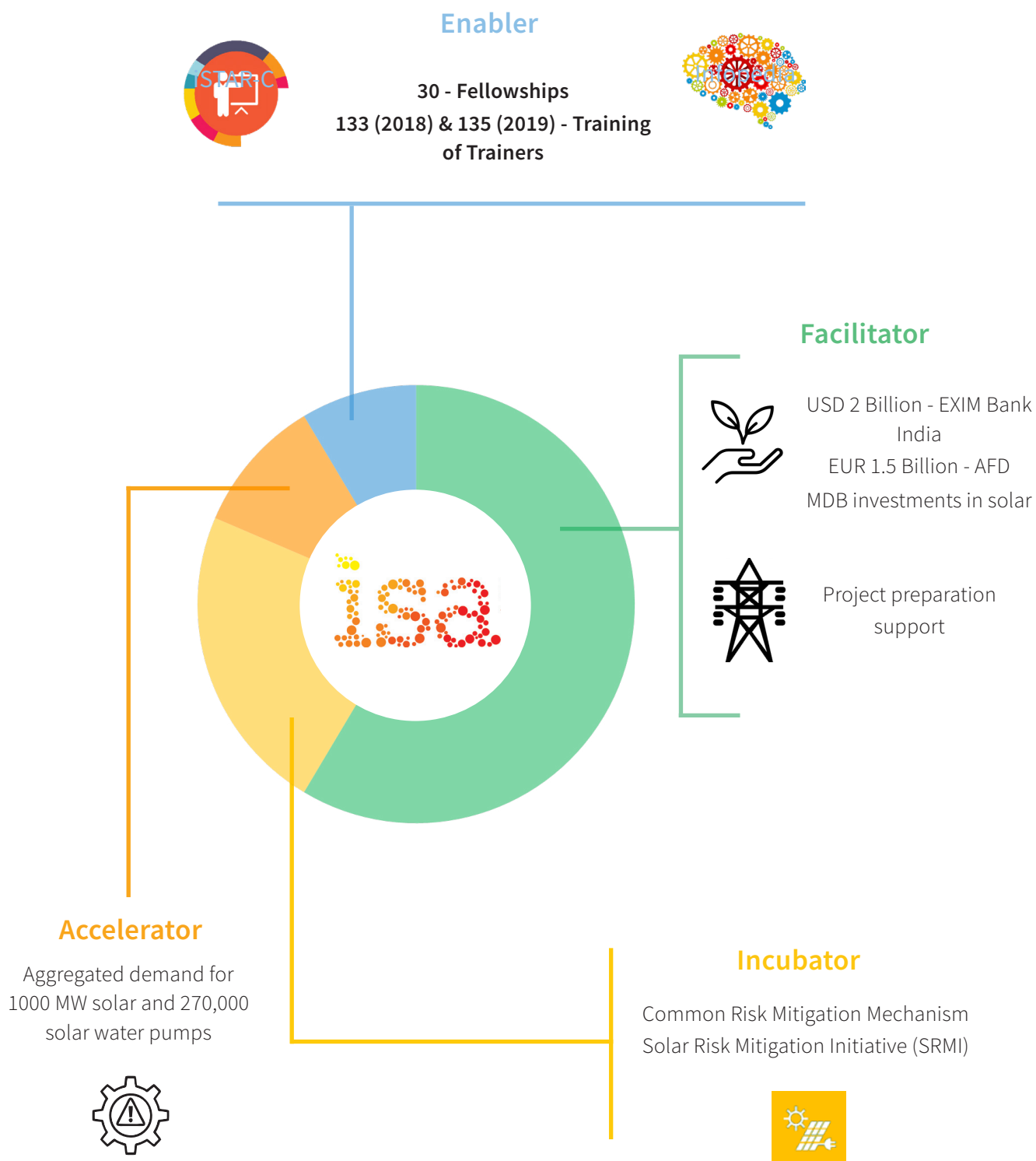
Recognise that solar energy provides countries with an unprecedented opportunity to bring prosperity, energy security and sustainable development to their people;

Acknowledge the specific and common obstacles that still stand in the way of the rapid and massive scale-up of solar energy in these countries;

Affirm that these obstacles can be addressed if countries act in a coordinated manner, with strong political resolve, and that better harmonising and aggregating the demand for, inter alia, solar finance, technologies, innovation or capacity building across countries, will provide a strong lever to lower costs, increase quality, and bring reliable and affordable solar energy within the reach of all; and

Unite in the desire to establish an effective mechanism of coordination and decision-making among them.

BUSINESS MODEL OF ISA



ISA MEMBER COUNTRIES

As of 30 September 2019, the ISA Framework Agreement has been signed by 79 countries, while 57 countries have also ratified it. Of these, 12 countries have ratified the amended Framework Agreement of ISA.

List of countries which have signed the Framework Agreement of ISA

1. Republic of France
2. Republic of Nauru
3. Mauritius
4. Republic of India
5. Tuvalu
6. Republic of Niger
7. Republic of Fiji
8. Republic of Ghana
9. Republic of Seychelles
10. Republic of South Sudan
11. Federal Republic of Somalia
12. People's Republic of Bangladesh
13. Republic of Mali
14. Union Des Comoros
15. Republic of Guinea
16. Republic of Malawi
17. Commonwealth of Australia
18. Republic of Peru
19. Republic of Togo
20. Cooperative Republic of Guyana
21. Sri Lanka
22. Republic of Cuba
23. Republic of Uganda
24. Republic of Gabon
25. Republic of the Sudan
26. United Arab Emirates
27. Republic of Rwanda
28. Burkina Faso
29. Bolivarian Republic of Venezuela
30. Commonwealth of Dominica
31. Republic of Côte d'Ivoire
32. Grenada
33. Suriname
34. Republic of Namibia
35. Republic of Benin
36. Republic of Madagascar
37. Republic of Chad
38. Republic of Senegal
39. Republic of Djibouti
40. Independent State of Papua New Guinea
41. Republic of Union of Myanmar
42. Kingdom of Tonga
43. Republic of Vanuatu
44. Republic of Kiribati
45. Sao Tome and Principe
46. Democratic Republic of The Congo
47. Republic of Cameroon
48. Japan
49. Equatorial Guinea
50. Ethiopia
51. Burundi
52. Egypt
53. United Kingdom
54. Netherlands
55. Mozambique
56. Algeria
57. Brazil
58. Cambodia

59. Chile
60. Costa Rica
61. Dominican Republic
62. El Salvador
63. Gambia
64. Guinea-Bissau
65. Liberia
66. Nigeria
67. Tanzania
68. Yemen
69. Zambia
70. Zimbabwe
71. Maldives
72. Bolivia
73. Saudi Arabia
74. Argentina
75. Cabo Verde
76. Palau
77. Haiti
78. Paraguay
79. St. Vincent and Grenadines

List of countries which have ratified the Framework Agreement of ISA

1. Republic of France
2. Republic of Nauru
3. Republic of Mauritius
4. Republic of India
5. Tuvalu
6. Republic of Niger
7. Republic of Fiji
8. Republic of Ghana
9. Republic of Seychelles
10. Republic of South Sudan
11. Federal Republic of Somalia
12. People's Republic

- of Bangladesh
13. Republic of Mali
14. Union Des Comoros
15. Republic of Guinea
16. Republic of Malawi
17. Commonwealth of Australia
18. Republic of Peru
19. Republic of Togo
20. Cooperative Republic of Guyana
21. Democratic Socialist Republic of Sri Lanka
22. Republic of Cuba
23. Republic of Uganda
24. Republic of Gabon
25. Republic of the Sudan
26. United Arab Emirates
27. Republic of Rwanda
28. Burkina Faso
29. Bolivarian Republic of Venezuela
30. Commonwealth of Dominica
31. Republic of Côte d'Ivoire
32. Grenada
33. Suriname
34. Republic of Namibia
35. Republic of Benin
36. Republic of Madagascar
37. Republic of Chad
38. Republic of Senegal
39. Republic of Djibouti
40. Independent State

- of Papua New Guinea
41. Republic of Union of Myanmar
42. Kingdom of Tonga
43. Republic of Vanuatu
44. Republic of Kiribati
45. Sao Tome and Principe
46. Democratic Republic of The Congo
47. Republic of Cameroon
48. Japan
49. Equatorial Guinea
50. Ethiopia
51. Burundi
52. Egypt
53. United Kingdom
54. Netherlands
55. Mozambique
56. Republic of Maldives
57. Haiti

List of countries which have ratified the amended Framework Agreement of ISA

1. Commonwealth of Dominica
2. Ethiopia
3. Niger
4. Mauritius
5. Togolese Republic
6. Grenada
7. Sri Lanka
8. India
9. France
10. Ghana
11. Papua New Guinea
12. Haiti

GOVERNANCE STRUCTURE AND LEADERSHIP

The ISA is supported in its efforts by eight Committees – the Standing Committee, the ‘thematic’ Committees (the Finance, General and Legal and Programme Committees) and the Regional Committees (for Africa, Asia and the Pacific, Europe and Others, and the Latin America and the Caribbean regions respectively) – established by the First Assembly in October 2018. The mandates of these Committees are set out in the provisional Rules of Procedure.

Members of the Standing Committee[#]



● **President**
India



● **Co-President**
France



● **Vice-President – Africa region**
Togo



● **Additional Member – Africa region**
Niger



● **Vice-President – Asia and the Pacific region**
Tonga



● **Additional Member – Asia and the Pacific region**
Sri Lanka



● **Vice President – Europe and Others***



● **Additional Member – Europe and Others***



● **Vice-President – Latin America and the Caribbean region**
Peru



● **Additional Member – Latin America and the Caribbean region**
Venezuela

Members of the Programme Committee



● **Chair**
Comoros



● **Vice-Chair**
Suriname



● **Member**
Mali



● **Member**
Papua New Guinea



● **Member**
Suriname

^{*}Not filled at this time due to an insufficient number of members in this region

Members of the Finance Committee[#]



Chair
Fiji



Vice-Chair
Guyana



Member
Ghana



Member
Nauru



Member
Niger

Members of the General and Legal Committee[#]



Chair
Australia



Vice-Chair
Somalia



Member
Bangladesh



Member
Seychelles



Member
Venezuela

Members of the African Regional Committee



Chair
Togo



Vice-Chair
Ghana



Member
Niger

Members of the Asia and the Pacific Regional Committee



Chair
Tonga



Vice-Chair
Sri Lanka



Member
Kiribati

Members of the Latin America and the Caribbean Regional Committee



Chair
Peru



Vice-Chair
To be settled



Member
Venezuela



Additional Member
To be settled

As at 28 September 2019, the following Committee meetings have taken place:

- Standing Committee – 30 July 2019
- Finance Committee – 6 September 2019
- General and Legal Committee – 11 September 2019
- Programme Committee – 2 September 2019.

[#] Membership of the Committees are provisional and subject to approval by the Assembly at its next session.

ISA JOURNEY AND KEY ACHIEVEMENTS

First Assembly of the ISA was held on 3 October 2018 in India, where Upendra Tripathy was appointed the Director General of ISA.

India's proposal to expand ISA membership to all UN member countries was approved by the Assembly.

Financial contributions to the Corpus Fund of USD 1 million each were received from Coal India Limited, the Power Finance Corporation, and the India Trade Promotion Organisation.

The Assembly granted Partner country status to Afghanistan, Lesotho, Spain, Tajikistan and Tunisia, and granted Partner Organisation status to 9 organisations.



OCTOBER 2018

NOVEMBER 2018



Commitments were given by Tata Power, Philips, and Schneider Electric to provide training material, equipment, and personnel for the ISA STAR-C centres.

ISA's Fellowship programme was launched during the 16th ISA SUN Meet, held at Lucknow, Uttar Pradesh, India.

ISA participated in the COP24 in Katowice, Poland, at which the World Bank and the French Development Agency launched the Solar Risk Mitigation Initiative (SRMI).

MoUs were signed at COP24 with the Global Off-Grid Lighting Association (GOGLA), the World Resources Institute, and the Development Bank of Latin America (CAF) along with the signature of a Joint Declaration with the EU Commission.

ISA admitted as an observer to the Conference of the Parties of the UN Framework Convention on Climate Change.



DECEMBER 2018

MONTHLY GLIMPSES



ISA participated at the World Future Energy Summit, 2019 at Abu Dhabi, where panel discussions were conducted on solar water pumps, capacity building, e-mobility and rooftop solar deployment.

Piyush Goyal, Union Minister for Railways, Government of India donated the entire funds of USD 25,000 from his Carnot Prize 2018 to ISA to institute an award for organisations working with children with special needs and the ones maximising use of solar energy.

JANUARY 2019

FEBRUARY 2019

Argentina and Saudi Arabia became the 72nd and 73rd signatories of the Framework Agreement.



Emmanuel Macron, the President of France, announced during the high level session at the One Planet Summit in Kenya that the country will commit an additional EUR 500 million to the ISA, totaling EUR 1.5 Billion contribution.

United Nations Technical Assistance Mission visited ISA Secretariat to hold discussions regarding enhanced future UN support to the ISA.

MARCH 2019

MONTHLY GLIMPSES

MAY 2019

Arab Republic of Egypt became the 52nd Member of the ISA, and Bolivia and the Republic of the Maldives become the 74th and 75th countries respectively to sign the Framework Agreement.

ISA participated in the World Bank facilitated interaction with the delegates from Bangladesh, the Maldives and Sri Lanka to explore opportunities to work together in the solar space in the future.



APRIL 2019



ISA welcomed the United Kingdom as the 53rd member of the ISA.

The 21st SUN Meet of ISA was organised in the form of a study tour to 2 GW Pavagada Solar Park in Karnataka, the world's first airport to fully operate on solar power in Cochin and a solar-operated ferry in Kottayam in Kerala for experiential learning.

A side event on solar investment called "ISA - The Trillion Dollar Opportunity" was conducted at the 75th session of the Economic and Social Commission for Asia and the Pacific in Bangkok.

ISA and Sustainable Energy for All (SEforALL) signed a partnership agreement.

ISA's Mission Brussels was organised to identify concrete areas of cooperation and support and to implement the MoU between the ISA and the EU Commission.

ISA Secretariat organised a MDBs & DFIs Mission which witnessed participation from various financial and consulting organisations.

West Africa Mission was launched by ISA Secretariat and an expert team visit was conducted to Uganda for the promotion of solar projects.



JUNE 2019



Republic of Palau became the 76th signatory of the ISA Framework Document.

The ISA Standing Committee held its first meeting in New Delhi on 30 July 2019.

UK Government Communications Service International (GCSI) and DFID held a scoping visit in July 2019 to enhance ISA's communications function.

ISA Mission in Benin was formulated to create awareness, aggregate demand for solar power deployment and enable capacity building.

21 candidates were selected for the ISA Mid – Career Fellowship programme and the course has begun from 22 July 2019 onwards.

JULY 2019

AUGUST 2019

An expert level visit was organised to Niger to analyse the future course of action for different stakeholders to scale up solar applications in Niger.

The ISA Solar Cooling Initiative was launched in New Delhi, which will combine the uptake of solar energy with the adaptation of super-efficient cooling technologies in ISA Member countries.



SEPTEMBER 2019



France's Agence Française de Développement (AFD) and the Netherlands pledged USD 100 million to the SRMI, with USD 44 million committed by the Dutch government and USD 55 million by the AFD.

The first meetings of the Programme, Finance and General and Legal Committees of the ISA were held on 2, 6 and 11 September 2019 respectively.

The number of countries who have ratified the Framework Agreement has reached 57, while the signatories of the Framework Agreement has increased to 79. In addition, 12 countries have accepted the amendment to the Framework Agreement.

ISA PROGRAMMES

The ISA has developed, with varying levels of member country participation, four technical programmes – scaling solar applications for agriculture use, scaling solar minigrids, scaling rooftop solar, and scaling solar e-mobility and storage – and three cross-cutting programmes: affordable finance at scale, infopedia / communication, STAR-C programme on capacity-building, standardization and research.

At the programme level, different business models are being identified and assessed and are being adapted to suit country specific contexts. These programmes and the related projects and activities are being implemented through member states, the private sector and other partners, including UN agencies, Multilateral Development Banks (MDBs) and Development Finance Institution (DFIs) active at the country level.

Programme participation by member countries

ISA programme	Total participation	Member countries
Programme: Scaling Solar Applications for Agricultural Use	28	Bangladesh; Benin; Djibouti; Ethiopia; Fiji; France; Gabon; Ghana; Guinea-Bissau; Guyana; India; Madagascar; Malawi; Mali; Mauritius; Nigeria; Niger; Rwanda; Senegal; Seychelles; Somalia; Sudan; Togolese; Tuvalu; Uganda; Kiribati; Tonga; Vanuatu
Programme: Affordable Finance at Scale	31	Bangladesh; Benin; Burundi; Burkina-Faso; Chad; D R Congo; Ethiopia; France; Ghana; Guinea-Bissau; Guyana; India; Liberia; Madagascar; Malawi; Mali; Namibia; Nauru; Nigeria; Niger; Senegal; Seychells; Somalia; Sri Lanka; Togolese; Tuvalu; Uganda; Kiribati; Tonga; Vanuatu; Yemen
Programme: Scaling Solar Minigrids	28	Bangladesh; Benin; Burundi; Burkina-Faso; Chad; D R Congo; Djibouti; Ghana; Guinea; Guinea-Bissau; Guyana; India; Liberia; Madagascar; Malawi; Mali; Nauru; Nigeria; Niger; Senegal; Somalia; Sudan; Togolese; Tuvalu; Kiribati; Tanzania Tonga; Vanuatu
Programme: Scaling Solar Rooftop	18	Benin; Burundi Djibouti; Ghana; Guinea-Bissau; Guyana; Madagascar; Liberia; Malawi; Mali; Nauru; Niger; Senegal; Seychelles; Togolese; Kiribati; Tonga; Vanuatu
Programme: Scaling Solar E-mobility and Storage	13	Burundi; Djibouti; Guinea-Bissau; Guyana; Mali; Nauru; Senegal; Seychelles; Togolese; Tuvalu; Kiribati; Tonga; Vanuatu

PROGRAMME: SCALING SOLAR APPLICATION FOR AGRICULTURAL USE

The ISA's Programme on scaling solar application for agriculture use focuses on providing greater energy access and a sustainable irrigation solution to farmers through deployment of solar water pumping systems in member countries. To make the projects viable and affordable, the ISA has aggregated demand from various countries in an effort to substantially reduce the system costs.

Till date, the ISA has received a cumulative demand of approximately 0.27 million solar water pumping systems spread out across 22 member countries.

ISA's aggregation model: The ISA Secretariat floated an international competitive bid in May 2019 for design, testing, manufacturing, supply, installation, commissioning, and maintenance services for solar water pumps in ISA member countries. Energy Efficiency Services Limited (EESL), a Government of India enterprise, is providing its services for conducting this bid and for project management consultancy on behalf of ISA. The price discovered through this bid will be offered to all concerned countries for acceptance and will serve as reference price for procuring pumps. This demand aggregation model for large volumes of solar water pumps is expected to discover lower prices than current prevailing prices.

ISA country missions: The ISA Secretariat, supported by KMPG, recently concluded country missions to the countries of Mali, Togo, Benin and Uganda (with a cumulative demand of more than 100,000 solar water pumping systems) to get a 'buy-in' for ISA's programmes and to understand the ground level challenges. During ISA's country missions, extensive stakeholder consultations were held. While there was a general consensus on the utility of solar water pumping systems in enabling better energy access and reliable irrigation, the lack of affordable financing emerged as a major challenge to the adoption of technology.

ISA solar cooling initiative: The ISA is taking this initiative to help member countries to develop solar energy linked cooling systems for agricultural uses. The ISA solar cooling initiative (I-SCI) is assisting in the development of innovative financial and business models, encouraging energy efficient solar cooling technologies, mobilising finance after assessing and aggregating, promoting knowledge dissemination, and working with stakeholders to create a ready skilled workforce. For I-SCI, knowledge support is being provided by the National Centre for Cold-Chain Development (NCCD), and research and academic support by the University of Birmingham, UK.

As a contribution to the ISA First programme, the French National Institute of Solar Energy (INES) developed two guidebooks on stand-alone solar streetlights and on decentralised solar applications to provide practical recommendations, deemed most relevant for the good conduct of such projects, to the ISA member countries. These recommendations are gathered in successive chapters consistent with the different phases of a project, from initial need assessment to final operation and impact evaluation, through the key stages of financing and realization. Both guides aim at giving everyone the opportunity to seize consistently recognised practices, without treating them as universal because adaptation may be necessary depending on the conditions and the local environment.



PROGRAMME: AFFORDABLE FINANCE AT SCALE

1) Innovative financing instruments: The Solar Risk Mitigation Initiative (SRMI), launched at the COP24 by the World Bank and the Agence Française de Développement (AFD) in support of the ISA aims at supporting the development of bankable solar programs in developing countries leveraging private sector investments.

In September 2019, AFD and the Netherlands pledged USD 100 million to the SRMI which will provide support to countries in Sub-Saharan Africa which have some of the world's largest gaps in electricity access. The Dutch government committed USD 44 million to the Regional Off-Grid Electrification Project (ROGEP) in the Sahel while the French government's USD 55 million will provide private investors with guarantees for smaller solar projects in Sub-Saharan Africa through the Africa Trade Insurance Agency. The World Bank has also committed a USD 337 million risk mitigation fund for 23 member countries for the offgrid sector in Sub-Saharan Africa under the ROGEP.

Scaled-up and low-cost financing for solar investments: The Export Import Bank of India (EXIM Bank) has committed to provide financing for solar projects worth USD 1.4 billion. AFD has committed to provide financing for 44 solar projects in 25 countries worth EUR 900 million.

2) Technical assistance for project preparation: The Asian Development Bank has approved a technical assistance program of USD 2 million for ISA member countries in South Asia. These funds would primarily be used to support solar project preparations.

3) The Lomé initiative

In Lomé on 23 and 24 August 2018, an initial group of 6 pilot countries - Benin, Burkina Faso, Gabon, Mali, Niger and Togo - launched an initiative to accelerate the implementation of optimal collective regulatory obligations that will facilitate the aggregation and processing of funding requirements.

This initiative is an answer to the call for the establishment of a regulatory framework to leverage investments in projects that promote solar energy made during the ISA Founding Summit on 11 March 2018. This initiative is part of the programme "Affordable finance at scale" and is intended to rally all interested member countries. As such, the pilot countries sought support from India, France and the ISA Secretariat in carrying out a study on the feasibility of setting up a common regulatory and contractual framework. In June 2019, Ernst and Young was commissioned by the French Development Agency (AFD) to do so. The consultants visited Togo and organised a two-day workshop in Ouagadougou, Burkina Faso (24-25 September 2019) to understand the needs of the countries and assess their existing regulatory and contractual framework. The participating countries would like to present the interim report of the feasibility study during the Second Assembly as this initiative might be inspirational to others to join or create a similar initiative in their region.

4) Develop solar energy financing roadmap: To strengthen ISA's partnership with the MDBs and DFIs and develop a financing roadmap for mobilising USD 1,000 billion by 2030, a joint mission by the MDBs and DFIs was received at the ISA secretariat, supported by Ernst and Young from 12-14 June 2019. Various leading global consulting and research firms also participated actively in the joint mission.



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As of August 2019, the ISA has received a demand of 64.39 MW of solar minigrids spread across eight countries through its aggregation efforts.

PROGRAMME: SCALING SOLAR MINIGRIDS

The ISA organised its first field visit for diplomatic missions in India on 26 December 2018, which saw participation from 36 member countries. The delegation visited two solar minigrid plants, both operated by OMC Power and supported by the Smart Power Rural Development programme of the Rockefeller Foundation. The delegation also visited a petrol pump, an e-government kiosk, and a bank – all run on solar minigrid systems. The ISA secretariat has also drafted and circulated a Model Minigrid Policy to national focal points. The ISA Secretariat is being supported by Deloitte to develop a robust implementation plan for the minigrids programme.

PROGRAMME: SCALING SOLAR ROOFTOP

Project preparation support and country missions:

The ISA Secretariat has been working with officials of Peru and Ghana to provide technical support for preparation of rooftop projects.

The ISA Secretariat has proposed missions in India for rooftop solar development under the RESCO Model and has also requested member countries to consider installing rooftop solar in their embassy premises. Fiji, Gambia, Ghana, Sudan, Uganda and Zambia have agreed to do so.

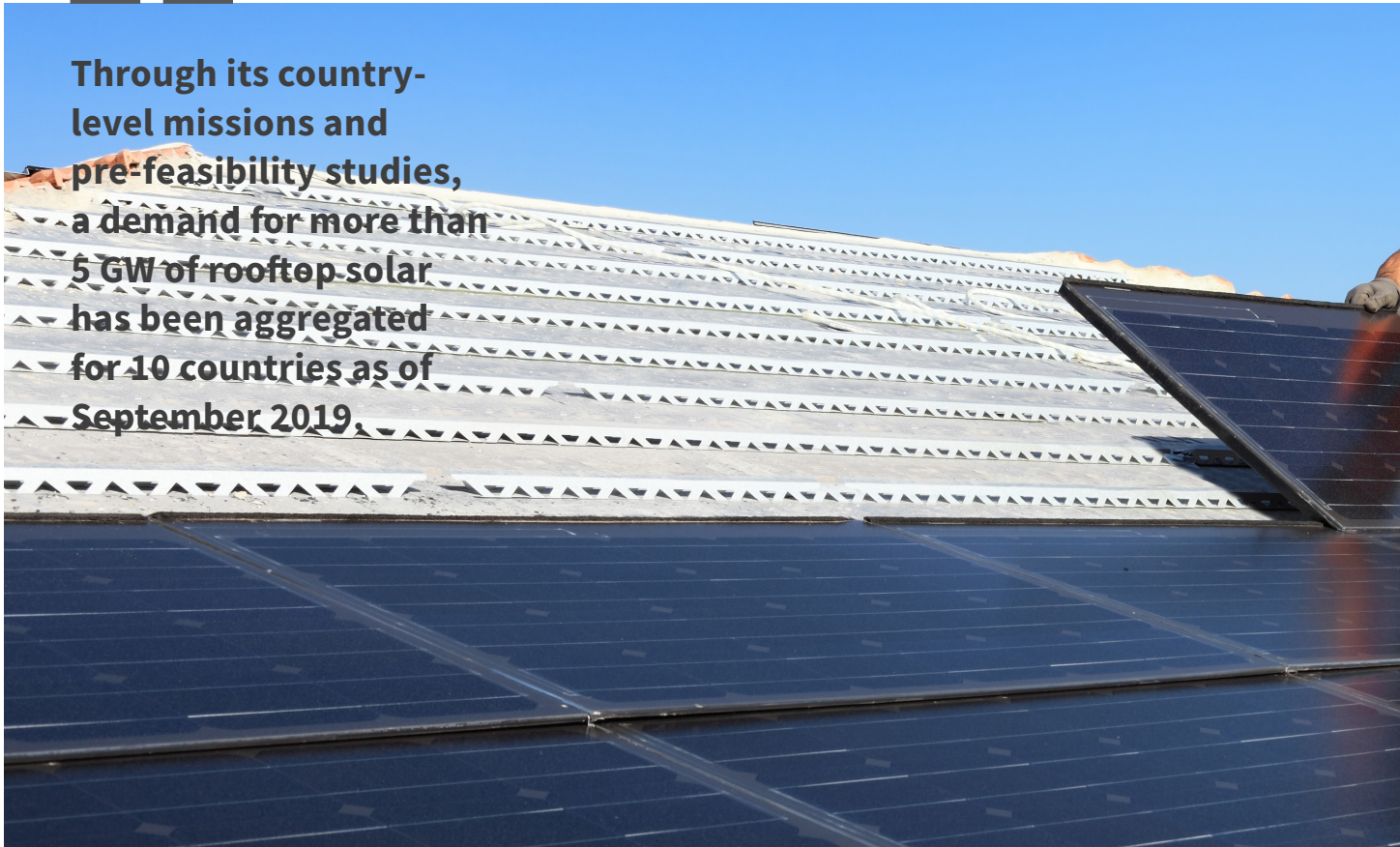
The ISA Secretariat, supported by PwC, is preparing country assessment reports on scaling rooftop solar for select countries. As part of the ISA mission, the expert

teams have visited Uganda, Mali, Togo, Niger and Benin.

Sharing of best practices and business models: The best practices manual for the implementation of the state level rooftop solar programme in India was developed under USAID PACE-D TA Programme in co-operation with the Gujarat Energy Research and Management Institute (GERMI), and was uploaded in June 2019 on the ISA website and shared with member countries for knowledge dissemination. The relevant documents of the Madhya Pradesh RESCO tender for implementation of 25 MW of solar rooftop on industries were shared with stakeholders and discussions on the same were held through live webcast of the proceedings.

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Through its country-level missions and pre-feasibility studies, a demand for more than 5 GW of rooftop solar has been aggregated for 10 countries as of September 2019.



PROGRAMME: SCALING SOLAR E-MOBILITY & STORAGE

As a structural base to start implementing the programme, the ISA Secretariat has launched two studies:

a) An assessment of the member countries' capacities and needs on solar electric mobility and storage:

In July 2019, a questionnaire was circulated to the member countries and the ISA partners to better assess the needs and areas of opportunities regarding solar e-mobility, energy storage and charging infrastructure along with the policies in place that help promote and develop them.

b) A benchmarking of the existing technologies and projects on solar e-mobility, solar powered charging infrastructure and storage systems:

The scope of this study is analysing existing and developing solar e-mobility, energy storage, and charging infrastructure in all UN countries.

Both the International Energy Agency and the UN

Environment Programme have shown interest in the studies since it will be a way to further corroborate their projections and the results presented in their annual reports. Moreover, they could use the results to implement pilot projects. They have agreed to review the results as this document would be the first of this kind, putting an emphasis in how e-mobility and energy storage can be coupled with solar energy to up-scale its deployment.

The preliminary results were presented during the European PV Solar Energy Conference and Exhibition, held in Marseille, France, on 12 September 2019. The final report will be presented to the Member countries during ISA's Second Assembly in October 2019 showcasing the results and proposing recommendations to the Members to decide on the next steps for the implementation of the 5th programme.



DEMAND AGGREGATION

ISA's aggregation model

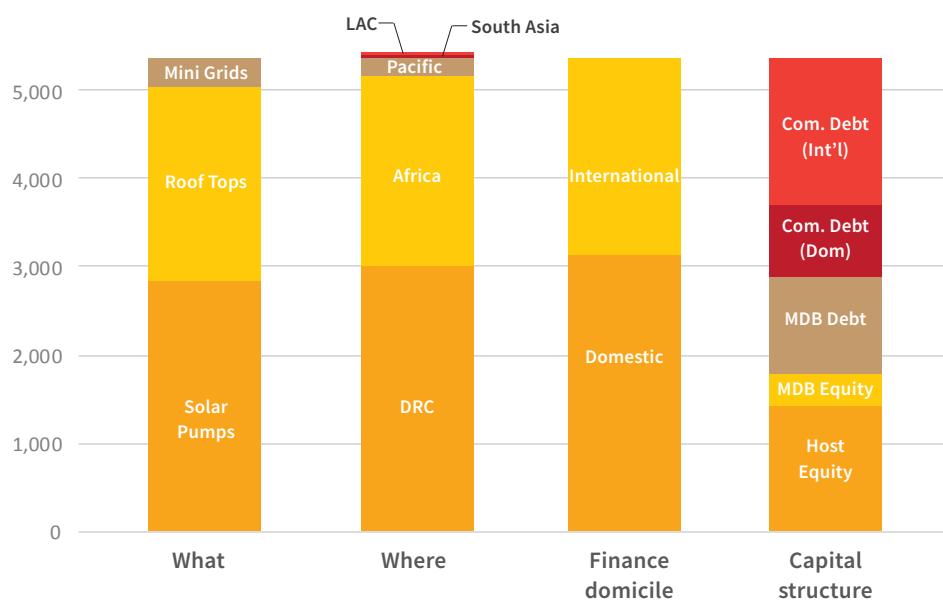
Following the successful experience of the aggregation model for procuring LEDs lights in India, the ISA Secretariat has undertaken a similar demand aggregation model for the installation of solar water pumps in its member countries. With the help of demand aggregation, the price discovered of the solar water pumps in member countries is expected to be lower than the current price. A similar demand aggregation model is being undertaken for solar rooftop projects and minigrids.

Demand aggregation of solar projects in member countries

Region	Member country	Solar pumps	Street lights	Minigrids (MW)	Rooftop solar (MW)		
					Government	Industrial	Commercial
Africa	Benin	50,000	-	-	-	-	-
	Cape Verde	100	-	-	1.39	1.15	2
	Comoros	-	-	-	-	-	-
	DR Congo	80,000	-	-	-	-	-
	Djibouti	100	-	-	-	-	-
	Guinea	-	-	-	1	-	-
	Malawi	-	-	2.80	2.65	-	-
	Mali	15,000	36,123	4.60	4	-	-
	Mauritius	27	-	-	-	-	-
	Niger	15,000	-	-	-	-	-
	Senegal	4,000	-	-	-	-	-
	Somalia	500	-	-	-	-	-
	South Sudan	6,800	-	-	-	-	-
	Sudan	50,000	-	46.042	4.365	-	-
	Togo	5,000	-	-	-	-	-
	Tonga	258	3,300	1.008	0.50	0.30	0.20
	Uganda	30,000	-	-	-	-	-
	Guinea-Bissau	-	-	5	4.50	1.50	0.50
	Zambia	6	-	-	-	-	-
	Region total	256,791	39,423	59.45	18.405	2.95	2.70
Asia & the Pacific	Bangladesh	-	-	-	-	-	-
	Fiji	27	-	-	-	-	-
	India	-	-	-	-	-	-
	Nauru	400	-	1.20	-	1	-
	Sri Lanka	2,000	0.25	3.73	-	-	-
	Tuvalu	10,000	10,000	-	5,000	-	-
	Yemen	1,500	-	-	-	-	-
	Region total	13,927	10,000.25	4.93	5,000	1	-
Latin America and the Caribbean	Cuba	-	-	0.0094	0.004	0.0068	-
	Guyana	111	-	-	-	-	-
	Peru	1,750	-	-	-	-	-
	Region total	1,861	-	0.0094	0.004	0.0068	-
Total		272,579	49,423.25	64.39	5,018.41	3.96	2.7

The ISA member countries have submitted their off-grid procurement needs for consolidated procurement. An initial value of USD 5.1 billion is assessed for a pipeline of off-grid and distributed solar energy across 24 countries. Solar pumps account for the majority of the pipeline – assessed at USD 2.7 billion. Seven countries (Benin, DRC, Mali, Niger, Sudan, Tuvalu, and Uganda) have potential orders in excess of USD 100 million each, which also provide scale at an individual level. These countries account for 95 per cent of the ISA pipeline.

Financing requirements for ISA's project pipeline (USD million)



Two studies have been launched by ISA to analyse the existing capacity and the future needs for E-mobility and energy storage.



DIALOGUE AND OUTREACH

ISA as an enabler

MDBs-DFIs MISSION

To strengthen its partnerships with Multilateral Development Banks (MDBs) and Development Financial Institutions (DFIs), ISA organised a three-day mission at its Secretariat in Delhi, India. The “Joint MDBs and DFIs mission to the ISA secretariat” was organised from 12-14 June 2019 and had representation from various MDBs and DFIs including ADB, AFD, AFDB, AIIB, DFID, EBRD, EIB, JBIC, JICA, the World Bank and other stakeholders such as consulting firms, EXIM bank, and research firms. The sub-themes and mission of the conference were:

- Building a roadmap for mobilising USD 1,000 billion by 2030
- Aligning ISA’s programmes and synergy with MDBs’ and DFIs’ investments
- Enhancing ISA-MDBs-DFIs collaboration for scaling up solar investments



“

“ISA’s role as an enabler and facilitator is to bring the stakeholders together. MDBs and DFIs are drivers for solar projects. We urge ISA financial partners to showcase concrete progress towards solar investment during the second assembly of ISA.” Upendra Tripathy, Director General, ISA

MULTI-AGENCY UN TECHNICAL MISSION

Priority 1: Relationship with the UN

Priority 2: Financial sustainability of ISA

Priority 3: Programme cooperation with the UN

Priority 4: Secretariat organization and capacity

Priority 5: Management service capacities: Multiple opportunities given ISA alignment with UN systems and its outsourcing policy

COUNTRY MISSIONS AND EXPERT TEAM VISITS

During 2019, the ISA secretariat has concluded country missions to eight countries: Benin, DR Congo, Guinea, Malawi, Mali, Niger, Togo, and Uganda to strengthen the 'buy-in' for ISA's programmes and to understand the ground level challenges and issues. Extensive stakeholder consultations were held with nodal agencies, line ministries, research organisations, international development organisations and funding agencies. The solar water pumping programme of ISA received an enthusiastic response from all stakeholders.

- **Benin:** Expert team visited Benin from 1-5 July 2019. The ISA Mission wanted to understand the existing energy scenario of Benin including renewable energy activities, agriculture/irrigation infrastructure and various policies/regulations in the country which will help ISA to guide Benin to scale up solar applications.
- **Guinea:** ISA expert team visit to the Republic of Guinea was conducted from 23-27 September 2019. The objectives of the mission were to test feasibility and analyse demand for solar water pumping systems, solar mini-grids and solar rooftop projects, to explore different implementation modalities for the projects, carry out field visits of existing projects and develop a viable framework for participation of stakeholders in successful implementation of projects.
- **Malawi and DRC:** ISA carried out expert team visits to Malawi and the Democratic Republic of Congo to create awareness about ISA programmes and its activities and promote the uptake of solar applications in these countries.
- **Mali:** An expert team assessed the Republic of Mali's needs in terms of demand aggregation for solar pumps, solar rooftop, solar mini grids and the national energy sectors in the preparatory phase for the implementation of solar projects of 50 MW solar plant in Fana and 2 MW solar plant in Mopti sanctioned under the Government of India through India Exim Bank Line of Credit, the Indian Ministry of External Affairs and the Ministry of New and Renewable Energy (MNRE), India.
- **Togo:** An ISA team, supported by an expert from the EU Commission, visited Mali, Togo and Benin from 17 June 2019 to 5 July 2019. The objectives of the mission were to raise awareness about ISA programmes and its activities among ministries/departments and other stakeholders under the guidance of the National Focal Point (NFP) of ISA in the respective countries, carry out pre-feasibility studies and aggregate demand for solar water pumping systems, for solar rooftop and solar mini grids, and capacity building of these countries in solar applications.
- **Uganda:** A delegation from the ISA Secretariat visited Uganda from 23-29 July 2019. The objectives of the mission were to create awareness about ISA programmes among key stakeholders in Uganda, carry out prefeasibility studies for solar water pumping systems and understand the potential for the development of solar rooftop and mini-grid projects.
- **Niger:** The ISA team visited Niger from 5-9 August 2019. A joint meeting with multilateral/bilateral and international organizations was requested so that they could be engaged in finding financing solutions for scaling up solar applications in the country. Discussions were also held on how Niger can effectively leverage the ISA platform to fulfil its requirements.

The ISA Secretariat (supported by PwC) is preparing country assessment reports on scaling rooftop solar for select countries as part of ISA's Mission to African countries.

SNAPSHOTS FROM ISA COUNTRY MISSIONS



SHARING OF BEST PRACTICES ACROSS COUNTRIES

ISA plans to facilitate the sharing of best practice through specialised teams to help its member countries in rolling out projects based on proven and successful business models. The following steps have been taken or are planned to be taken towards this objective:

- ISA has circulated a letter on sending best practice teams from one member country to another.
- India has been requested to send five best practice teams to guide five member countries in rolling out scalable power purchase agreement based projects. This is to be done through the support of MNRE. The best practice teams from India may have experts from ministries, public sector utilities, and state departments. These teams will highlight the success of India in attracting investments in solar power deployment.
- The name of the target countries will be jointly decided by ISA and MNRE.
- A software application tool was also launched on 4 June 2019 by ISA and Indian Space Research Organisation to further facilitate sharing of best practices.

Enabling Dialogue and Outreach through International and Regional Events

- **SunWorld 2019:** The world meeting and exhibition on renewable energies ISA-Peru-LAC (Sun World 2019) will be held in Lima, Peru, from 12 to 14 November 2019.
- ISA also conducts monthly “SUN Meets” to facilitate its update for Members on its activities and programmes. So far, ISA has organised 23 SUN Meets.

KNOWLEDGE DISSEMINATION THROUGH INFOPEDIA

Infopedia is an online platform dedicated to the dissemination of information, best-practices and knowledge on solar energy, supported by the European Union and being developed by Exergia S.A. It will be launched in October 2019 during the ISA second Assembly.

Infopedia comprises:

- **Country Counters:** Profiles of ISA Member Countries entailing solar irradiation maps, tenders, news, policies and best practices in order to facilitate solar Investment.
 - Content developed with the support of CEEW and EXERGIA.
 - Draft country profiles circulated to all the Members (through the National Focal Points and the Diplomatic Missions in Delhi) early September 2019.
- **Solar Information Hub:** A repository of useful resources on solar energy (best practices, policies, investment/financing, technologies, tools & databases)
 - More than 120 sources have been utilized so far.
- **Solar Academy:** An online courses catalog and course hosting platform on Infopedia for free online courses on Solar Energy.
 - Hosting 2 online courses from ISA Partners
 - Links to 10 online courses offered from TU Delft, DTU, etc.
 - Currently working with NREL for the finalization of “ISA Experts Training Course”.
- **Solar Directory:** A self-registration directory for the solar industry, associations, financing institutions, development organisations, NGOs and research centres.
 - Available for stakeholders to register.
 - Request to the ISA International Committee of Chambers of Industry and Business (ICCIB), to Solar Power Europe, to the European Union and to UNDP to circulate the template to their members to attract registration.

CAPACITY BUILDING AND TRAINING

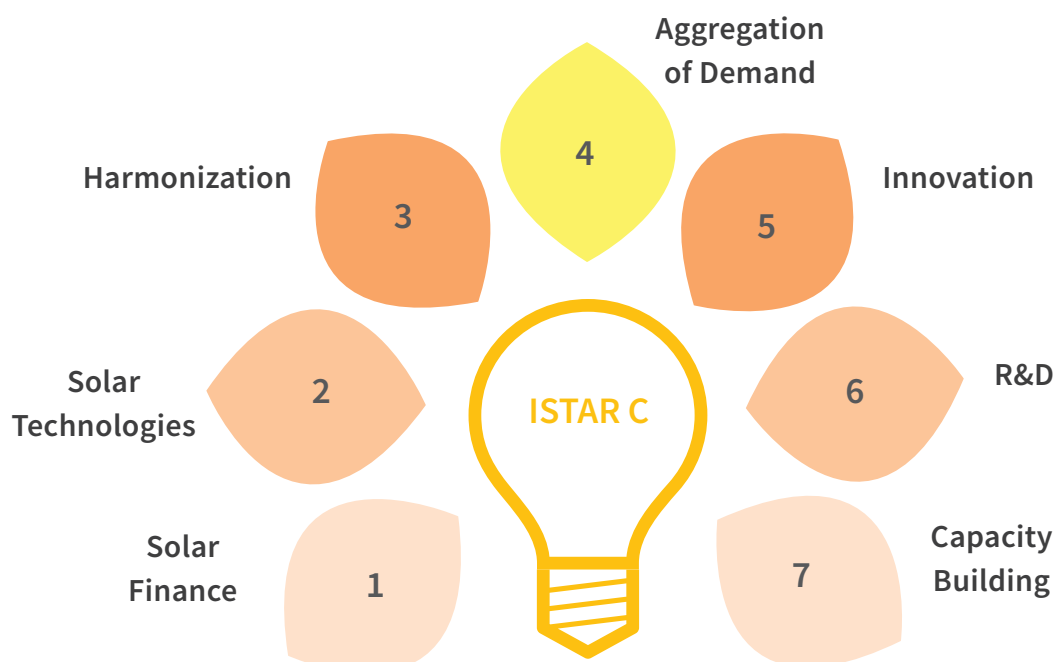
ISA as an enabler

ISA STAR-C

During the year, the ISA Secretariat launched the ISA Solar Technology and Application Resource Centre (ISTAR C) to support capacity building efforts in the ISA member countries through training. Its primary objective is to create a skilled workforce for large-scale deployment of solar energy applications and research, development, innovation, standardisation and testing in solar energy. The initial assessment of the capacity needs, existing training and R&D infrastructures in ISA member countries were conducted in 2018.

The programme aims:

- To build a network of technical training, entrepreneurship, and research and innovation centres in order to exchange best practices and promote knowledge dissemination and capacity-building. In accordance with the Guiding Principles set out in Article II of the Framework Agreement on the Establishment of the International Solar Alliance (ISA), STAR-C centre will be involved in harnessing solar finance, solar technologies, innovation, research and development, and capacity building for the benefit of Members.
- To develop and disseminate a range of (new or existing) training materials (online and in-person) for all types of audiences (technicians, master trainers, project developers, engineers, policy makers, etc.), and aim at the setting up of harmonized training programmes using a network of training facilities that would be recognized across the ISA Member countries.
- To work on standardization of solar applications at the regional or sub-regional level and provide testing and technical certification capabilities to key STAR-centres.
- To enable collaborative research and development among the ISA Member countries.



ISA STAR-C PROGRAMME

Global ISA STAR-C network/secretariat

Local vocational and training centres

Empowering underprivileged young individuals and women.
Developing access to jobs and entrepreneurship in energy and electricity.

National research and training centres

Centres providing academic and technical training.
Empowering policy makers, engineers, project developers and future trainers.

Regional renewable energy and energy efficiency centres

Implementing capacity development to tackle issues related to renewable energy.
Developed with the support of UNIDO.



The Best Practices Manual for the state-level rooftop solar programme in India was shared with ISA members in June 2019.



ITEC SCHEME

The government of India has been supporting the ISA by providing training to master trainers in the field of solar energy through the Indian Technical and Economic Cooperation (ITEC) Scheme. The duration of the training is 21 days and all costs are borne by the Government of India. In 2018-2019, 133 candidates from 25 countries were trained at the National Institute of Solar Energy, Gurugram, with the support of the ITEC programme.

ISA has proposed that many member countries need long term deputation of solar experts from India. The Ministry of External Affairs may be requested under the ITEC programme to provide long-term visit of such professionals to other countries under this scheme.

“In 2018-19, 133 candidates from 25 countries were trained.

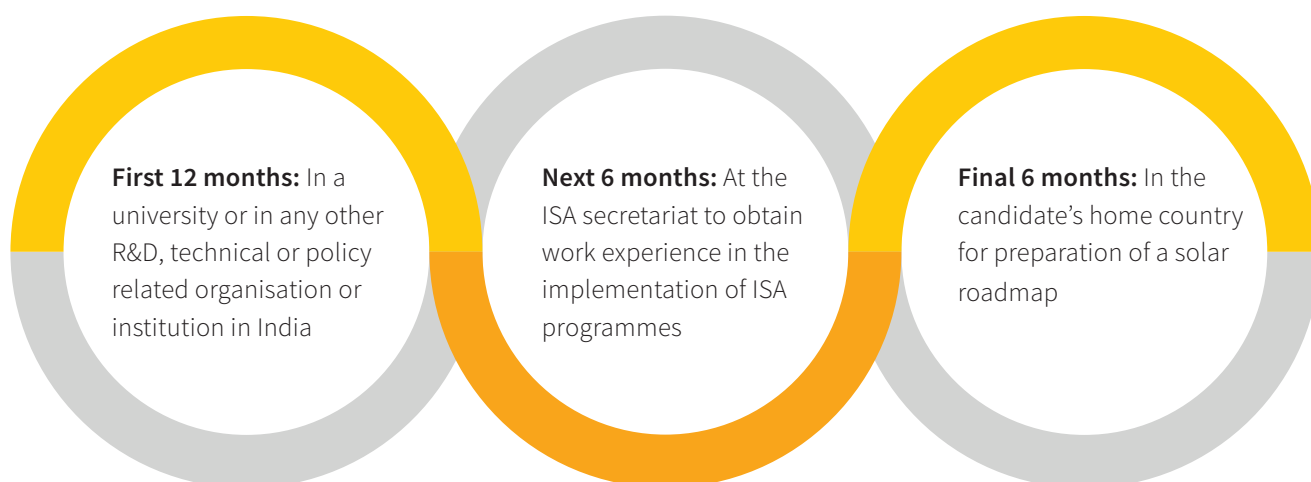
For 2019-20, MEA has communicated that they will finance 105 candidates. ISA has requested MEA to sponsor 60 more candidates. The first batch is proposed to start from 4 November 2019.”

ISA SOLAR FELLOWSHIP FOR MID-CAREER PROFESSIONALS

The objective of the fellowship scheme is to contribute towards the long-term development needs of member countries, through the creation of a skilled and qualified professional manpower for management of solar energy projects, programmes and policies. Under this scheme, fellowships in the field of solar energy management will be offered to mid-career professionals from ISA countries for pursuing a master's degree in renewable energy management and economics. They would be expected to contribute towards policy development in their home country which in turn will help ISA achieve its objectives.

The ISA Fellowship Committee has chosen the Indian Institute of Technology (IIT), Delhi for training the ISA Fellows according to the required course work. 21 candidates have been selected from 18 countries for the first batch, and the course started from 22 July 2019.

The total course duration will be two years



An aerial photograph showing a vast field of solar panels arranged in neat, parallel rows. The panels are dark blue with white grid lines, mounted on metal frames. The ground between the rows is dry and yellowish-brown. In the background, there are some green trees and a fence line. The overall scene is bright and sunny, with long shadows cast by the panels.

DISTANCE LEARNING PROGRAMME

The Distance Learning Programme is aimed at educating students about solar power and its applications in the agriculture sector. To this end, Indira Gandhi National Open University (IGNOU) has launched a new short term distance learning programme with ISA, which includes two awareness and two certificate programmes:

- Awareness programme on solar energy and its applications
- Awareness programme on application of solar energy for agriculture
- Certificate programme on water pumping systems
- Certificate programme on agro-processing

ISA SOLAR AWARDS

The Solar Awards policy of ISA aims at promoting awareness of ISA and incentivizing advances to be made in solar energy under the aegis of ISA. It recognizes the achievements and contributions made by people and institutions in promoting solar as a form of energy resource and as a disruptive technology that can revolutionize access to universal and sustainable energy for the poor and marginalized, while making solar energy and solar technology cheaper and affordable for all.

The Solar Awards can be financed by any ISA member country or their supra- and sub-national entities. The initial corpus will be fixed and the interest alone will be spent as award money, after a deduction of 25 per cent which ISA will utilize for administering the award, selection of awardee expenses, and publicity for the award etc.

Different Indian States were requested to institute solar awards for the promotion of solar energy. The state of Haryana sanctioned a corpus of USD 1.4 million for instituting a solar award for scientists working in the field of solar energy. The award was instituted in the name of famous astronaut Kalpana Chawla of Haryana origin. The award has been instituted for scientists from the ISA member countries. All embassies/ high commissions in Delhi and National Focal Points of ISA have been requested to nominate the scientists for the award vide letter dated 1 August 2019. This would facilitate access to affordable, reliable and sustainable solar energy across all member countries of ISA.

Now, the Indian State of Karnataka has given approval to institute the ISA Karnataka Vishweshwarya Solar award for best floating solar projects from ISA member countries. Karnataka will also provide a corpus of USD 1.4 million for instituting the solar award. Sir Vishweshwarya was a famous civil engineer from Karnataka and instrumental in construction of the Krishna Raja Sagar Dam. As a state with a strong manufacturing base of solar energy, Karnataka will benefit from the escalation of demand for solar energy.

Similarly, the state of Madhya Pradesh has agreed to institute an award in the name of the famous freedom fighter, thinker, and social reformer "Acharya Vinoba Bhave", the first such award for solar pumps amongst the ISA member countries, to promote and recognise outstanding work in the field of solar pumps.

Institutes/Nodal agencies working within ISA member countries in the field of installation, implementation, innovative business models, unique financing mechanisms, etc. for solar pumps shall be eligible for this award. This award will encourage those who are working in solar pumps and provide a platform to showcase their contributions.

Madhya Pradesh will provide a corpus of USD 1.4 million for instituting the award.



FUND FLOWS AND UTILISATION

Fund flows status of ISA and its position upto 2021 (USD million)

Particulars	2016	2017	2018	2019	2020	2021
Corpus received						
Corpus fund	17.00	1.00	8.00	0.03	-	-
Interest on corpus fund	0.23	0.68	1.38	1.87	2.02	-
General grants received from MNRE						
Opening balance	-	2.18	4.04	4.30	4.45	1.30
General funds received	2.14	2.14	2.14	2.14	2.14	-
Interest on general funds	0.07	0.14	0.17	0.22	0.21	0.05
Interest on corpus fund	-	-	-	-	-	8.13
Expenditure/payment	0.04	0.41	2.05	2.22	5.50	6.05
Closing balance	2.18	4.04	4.30	4.45	1.30	3.43

Notes:

- USD 1 = Rs 70

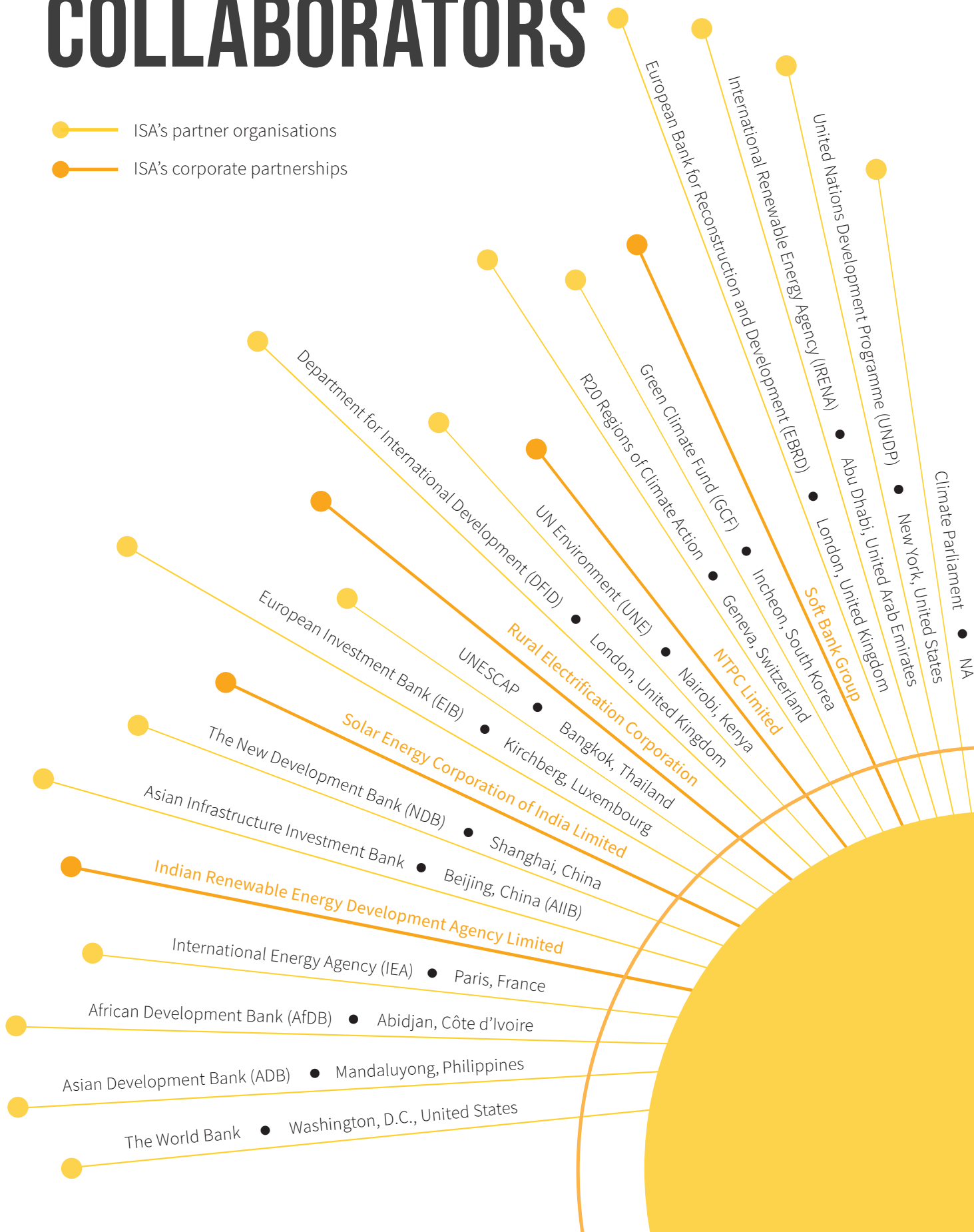
- As per the Financial Regulations of the ISA, the interest earned on corpus fund will be utilised once host country ceases to finance ISA's recurring expenditure. The Government of India is supporting the ISA Secretariat with contribution of Rs 150 million (USD 2.14 million) till year 2020. Hence, the interest on corpus fund from year 2016 to year 2020 amounting to Rs 432.3 million will be utilised from year 2021 onwards.

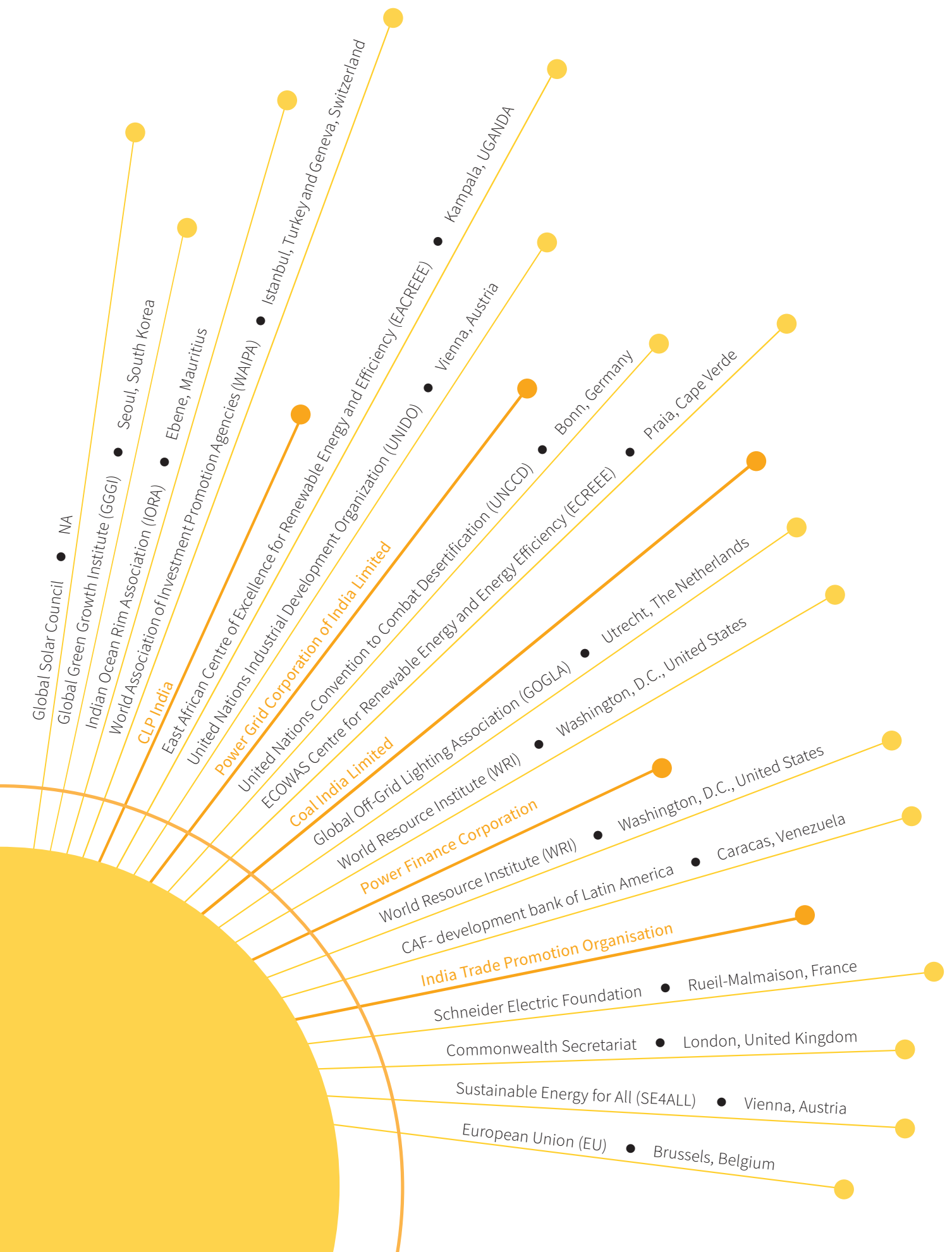
- For fixed deposits done out of general grants received from MNRE, the interest is calculated for half of period for the year 2019 and 2020, for the amount of expenditure incurred during the year as the fixed deposits will be utilised throughout the year.

PARTNERS AND COLLABORATORS

● ISA's partner organisations

● ISA's corporate partnerships





STRATEGIC DIRECTION

USD 1,000
BILLION
SOLAR INVESTMENTS

Realising the objective of the ISA of mobilising more than USD 1,000 billion of solar investments in ISA member countries is a critical step in making progress on commitments made under the Paris Agreement. ISA's proposed work plan for the calendar years 2020 and 2021 aims to steer member countries towards that path and identifies the following key strategic priorities:



Strengthening the implementation of ISA's programmes, projects and activities

The proposed activities under ISA's programmes will be implemented with strong participation from member countries and their key stakeholders at country, regional and global levels.



Enhancing policy and technical support to member countries

The ISA will engage experts from member countries as part of its expert missions. It will scale-up its cooperation and consultation initiatives to strengthen their implementation and plan for new initiatives.



Facilitating technical and financial support for solar projects

The ISA Secretariat will focus on the mobilisation of concessional finance and private funds along with project preparation and appraisal. In collaboration with MDBs, DFIs, and private sector players, it will finalise a roadmap for mobilising more than USD 1,000 billion for solar investments by 2030 in ISA member countries. It will also lead a technically-focused comprehensive capacity building programme.



Increasing the membership and strengthening the governance of the ISA

Efforts are being made to obtain Permanent Observer Status for the ISA at the United Nations General Assembly, and to establish institutional linkages with the United Nations. The ISA Secretariat will enhance the support provided to the Committees to support the effective governance of the organisation. It is also supporting a series of global task forces to engage with various stakeholders, and promote innovation, risk mitigation and financing.



Ensuring financial sustainability of the ISA

The ISA Secretariat will prepare a comprehensive fundraising strategy and procure the services of global experts to support its resource mobilisation efforts. It will also seek the help of a leading global strategy advisory firm for articulating ISA's roadmap for mobilising USD 1,000 billion by 2030, and its organisational set-up.



Strengthening the Secretariat organisation and capacity

The ISA Secretariat will be procuring the services of a leading global renewable energy consulting firm to strengthen the capabilities of the Secretariat and enhance the implementation of ISA's programmes. It will also complete its recruitment of professional and general staff.



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