

Annual Report 2023



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The Director General's Foreword

Today, the world must be guided by the pursuit of a climate-friendly economy, through actions that enable all nations to accelerate the uptake of solar and other renewable energy. Solar energy, and the larger renewables basket, have a greater role in meeting the energy needs in the developing and developed worlds. To enable this common, sustainable, equitable future, our actions must enable people to see that these energy sources meet their needs, create new green jobs, increase incomes, reduce energy imports, and bring down urban air pollution.

ISA is therefore working with the world to enable and facilitate three actions.

First, to build the knowledge and capacity of all countries, to produce, transport, and use low and zero-carbon hydrogen. Through ISA's capacity-building efforts, we are creating a global pool of skilled professionals to operationalise solar projects in ISA Member Countries, strengthening quality infrastructure and standards for solar products and services, and disseminating the best in solar energy knowledge and best practices.

Further, ISA's Analytics & Advocacy efforts champions the adoption of solar-friendly policies and practices in Member Countries by sharing the most relevant research and reports covering technology, investments, and markets. We were also delighted to launch the Green Hydrogen Innovation Centre, during India's Presidency of G20, this year. Our programmes the world over are demonstrating solar energy's relevance in a diverse and growing range of fields, including agriculture, healthcare, infrastructure, e-mobility and storage, heating and cooling, and the generation of green hydrogen.

Second, to enable solar mini-grids to provide universal energy access, especially where grid extension is too expensive. As a result of ISA's efforts, countries are scaling up solar mini grids. ISA has also provided trainings to professionals from 38 Member Countries through online technical programmes under the SMGs initiative

and to technicians across 15 Member Countries in the development and maintenance of SMGs.

Guarantees help in crowding-in private sector investment, and we are proud to provide such a guarantee, albeit in a limited manner, to our Member Countries in Africa, through our Affordable Finance at Scale programme, in partnership with financial institutions across the world.

Third, to handhold entrepreneurs in these countries who can become major suppliers of solar energy across countries and regions. We are currently strengthening 20 identified solar startups from Africa and will now look to cover startups in the Asia & Pacific Region, and then the Latin America & Caribbean region. Notably, in collaboration with Invest India, ISA launched the first edition of the SolarX Startup Challenge at COP27 in November 2022 in Egypt, to boost entrepreneurship and startups in the solar energy sector and address energy and investment gaps.

Building this ecosystem of clean energy enterprise, investment and infrastructure is a formidable task, and necessitates new partnerships. There are greater synergies that must be explored between international organisations and countries, and between international organisations as well, to accelerate solarisation. In partnership with United Nations agencies, multilateral development banks (MDBs), development finance institutions (DFIs), international organisations, and public organisations, ISA is optimising essential regulatory assistance, facilitating investment mobilisation, mitigating risks, and bolstering the capabilities and expertise of ISA's Member Countries. These collaborations are serving as a crucible to create, launch and scale innovative solar energy initiatives.

The energy transition also necessitates climate finance that is commensurate to the task. The financial resources mobilised for the global solar sector - \$250 billion in 2022, and an expectation of \$380 billion in 2023 - compares favourably with the flow of funds for electricity

production at the peak of the fossil fuel boom. However, we also must acknowledge the disbalances in the source and utilisation of solar capital. The first imbalance is that about 75% of the investments are occurring in the OECD countries, China, and India. The second imbalance relates to the user sectors where the investment is going to: More than two-thirds of the investment is going towards large solar farms.

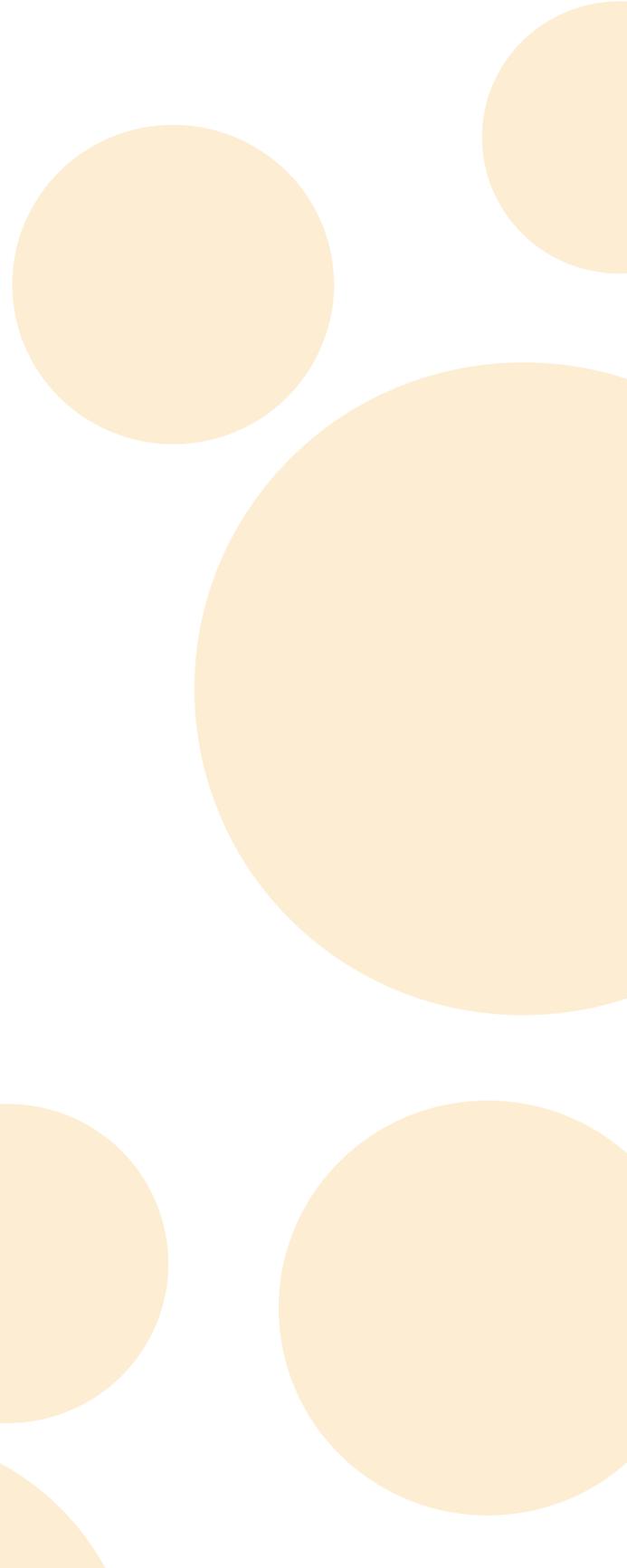
This means that we urgently need to accelerate the buildup of solar energy, especially in an inclusive manner that influences the daily lives of those without access to reliable energy - such as getting electricity from solar mini-grids, powering agricultural pumps, running cold storages, among other opportunities. It is only by solarizing the last mile through such technologies that solar energy can demonstrate its transformative potential and achieve the scale that the world's climate and energy goals need.

Today, ISA is facilitating over 9.5 GW of solar applications in 55 developing countries, including LDCs and SIDS. We have already provided training to nearly 4,000 people across the developing world on ways to make a living out of supporting solar energy.

Your support has been and will continue to be key to enabling solar to become the energy source of choice in most geographies and applications - to co-create the world we seek.

Dr Ajay Mathur

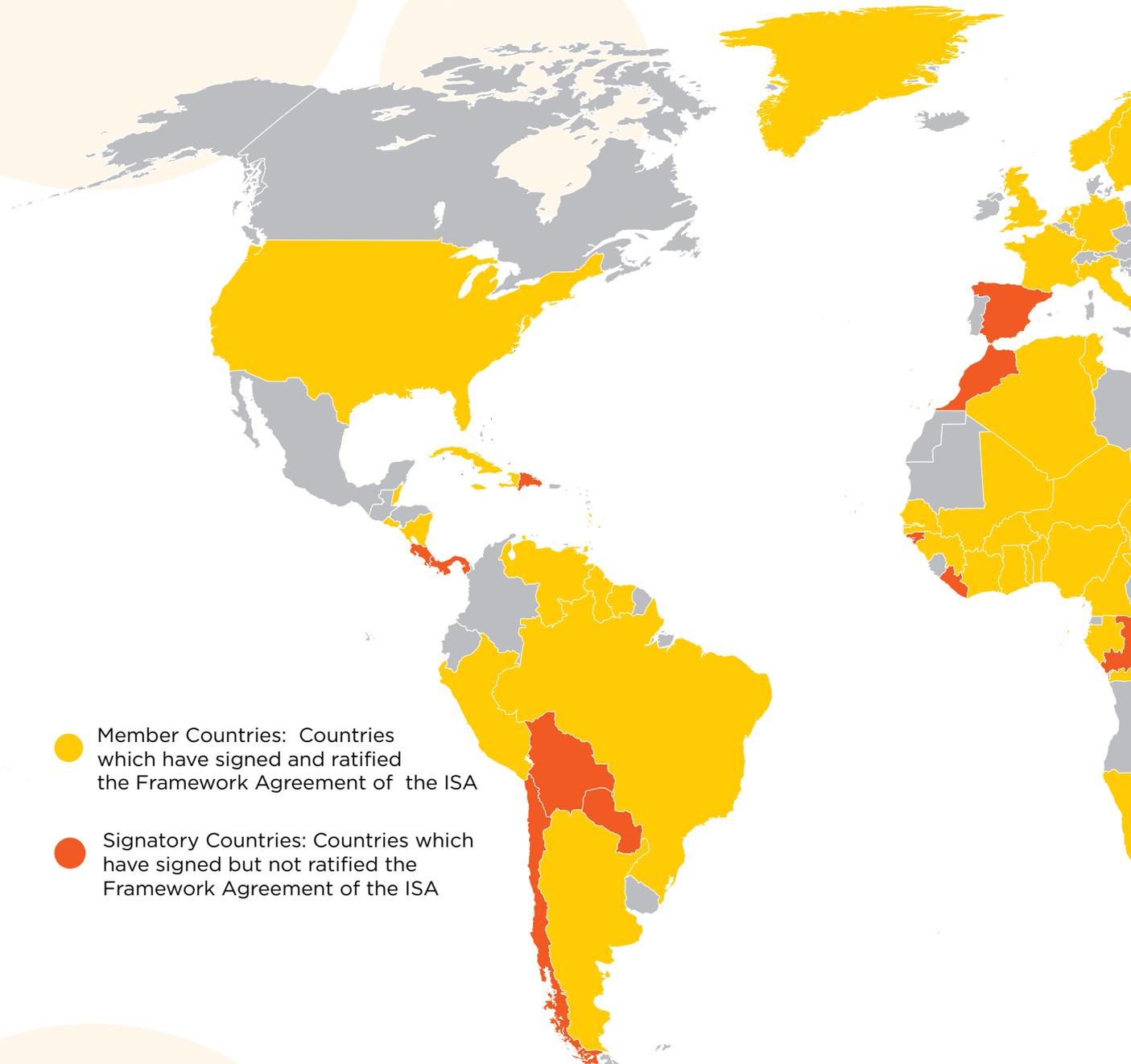
Director General of ISA



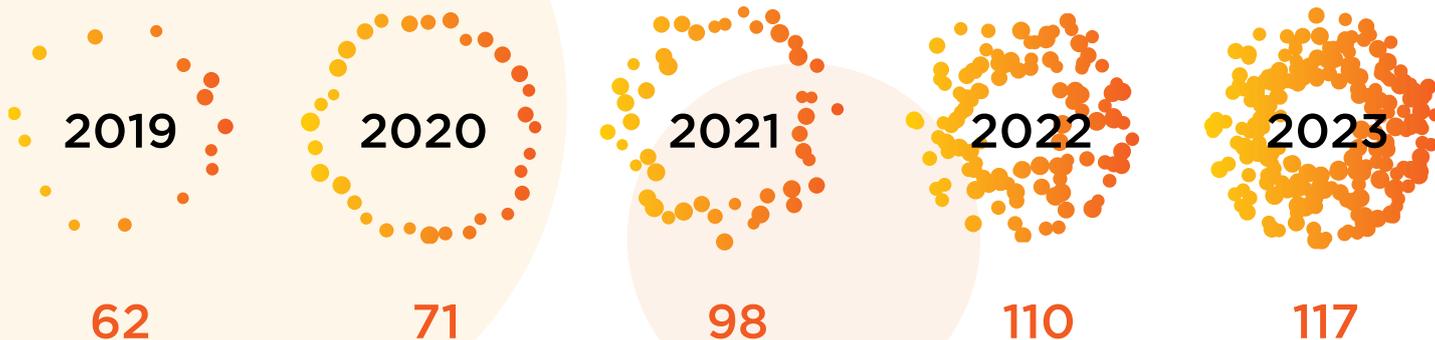
ISA at a Glance

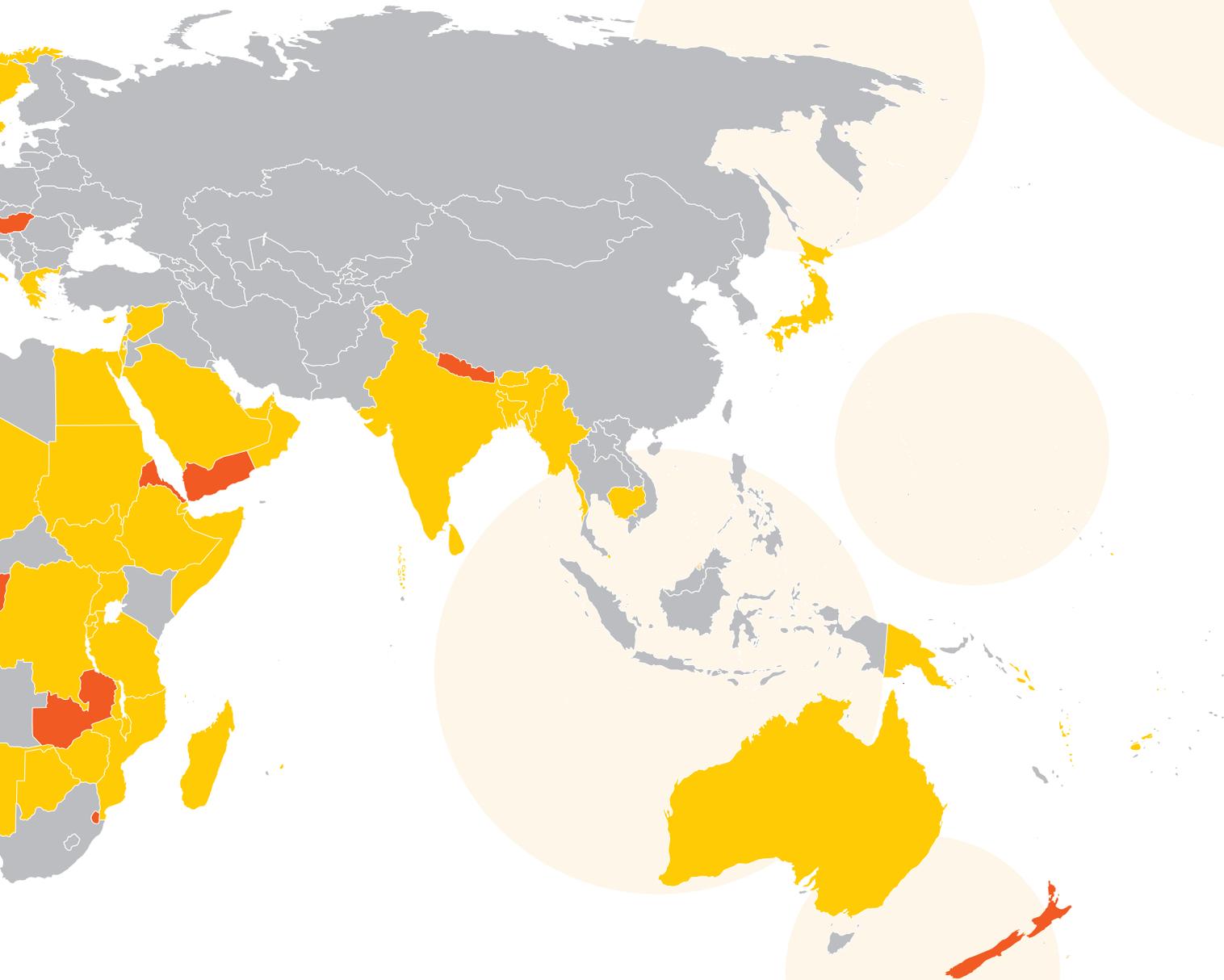


ISA Membership as of 2023

- 
- Member Countries: Countries which have signed and ratified the Framework Agreement of the ISA
 - Signatory Countries: Countries which have signed but not ratified the Framework Agreement of the ISA

117 Member and Signatory Countries





*This map is not to scale

List of the 97 countries which have ratified the ISA Framework Agreement

- Republic of France
- Republic of Nauru
- Republic of Mauritius
- Republic of India
- Tuvalu
- Republic of Niger
- Republic of Fiji
- Republic of Ghana
- Republic of Seychelles
- Republic of South Sudan
- Federal Republic of Somalia
- People's Republic of Bangladesh
- Republic of Mali
- Union Des Comoros
- Republic of Guinea
- Republic of Malawi
- Commonwealth of Australia
- Republic of Peru
- Republic of Togo
- Cooperative Republic of Guyana
- Democratic Socialist Republic of Sri Lanka
- Republic of Cuba
- Republic of Uganda
- Republic of Gabon
- Republic of the Sudan
- United Arab Emirates
- Republic of Rwanda
- Burkina Faso
- Bolivarian Republic of Venezuela
- Commonwealth of Dominica
- Republic of Côte d'Ivoire
- Grenada
- Suriname
- Republic of Namibia
- Republic of Benin
- Republic of Madagascar
- Republic of Chad
- Republic of Senegal
- Republic of Djibouti
- Independent State of Papua New Guinea
- Republic of Union of Myanmar
- Kingdom of Tonga
- Republic of Vanuatu
- Republic of Kiribati
- Sao Tome and Principe
- Democratic Republic of The Congo
- Republic of Cameroon
- Japan
- Equatorial Guinea
- Ethiopia
- Burundi
- Egypt
- United Kingdom
- Netherlands
- Mozambique
- Haiti
- Maldives
- Gambia
- Jamaica
- Nigeria
- Saint Lucia
- El Salvador
- Tanzania
- Samoa
- Republic of Trinidad and Tobago
- Cambodia
- Saudi Arabia
- Algeria
- Oman
- St. Vincent and Grenadines
- Marshall Islands
- Nicaragua
- Barbados
- Argentina
- Belize
- Denmark
- Zimbabwe
- Sweden
- Botswana
- Germany
- Italy
- St. Kitts and Nevis
- Antigua and Barbuda
- Greece
- Tunisia
- Bahrain
- Norway
- Syria
- Bhutan
- United States of America
- Brazil
- Cyprus
- Solomon Island
- Singapore
- Chile
- Hungary
- Yemen

List of the 20 countries which have signed but not ratified the ISA Framework Agreement

- Costa Rica
- Dominican Republic
- Guinea-Bissau
- Liberia
- Zambia
- Bolivia
- Cabo Verde
- Palau
- Paraguay
- Eritrea
- Luxembourg
- Morocco
- Eswatini (Swaziland)
- Israel
- Nepal
- Spain
- Republic of Congo
- New Zealand
- Armenia
- Romania

II Governance Structure

The Assembly of the International Solar Alliance (ISA) is the apex decision-making body which deliberates on critical matters such as organisational objectives; operational procedures; budget approvals; evaluation of the execution of various ISA programmes, initiatives and activities; and other issues pertaining to the functioning of ISA. So far, six regular sessions and one special session of the Assembly have been convened.

Regular Sessions

First Session

2-5
October, 2018
New Delhi, India

Second Session

30 October-1
November 2019
New Delhi, India

Third Session

14-16
October, 2020
Virtual

Fourth Session

19-21
October, 2021
Virtual

Fifth Session

17-19
October, 2021
New Delhi, India

Sixth Session

30 October-
2 November, 2023
New Delhi, India



ISA Committees

ISA has five committees - the Standing Committee and four Regional Committees - that provide strategic advice and guidance on ISA's functioning and facilitate the implementation of its various programmes, projects, and activities.

ISA Governance Structure

President



Co-President



8 Vice Presidents representing 4 regions

Asia & the Pacific



Africa



Latin America &
the Caribbean



Europe & the Others



Standing Committee

The Standing Committee is responsible and accountable to the Assembly. The Standing Committee promotes collaboration among members; approves Assembly Session arrangements and agendas; presents ISA's annual work plan, budget and annual reports to the Assembly; advises on programme implementation; and recommends matters with significant financial implications to the Assembly for consideration.

The Standing Committee comprises of the following 10 members:

- President of the Assembly
- Co-President of the Assembly
- Eight (8) Vice Presidents – two from each of the four ISA geographical regions

In addition to the above members, the Standing Committee will include up to nine (9) additional contributing members.

Standing Committee Meetings

The Standing Committee meets twice a year at the ministerial level. Nine meetings of the Standing Committee have been convened to date. The eighth and the ninth meeting were convened on 6 June 2023 and 25 September 2023, respectively.

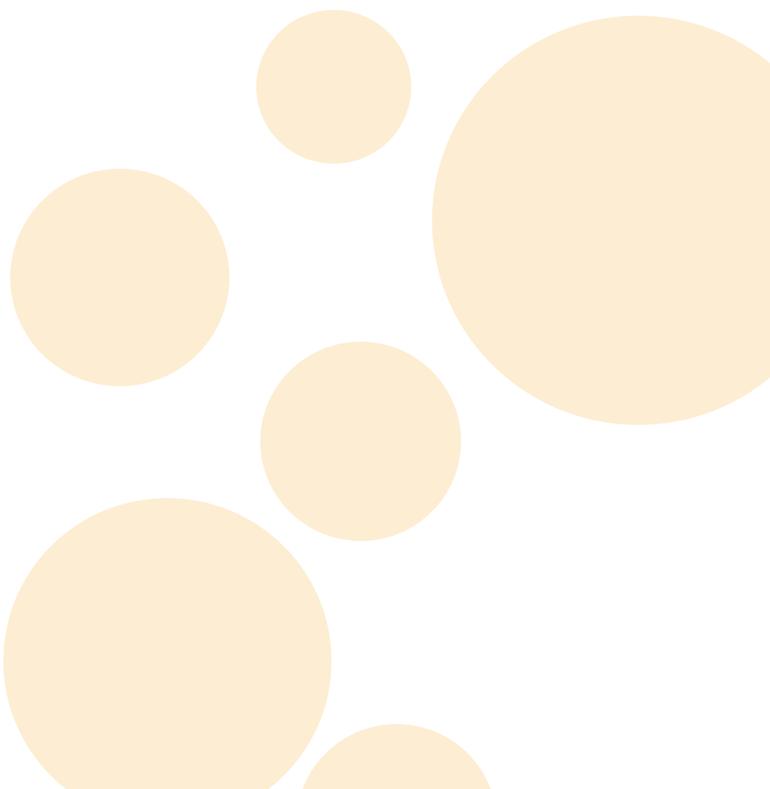
The eighth meeting of the Standing Committee, held in New Delhi, was chaired by H.E. Shri R K Singh, the Hon'ble Minister for Power and New & Renewable Energy, India, who highlighted the importance of the global energy transition and emphasised the role of solar energy in achieving it. Emphasising the need to help the Least Developed Countries (LDCs) access clean energy, Mr Singh called for increased contributions to green funds and the allocation of funds specifically for African countries.

“Whether the world needs an energy transition today is no longer in question. Rather, the question is how to achieve it and how soon. A new global energy economy is emerging, with the rapid growth of renewables as the alternative energy source.”

- H.E. Shri R K Singh, Hon'ble Minister for Power and New & Renewable Energy, India

The meeting agenda included discussions on various initiatives and projects undertaken by ISA – such as ISA Demonstration Projects in Member Countries, ISA Solar Technology Application Resource Centre (STAR-C), SolarX Startup Challenge, Global Solar Facility – as well as preparations for the ninth meeting of the ISA Standing Committee and the sixth session of the ISA Assembly.

In the ninth meeting of the Standing Committee, the work plan and budget for calendar year 2023 were reviewed, and those for 2024 were proposed. The discussions covered ISA's programmatic support to countries for solar capacity-building, analytics, and advocacy. The meeting also proposed programmes,





communications, outreach, strategic engagement and partnerships for ISA in the year 2024.

These include:

- Aiming to raise USD 100 million in 2024 for ISA's Global Solar Facility,
- Taking up 25 country missions,
- Implementing solar projects in 10 countries,
- Creating project pipelines in 15 countries,
- Supporting the creation of policy and regulatory frameworks for solar mini-grids and attracting investments in ISA Member Countries,
- Developing a solar data portal,
- Hosting a 'Solar Festival' and 'Solar Awards',
- Advocating for gender equity, social inclusion, and more.



Regional Committees

Regional Committees have been established for each of the four ISA Regions:



Africa



Asia & the Pacific



Europe & Others



Latin America & the Caribbean

The Regional Committees are responsible and accountable to the Assembly and provide the forum for regional coordination of views on matters related to the Assembly. There are two Vice Presidents from each region

Regional Committee Meetings

Africa: Five meetings have been convened so far, the most recent from 30 August to 1 September 2023 in Kigali, Rwanda. At the fifth meeting, ISA announced the inauguration of three demonstration projects – one each in the Republic of Uganda, the Union of Comoros, and the Republic of Mali.

The meeting also saw the felicitation of the winners of SolarX StartUp Challenge.

Asia & the Pacific Region: Five meetings have



Project: Solarization of a rural healthcare centre and three primary schools.

Capacity: 8.5 kW peak and 17.2 kWh battery storage.

Status: Commissioned.

Cost: USD 48,835



Project: Solarization of two rural healthcare centres.

Capacity: 15 kW peak and 33 kWh battery storage system.

Status: Completed.

Cost: USD 49,999



Project: Solarization of three rural healthcare centres.

Capacity: 13 kW peak and 43 kWh battery storage

Status: Completed.

Cost: USD 49,995

been convened so far. The fifth meeting was hosted by the Government of the United Arab Emirates from 24-26 July 2023 in Abu Dhabi. It focused on the need for cutting-edge solar power solutions,

upgrading infrastructure and grids, and achieving renewable energy targets by 2030. The discussions centered around transformative actions required to keep global warming within 1.5°C, setting the stage for COP28. HE Ambassador Majid Al Suwaidi, Director General and Special Representative of



COP28, praised the ISA's 'Towards 1000' strategy – which aims to mobilise USD 1 trillion for solar energy and deploy 1,000 GW of clean energy by 2030 – and stressed the critical role of climate finance in enabling clean energy solutions. The meeting also saw active participation from several Small Island Developing States (SIDS) in the Asia-Pacific region, focusing on mobilising resources to accelerate a Just Energy Transition. The emphasis was on promoting climate mitigation technologies, enhancing socioeconomic opportunities, and ensuring inclusivity in the journey towards a sustainable future.

Europe & Others: Four meetings have been convened so far. The ISA convened the fourth meeting in Brussels from 21-23 June 2023, with



ministerial and senior government representatives from 18 countries to chart the course for the sustained and equitable roll-out of solar initiatives. Member Country representatives addressed various issues related to the ISA's programmatic support towards solar deployment and discussed the progress and impact of ISA's flagship initiatives. The meeting provided a vital platform to take stock of where the Region sits in the energy transition journey, identify linkages among ISA Member Countries to aggregate demand, and determine the most suitable steps of solar deployment for individual countries.

Latin America & the Caribbean Region: Five meetings have been convened so far. The most recent one was a virtual meeting, convened on 23 August 2023 and presided over by H.E. Ms Tania Masea, Vice Minister for New Sources of the Ministry of People's Power for Energy, the Bolivarian Republic of Venezuela.

The meeting saw participation from 20 ISA Member Countries, six (6) ISA signatory countries, and seven (7) prospective Member Countries from the LAC region, along with representatives from ISA partner organisations and special invitees in observer roles.

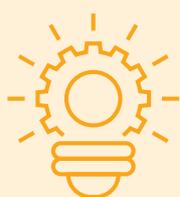
“Brazil, Mexico, Columbia, Chile, and Peru are spearheading solar energy adoption. These five nations contribute to over 88% of the installed solar capacity, and approximately 97% of the planned expansions already underway. Around 15 countries within LAC have steadfastly committed to fulfilling 70% of the energy demands through renewable energy by 2030”

- H.E. Ms Tania Masea, Vice Minister for New Sources of the Ministry of People's Power for Energy, the Bolivarian Republic of Venezuela

ISA Secretariat

The ISA Secretariat is headed by the Director General and located in Gwal Pahari, on the outskirts of Delhi, India. The Secretariat ensures that appropriate steps are taken to follow up the Assembly decisions and to coordinate the actions of ISA Member Countries in implementing such decisions.

Functions of the ISA Secretariat



Providing programmatic support to Member Countries for promotion of solar solutions



Support in strategic decision making and advocacy



Facilitate engagement with diverse stakeholders for conceptualisation of programmes and projects

Sixth Session of the International Solar Alliance Assembly



Event Overview

The Governance Meetings comprise deliberations across the four regions of Africa, Asia-Pacific, Europe & Others, and Latin America-Caribbean at the Regional Committee. The Regional Committees of the ISA meet annually, chaired by two Vice-

Presidents from the region, assess and discuss progress, challenges, and opportunities related to ISA's programmatic support, flagship initiatives, partnerships, private sector engagements, and work plan for the region.

1

The Fourth Meeting of the ISA Regional Committee for Europe and the Others region was hosted from 21-23 June 2023 in Brussels, Belgium.

2

The Fifth Meeting of the ISA Regional Committee for the Asia and the Pacific region was hosted from 24-26 July 2023 in Abu Dhabi, United Arab Emirates.

3

The Fifth Meeting of the ISA Regional Committee for Latin America and The Caribbean region was hosted virtually on 23 August 2023.

4

The Fifth Meeting of the ISA Regional Committee for Africa was hosted from 30 August to 1 September 2023 in Kigali, Rwanda.

These discussions inform the deliberations of the Standing Committee, which comprises the Hon'ble President, Co-President, and 8 regional Vice-Presidents.

Convened at the Ministerial level, the Governance Meetings facilitate in-depth analysis of the ISA's strategic initiatives, programmes, activities, and regional priorities through moderated discussions.

The Eighth & Ninth Standing Committee Meetings were hosted in New Delhi, India, on 6 June and 25 September 2023, respectively. These Meetings extend the ISA Secretariat the opportunity to enhance cooperation with ISA Member Countries, as well, as provide Member Countries with the ability to improve collaboration among themselves

and mutually identify avenues of cooperation and partnership.

The deliberations by the Standing Committee, in turn, inform the deliberations of the Assembly, which is the apex decision-making body of the ISA.

The Sixth Assembly of the International Solar Alliance was hosted in New Delhi, India, from 30 October to 2 November, 2023. Ministers from 20 countries and delegates from across 116 Member and Signatory countries and 18 prospective countries joined the inaugural ceremony.

The Sixth Assembly of the International Solar Alliance was held in New Delhi, presided over by Shri Raj Kumar Singh, Minister of Power and New & Renewable Energy, Government of India. The event



witnessed the participation of ministers from 20 countries and delegates representing 116 Member and Signatory Countries.

In his inaugural address, Shri R. K. Singh emphasised the pivotal role of renewable energy in addressing the global dependence on fossil fuels. He outlined a vision where renewable sources could contribute 65 per cent of the world's total electricity by 2030, and decarbonise 90 per cent of the power sector by 2050. The ISA, under his leadership, pledged to make solar the energy source of choice by creating favourable investment environments and ensuring ample energy availability.

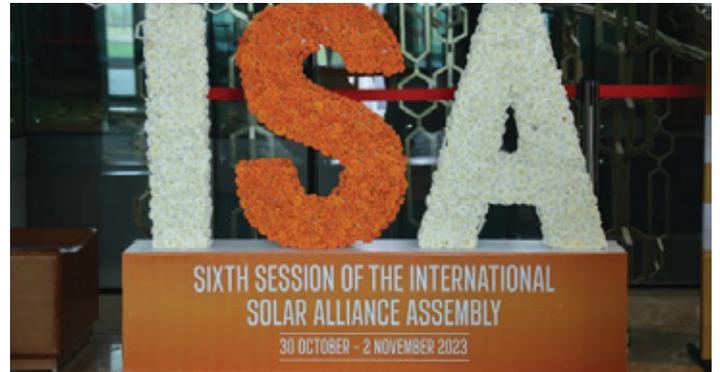
One significant initiative highlighted by Shri RK Singh was the ISA's Viability Gap Funding (VGF) mechanism, providing grants of up to USD 150,000 or 35% of the project cost (depending on capacity and needs) to Member Countries to accelerate the adoption of solar energy globally.

Co-President of the Assembly, H.E. Ms Chrysoula Zacharopoulou, France's Minister of State for Development, Francophonie, and International Partnerships, lauded ISA's efforts as a key initiative in combating climate disruptions.

She announced France's unwavering support, citing over 1.5 billion euros in financing for solar projects since 2016 and a commitment to broader climate finance initiatives.

Dr Ajay Mathur, Director General, ISA, emphasised the urgency to accelerate solar energy development, particularly in developing countries.

The Assembly also recognised the importance of ISA's Demonstration Projects initiated in May 2020, showcasing scalable solar technology applications.



Shri RK Singh inaugurated four projects, including solarisation of the parliament building in Malawi, rural health care centres in Fiji, a solar-powered cold storage facility in Seychelles, and a solarised school in Kiribati.

Shri RK Singh expressed pride in dedicating these projects to the respective nations, each benefiting from a USD 50,000 grant provided by ISA. The Assembly, as the apex decision-making body, focuses on implementing ISA's Framework Agreement and evaluating the impact of programs related to solar energy deployment, performance, reliability, cost, and scale of finance. The Sixth Assembly of the ISA deliberated on key initiatives addressing energy access, energy security, and energy transition. Shri RK Singh expressed pride in dedicating these projects to the respective nations, each benefiting from a USD 50,000 grant provided by ISA. The Assembly, as the apex decision-making body, focuses on implementing ISA's Framework Agreement and evaluating the impact of programs related to solar energy deployment, performance, reliability, cost, and scale of finance. The Sixth Assembly of the ISA deliberated on key initiatives addressing energy access, energy security, and energy transition.



Glimpses from the Sixth ISA Assembly



Inaugural Addresses

Your Excellency, Chrysoula Zacharopoulou, Minister of State for Development, Francophonie and International Partnerships and Co-President of the International Solar Alliance Assembly. Hon'ble Ministers, Vice Presidents of the ISA Assembly, Ambassadors, High Commissioners, Honorary Consuls, and other Excellencies and the Director General, International Solar Alliance. As we convene for this Assembly session, I am reminded of the immense challenges and opportunities ahead of us in our collective pursuit of a cleaner, greener, and more sustainable planet. We all are well aware that the world is facing an unprecedented climate crisis, with rising temperatures, extreme weather events, and a palpable sense of urgency to act. Our commitment to solar energy is not merely an environmental choice; it is imperative for the survival of our planet and the well-being of generations to come. Currently, around 80 per cent of the global population resides in countries that depend on fossil fuel imports, totalling a staggering 6 billion people. Renewable energy sources have the potential to supply 65 per cent of the world's total electricity by 2030 and decarbonise 90 per cent of the power sector by 2050.

The recent G20 Summit in New Delhi also underscored the urgent need for a transition to clean energy.

However, we must acknowledge that the transition to solar energy is not without its complexities, but history has shown that humanity is capable of remarkable feats when united by a common purpose. The International Solar Alliance is a testament to this unity, and I am pleased to inform the Assembly that the membership of the International Solar Alliance has grown to 116 Member and Signatory Countries. This diverse membership brings together countries fostering a collaborative environment for shared learning and innovation. More countries joining this alliance only reinforces the commitment to our shared vision of a solarised world. We hope and expect more countries who are not Members and many of whom are attending this Assembly to join the International Solar Alliance soon. As we reflect on the journey of the International Solar Alliance, I would like to highlight some of the notable milestones that we as a collective have been able to achieve so far. The nine programmes spanning sectors, including agriculture, health, transport, battery storage, heating and cooling, and green hydrogen and capacity building have made commendable progress in furthering Sustaining Development Goals 7 (Affordable and Clean



H.E. Shri R. K. Singh

Hon'ble Minister of Power and New & Renewable Energy, India & President, International Solar Alliance Assembly

Energy) and 13 (Climate Action).

The International Solar Alliance capacity building initiative has been successful in establishing the Solar Technology and Application Resources Centres (STAR-C) in five countries Ethiopia, Somalia, Kiribati, Cuba and Côte d'Ivoire, which are expected to be operational by December 2023. I would also like to highlight the International Solar Alliance Global Solar Facility that aims to leverage investments to accelerate the transition to solar energy targets to raise 100 million USD. The Facility for the Africa Region was launched last year, and we are looking to globalise this Facility in the years to come. Africa has immense potential in deploying solar energy capacities, yet due to risks in investments, the region has not been able to leverage its potential. The Global Solar Facility aims to address this challenge and provide security to the investments. India is a good example of development due to private sector investments.

India has no sovereign risks and has a strong legal and security framework with a dispute mechanism and a security of payments towards the investments, which has enabled India to attract investments.

To create a similar environment that provides a sense of security to the private sector investors, the ISA aims to have a group that will constitute experts with experience in electricity generation, distribution and transmission for developing a strong regulatory framework in the beneficiary Member Countries.

This will also drive the increase of per capita income of the countries using renewable energy. However, a country alone does not have the capability of financing these projects. We have to mobilise the private sector and for that, the responsibility is on the developed world who have much higher per capita carbon emissions than the countries in the global south.

So, I invite all the Member Countries, ISA Partner Organisations and other organisations present here today to partner with us in making this Facility a catalyst for the transformative change that we all are working towards. Our vision in mind when the International Solar Alliance came into being was to create a sustainable world through the adoption of solar energy solutions. The objective before all of us today is to triple global renewable energy capacity by 2030, aligning with the countries' established targets and policies and expanding aspirations to include zero and low-emission technologies, adopting more blended finance and risk-sharing facilities in the renewable energy sector.

So, let us approach this Assembly Session with a sense of duty, purpose, and optimism. I am confident that together, we can rise to the challenges of climate change before us. With this, I welcome all the delegates to this Sixth Session of the International Solar Alliance Assembly.

“ Around 80 per cent of the global population resides in countries that depend on fossil fuel imports, totalling a staggering 6 billion people. Renewable energy sources have the potential to supply 65 per cent of the world's total electricity by 2030 and decarbonise 90 per cent of the power sector by 2050. The International Solar Alliance is steadfast in its commitment to Member Countries to make solar as the energy source of choice, foster environments conducive to attracting investments and ensuring ample energy availability to meet the surging global demands.

Towards this, ISA through its Viability Gap Funding (VGF) mechanism provides a grant of USD 150,000 or 10% of the project cost (whichever is lower), per country per project. The Assembly decided to increase the range to 35% of the project cost, depending on the capacity and needs of the countries and their respective projects.”

Inaugural Addresses

Honourable Minister of Power, and New and Renewable Energy, Honourable Ministers, Director General of the International Solar Alliance, Ambassadors, Dear friends, I'm delighted to be here today to co-chair our Assembly with the Hon'ble Minister, Shri RK Singh. On July 14th, the President of the French Republic Emmanuel Macron had the pleasure of welcoming Prime Minister

Narendra Modi as Guest of Honour of our National Day and celebrating 25 years of strategic partnership between India and France. We also set out our roadmap for the next 25 years: global challenges are and will remain at the heart of this partnership. We look forward to continuing to work together. The International Solar Alliance - even though it was born in Paris as part of COP21 and was the first international organisation established in India - is much more than a bridge between India and France. It's a truly multilateral project that brings together all the players involved in facing the greatest challenge of our time.

For France, the Solar Alliance is a key initiative to promote the development of clean energy and thus combat climate disruptions. The Solar Alliance has grown a lot since 2015. I'm proud to see new members joining us every year. We're approaching the 120-member-state mark! What a wonderful momentum! I'm glad to see our programmes thriving, particularly in capacity building. France is playing its full part in this great project, with constant and growing support for our Alliance: - Through the French Development Agency (AFD), we've financed over 1.5 billion euros worth of solar projects since 2016. - And today I'm pleased to announce, Director General, that a French expert is joining the Alliance Secretariat to strengthen our support for your work. Ladies and gentlemen, the geopolitical and the global energy contexts have changed radically since our Alliance was launched in 2015.

And this has consequences for the direction we need to give to our organisation. In 2015, when the Alliance was founded, the aim was to support the growth of solar energy, lower costs, and convince people of the relevance of this technology. 8 years later, two trends have overtaken this original mission. On the one hand, we have entered a state of climate emergency more than ever before. Climate catastrophes are multiplying, from the Himalayas to the Sahel, from the Mediterranean basin to Australia. With COP28 just around the corner, it's vital that we step up our efforts on all fronts to meet the objectives of the 2030 Agenda

for Sustainable Development and at the same



H.E. Ms Chrysoula Zacharopoulou

Honourable Minister of State for Development, Francophonie, and International Partnerships of France

time those of the Paris Agreement. At the COP, one of France's priorities will be to support all commitments - particularly financial - to accelerate the global energy transition. On the other hand, the solar revolution is underway, and is set to accelerate drastically over the coming years. The new figures from the International Energy Agency (IEA) are striking.

Year after year, the solar power boom beats the most optimistic forecasts. At the time we founded our Alliance, the IEA predicted just 1,400 gigawatts of solar power by 2050, but we surpassed that mark as early as 2023! - And between 2022 and 2023, the Agency has raised its outlook for 2050 by +69%! In 2022, it predicted barely 5,000 gigawatts of solar power. It now predicts over 12,000 gigawatts of solar energy by the middle of this century! So, the challenge for our organisation is no longer to support the growth of solar energy. This boom is inevitable, and it's already underway. Today, our mission is to steer this momentum. Towards which countries? For the benefit of which populations?

How can we contribute to achieving the Sustainable Development Goals (SDGs)? I see three challenges: The first challenge, in my opinion, is to accelerate the deployment of solar energy in major markets

such as Europe and India, in order to structure a truly global ecosystem. Europe and France remain deeply committed to implementing this solar transition on our territory. By 2030, we intend to increase the share of renewable energy in the EU's energy consumption to over 42%. - In France, our ecological plan calls for doubling the rate of solar capacity installation. And I know that in India, this revolution is also underway.

The second major challenge is to ensure that investment in solar energy is equitably distributed and also benefits developing countries, from Africa to the Middle East and South-East

Asia. Unfortunately, the solar revolution I've described is not benefiting everyone. It's not bearing fruit everywhere at the same speed. The African continent possesses 60% of the world's solar potential, but only 1% of installed solar capacity. It is this great injustice that our Alliance must tackle. France is taking action. And we are determined to accelerate. Last year, we provided over 7.5 billion euros in climate finance to our partners. These are not mere figures, but concrete projects, such as the construction of the Onigbolo solar power plant in Benin, which we completed this year, bringing 25 megawatts of clean energy to the people of Benin. We also support our partners in formulating and financing their fair energy transition plans. This is the founding principle of all our international partnerships: to be based on national agendas and priorities. In this respect, I would like to pay tribute to the commitment of the Senegalese authorities. Together with Germany, we have signed a historic "Just Energy Transition Partnership" that will increase the share of renewable energy in Senegal's electricity mix to 40% by 2030, in return for 2.5 billion euros in funding from donors, including France. And Senegal is not the only country: we have also signed JETPs with South Africa, Vietnam, and Indonesia.

I would also like to remind you that the solar revolution must be backed up by a broader strategy of access to energy. Again, in Senegal, we are contributing 72 million euros with the European Investment Bank and the EU to connect 270,000 households and businesses to the electricity grid. Above all, we want to work together to improve access to financing. Billions of euros from France and other donors won't solve the problem. We need to reform the international financial architecture so that it meets the challenges of the 21st century, and in particular, the energy transition challenge. In particular, we need to ensure that private investment in renewable energies are leveraged to flow to developing countries. This is the aim of the Paris Agenda for People and the Planet, which nearly 40 countries have already joined, and which we will

continue to support in the run-up to COP 28. Its principles echo the agenda we are pursuing at the Solar Alliance through the Sustainable Renewables Risk Mitigation Initiative (SRMI). We have approved the second phase of this partnership between the Solar Alliance, several multilateral banks, and development agencies. 160 million dollars from the Green Fund will be combined with 960 million dollars from the World Bank to mobilise 1.8 billion dollars in private investment in nine countries, including Tunisia, Ethiopia, the Seychelles, and Somalia. It will enable the deployment of over 2 gigawatts of new projects, benefiting 3 million people.

The objective is clear: to reconcile economic development and ecological transition. In other words, to reconcile the planet with its peoples. This was a key priority of the Indian presidency of the G20, so let's continue with a concrete ambition.

The last challenge and France's last priority for the Solar Alliance is people. The solar revolution isn't just about billions in investment and silicon panels. The solar revolution also includes: - engineers, - technicians, - training centres - and the creation of genuine scientific, technological and entrepreneurial ecosystems. These elements are crucial to strengthening the absorptive capacity of countries. This is the best investment we can make. The Solar Alliance plays a key role in capacity building: through the STAR-C programme, we aim to strengthen a solid network of centres of expertise, to standardise training, have uniform technological standards and ensure that the solar revolution contributes to local employment. France's contribution to the STAR-C programme supports regional centres of expertise in three pilot countries: Senegal, Papua New Guinea, and Bhutan.

Ladies and gentlemen, at a time when international tensions seem to be growing more acute by the day, I would like to conclude with a conviction that is dear to me: I sincerely believe that this Alliance has the capacity to provide solutions to one of the great challenges of our time, despite the fractures in the world. It is in such spaces that we can truly transform the world. As President Ruto of Kenya often says, in the face of climate change, it's an impasse to oppose an imaginary "Global South" to a so-called "Global North". It's cooperation between us all that will enable us to face the challenge. When it comes to global challenges, the only distinction that exists is between champions who act, and laggards who block collective progress. It's up to us to prove together that the International Solar Alliance is a force for progress.

COP28 will be a decisive test for the Alliance and for each of its members. You can count on France, and I know I can count on you. Thank you.

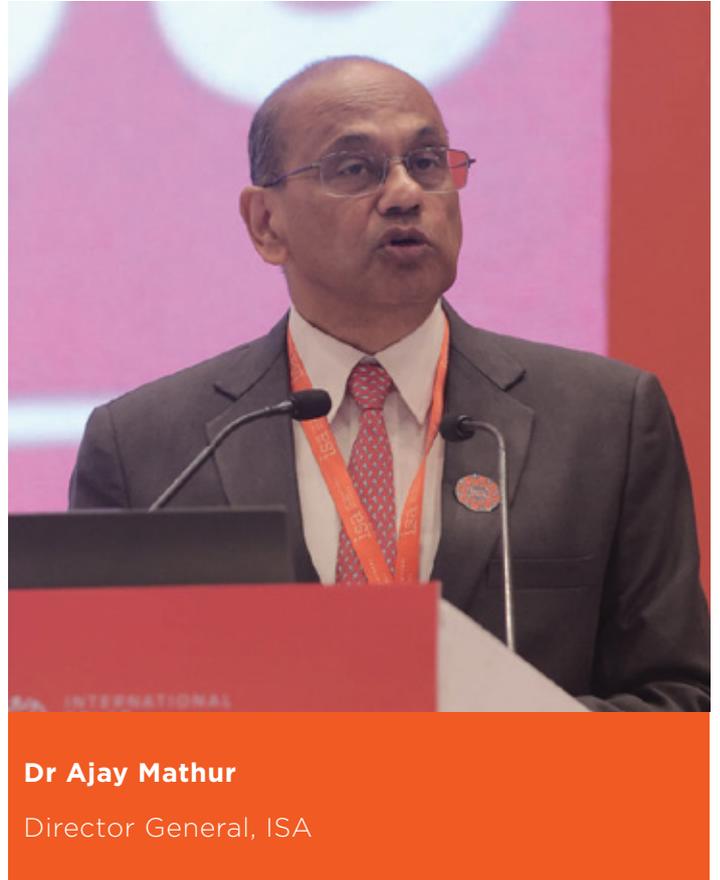
Inaugural Addresses

Access to reliable and affordable energy, especially in developing regions, is a formidable challenge that's exacerbated by the need for environmentally friendly solutions. As of 2021 estimates, approximately 675 million people, constituting 9% of the global population, lacked access to electricity. If the current trajectory continues, an alarming projection suggests that about 660 million people could remain without electricity by 2030. We urgently need

to accelerate the build-up of solar energy, especially in developing countries and in applications that influence the daily lives of those without access to reliable energy - such as getting electricity from solar mini-grids, powering agricultural pumps, running cold storages, etc. Capacity-building and regulatory change are necessary enablers towards that. ISA is facilitating over 9.5 GW of solar applications in 55 developing countries, including LDCs and SIDS, and has already provided training to nearly 4000 people across the developing world on ways to make a living out of supporting solar energy. We are working on developing STAR Centres in countries which will be a hub of technology, knowledge, and expertise on solar energy. In addition, ISA is enabling solar mini grids to provide universal energy access, especially where grid extension is too expensive. Guarantees help in crowding-in private sector investment, and ISA has developed such a mechanism to provide guarantees through its Global Solar Facility to its Member Countries in Africa. We are also enabling entrepreneurs in these countries who can, with help, become major suppliers of solar energy across countries and regions.

The ISA projects were conceptualised taking into consideration the demands from Least Developed Countries (LDCs) and Small Island Developing States (SIDS) that are Member Countries of the ISA. The primary purpose of these projects is to successfully demonstrate solar technology applications in the beneficiary Member Countries and enhance their capacity to scale up these projects in the future and potentially replicate these projects in other Member Countries. Today, it is my honour and privilege to dedicate four projects to the Republic of Malawi, the Republic of Fiji, the Republic of Seychelles and the Republic of Kiribati, each of USD USD 50,000 (Fifty thousand) provided by the ISA under the ISA grant initiative.

These projects showcase the feasibility and effectiveness of solar solutions and promote their widespread implementation across diverse regions



Dr Ajay Mathur

Director General, ISA

and sectors like:

- Solarisation of the parliament building of the Republic of Malawi
- the solarisation of two rural health care centres in the Republic of Fiji, with an 8-kW solar PV system & 20-kWh battery storage capacity for each health centre.
- Installation of one solar powered cold storage of capacity 5 MT for the benefit of its agricultural stakeholders at La Digue Island, Republic of Seychelles.
- Solarisation of the Nawai Junior Secondary School (JSS) in the Republic of Kiribati, with a 7 kW Solar PV rooftop system paired with a 24-kWh BSS.

These projects have the potential to provide affordable and clean energy, and ultimately avoid carbon emissions from power generation and consumption. Three projects were inaugurated during the last Assembly in October 2022 in Jamaica, the Togolese Republic and Guyana. Three projects were also inaugurated during the Fifth Meeting

of the ISA Regional Committee for the Africa Region held in August 2023 in Kigali, in the Republic of Uganda, Union of Comoros and in the Republic of Mali.

With these four projects inaugurated today, the International Solar Alliance has successfully completed 11 out of the 27 demonstration projects under this grant initiative. 12 more projects will be completed by December 2023 and the remaining will be completed by March 2024.

The International Solar Alliance recognises the achievements of our Member Countries and

applauds their efforts in advancing the cause of energy transition through solar. We as a collective must learn from one another's successes and challenges. Each step forward, no matter how small, contributes to the larger narrative of a sustainable, solar-powered world. I congratulate the Member Countries and dedicate the projects to the Republic of Malawi, the Republic of Fiji, the Republic of Seychelles and the Republic of Kiribati. I also extend my gratitude to their governments for their commitments and efforts towards solarize the vision of the ISA to solarize the world



High-Level Conference on New Technologies for Clean Energy Transition



A High-level Conference on New Technologies for Clean Energy Transition in collaboration with the Ministry of New & Renewable Energy, the Government of India, the Asian Development Bank (ADB), and the International Solar Energy Society (ISES) was organised on the sidelines of the Sixth Session of the ISA Assembly. The Conference was attended by the Ministerial delegations of the ISA Member Countries, policymakers, experts, and industry leaders. By fostering collaboration, sparking innovation, and sharing knowledge, the Conference aimed to make significant strides toward establishing solar as the energy of choice, expanding energy access, and bolstering economic growth.

The Welcome Address was delivered by Dr Ajay Mathur, followed by a presentation on the outline of the World Solar Reports on Technology, Investments & Markets by the ISA Secretariat and KPMG.

Shri Raj Kumar Singh, in his inaugural address stated, "We are approaching the cause of a greener and sustainable planet with much zeal, but the global energy transition can only be achieved when other countries also do their part with similar compassion.

We also need to help the least developed countries with finance and technology to help them transition to cleaner sources of energy. International Solar Alliance has been conceived with the same idea of tackling climate change through the deployment of solar energy solutions to help meet the clean electricity access challenge - cost."

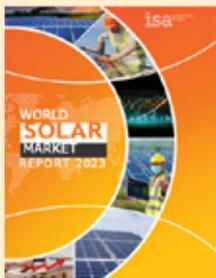
He also spoke on India's achievement and roadmap ahead while exhorting the international community to address the issues of storage, lack of manufacturing capacity and supply chain diversification, collectively, towards Net Zero. On the occasion, he released two reports: 'Second Edition of Global Solar Reports on Technology, Investments & Markets' and 'ISA ADB NEDO Report-A Roadmap for Developing and Scaling the Green Hydrogen Ecosystem.' The Hon'ble Minister was joined on the dais by Shri Bhupinder Singh Bhalla, Secretary, the Ministry of New and Renewable Energy; Dr Ajay Mathur, Director General, ISA; Mr Kenichi Yokoyama, Director General, South Asia Department, Asian Development Bank; and Dr Dave Renné, President, International Solar Energy Society.

At a Glance: World Solar Reports 2023

Solar energy is crucial for global sustainability. However, in the Least Developed Countries and Small Island Developing States, a lack of knowledge about solar technology, markets, and investments hinders climate change mitigation. The International Solar Alliance's Global Solar Reports provide vital information on tech, markets, and investments, helping nations and leaders accelerate their solar transition.



The World Solar Technology Report covers global technology-related advancements, achievements, and challenges. It reviews the current technologies available at all the steps of the value chain, the main technological trends, including system design and solar thermal solutions, advancements in various technological applications, and supply chains in manufacturing and deployment. This report focuses on solar photovoltaics (solar PV), highlighting the remarkable advancements in crystalline silicon technology. Over the past decade, research efforts have boosted efficiency and power output significantly, solidifying crystalline silicon PV as the top choice for various applications. Solar PV has experienced exceptional growth, expected to capture 56.4% of the total renewable energy share by 2050. Crystalline silicon technology dominates the market with a 98% share, particularly monocrystalline and emerging technologies like organic PV and perovskite PV hold promise for the future.



The World Solar Market Report covers market trends of different applications. It investigates factors driving the markets in different regions/countries, the role of the market so far in solar energy replacing fossil fuels, and global political dynamics impacting the market. Over the past two decades, solar technology, particularly solar photovoltaics (PV), has witnessed explosive growth. Starting with just 1,600 megawatts (MW) of global installed PV capacity in the early 2000s, the adoption of PV technology soared with feed-in tariff programs in countries like Japan and Germany.

Initially popular on residential rooftops, PV's versatility and cost reductions later led to large-scale solar PV power plants. By spring 2022, the world had reached a monumental 1,000 gigawatts (1 terawatt) of installed PV capacity. This report offers a comprehensive analysis of the solar market's evolution from its European origins to its current leadership in the Asia-Pacific region, highlighting a remarkable 37% compound annual growth rate, significant market expansion in 2022, and changing regional dynamics in solar adoption.



The World Solar Investment Report assesses the transition needed for the financial sector to fulfil the solar industry's investment requirements in the near future. The report undertakes a detailed assessment of the investment required to transition to mainstream solar energy in the energy mix; measures to speed up capital reallocation from fossil fuels to solar assets. It investigates steps undertaken by financial institutions and institutional investors to prioritise solar project lending. Risk and mitigation measures adopted in the past to safeguard investments by various countries have been highlighted in the report, in addition to a brief analysis of new financial instruments successfully adopted and institutionalised for upscaling the deployment of solar energy. This report highlights the surge in global solar investments in 2022, exceeding \$300 billion (a 36% increase from 2021). Asia Pacific and Europe & North America led the way, with China, Germany, and the USA as top investment destinations. To ensure a robust solar future, we must invest in grid infrastructure and storage, diversify supply chains, and prioritise emerging markets for inclusive energy transition toward Net Zero by 2050.

The ISA's Strategic Roadmap for Green Hydrogen: A Game-Changer in Clean Energy Transition

In a groundbreaking move towards fostering sustainable energy solutions and bolstering global efforts to combat climate change, the International Solar Alliance (ISA) recently unveiled a comprehensive roadmap for advancing and expanding the green hydrogen ecosystem. The report, titled 'A Roadmap for Developing and Scaling the Green Hydrogen Ecosystem,' was launched in New Delhi on November 1, 2023, on the sidelines of the Sixth Annual Assembly of the ISA. Developed in collaboration with the Asian Development Bank (ADB) and the New Energy and Industrial Technology Development Organisation (NEDO), the report signifies a crucial step towards propelling the world into a cleaner and more sustainable energy future.

India's Commitment to Green Hydrogen

Emphasising India's commitment to promoting and adopting green hydrogen, Shri RK Singh stated, "India is an emerging power. With our single unified grid and large renewable capacity, India can produce the cheapest green hydrogen in the world. We will do everything in our power to make India competitive in producing green hydrogen and to achieve the targets set out in the National Green Hydrogen Mission (NGHM)." He highlighted the importance of hydrogen in mitigating climate change and urged industries and communities to embrace it as a pivotal player in the ongoing energy transition. In a special address, Shri Bhupinder Singh Bhalla asserted that India is poised to become a leader in the green hydrogen sector. He stressed the importance of producing green hydrogen cost-effectively while leading in technology and safety standards.

The Role of ISA in Advancing Green Hydrogen

Dr Ajay Mathur highlighted the necessity for a knowledge repository to track global progress and provide updated information and learning as countries develop green hydrogen ecosystems. He announced the establishment of the Green Hydrogen Innovation Centre, which has been facilitated by the ISA as an International Partner Organisation to India's G20 Presidency. This Centre aims to accelerate the production, utilisation, and trade of green hydrogen across Member Countries and beyond. Dr Mathur emphasised that the ISA's Green Hydrogen Report not only delves into recent technological advancements, but also provides insights into emerging regulations, standards, and market assessments, creating a pathway for the development of the green hydrogen supply chain.





Global Significance of Green Hydrogen

The report highlights the growing role of green hydrogen, produced using renewables, in enabling global decarbonization goals by 2040. Despite currently constituting a small share of hydrogen production, decreasing renewable costs fuel an optimistic outlook. While acknowledging challenges like operational costs and workforce gaps, the report identifies key success factors including heightened investment, government backing, and technological improvements. Overall, a compelling case is made for green hydrogen's potential as a sustainable energy solution, unlocking economic opportunities and climate change mitigation globally. The ISA's comprehensive roadmap marks a milestone in the transition towards cleaner energy. With India taking leadership and international partnerships shaping the sector's future, the world is poised to transform energy production and consumption through this technology. The strategic guide will be valuable for countries to leverage green hydrogen's promise while addressing its challenges.

Technical Session - I: Novel Technologies In Solar Energy Session

Session objectives:

- Exchange of expert viewpoints on technological innovations in the solar and other renewable sectors
- Identify opportunities for ISA Member Countries to support the economy-wide clean energy transition, including hard-to-abate sectors.
- Identification of investment options for Clean Energy developers and financiers.

The session on Novel Solar Technologies focused on emerging innovations poised for large-scale commercialisation across solar and related sectors. Discussions centred on next-generation solar cells to improve efficiency and lower costs, novel solar applications, advancements in manufacturing, and evolving areas like advanced batteries, green hydrogen, and solar-powered electric mobility. Key challenges remain in photovoltaic conversion efficiency and cheaper battery storage options to better support renewable growth. Green hydrogen is seen as vital for realising net-zero emissions,

but electrolyser efficiency, lifespan, manufacturing capability and raw material supply must improve. While solar-powered EV charging holds promise for sustainable transport, technical obstacles around materials and components remain. Materials innovation is critical for breakthroughs in energy generation, transport, and storage. Long-term solutions to pressing issues in sustainability and the energy transition will hinge on materials advances that can enable scalable deployment of novel solar technologies like next-gen cells, green hydrogen electrolysers, and solar EV charging infrastructure.

Technical Session-II: Solar Pv Resilient Supply Chains: Need For International Collaboration In Solar Manufacturing Session

Session objectives:

- The session will highlight and give insight on the pathway for measures that can be taken for resilient supply chain.
- The Session will highlight how the international solar community and states can collaborate together for solar PV manufacturing

Over the past decade, global solar PV manufacturing capacity has shifted from Europe, Japan and the USA to China. This concentration of the solar supply chain in one country brings vulnerabilities that could hamper the energy transition, including import delays, pricing challenges and a lack of resilience. To meet climate goals, solar PV deployment must grow rapidly, requiring a major expansion of manufacturing capacity. However, the world currently relies almost completely on China for solar panels, representing a considerable vulnerability. Additionally, solar PV demand for critical minerals

will play a key role in manufacturing and supply chain resilience. As the world moves towards net zero emissions, solar PV is set to dominate clean energy production. Hence, there is an urgent need for international cooperation on critical mineral supply and distributed solar PV manufacturing capacity to develop resilient, secure supply chains that enable the sustainability transition. Diversifying manufacturing and mineral extraction globally will be vital for affordable, reliable solar PV deployment at the pace and scale required.

Technical Session Iii: Storing The Future: Global Advances In Hybrid (Renewable Plus Storage) Business Models

Session objectives:

- The Session will focus on hybrid storage innovations worldwide and how integrating storage is vital to optimally leverage solar resources while enabling grid integration.

Renewable energy transitions are unfolding globally, with energy storage playing a critical role in integrating solar and wind onto electricity grids. Large-scale solar projects utilizing batteries or other storage technologies are being deployed worldwide to enhance reliability and stability. These hybrid systems store excess renewable energy when demand is low, discharging it when high, enabling more consistent renewable supply. Storage also absorbs surplus generation, avoiding curtailment, while meeting peak demand. Replacing diesel backup with storage provides the distributed flexibility needed to integrate more renewables.

Advanced lithium-ion batteries with higher density and lifespan are increasingly utilized. Artificial intelligence and machine learning optimize storage systems, reducing costs and boosting grid stability. Hybrid systems combining multiple storage technologies also gain interest by providing greater flexibility to enable the sustainability transition. As renewable adoption expands, solar plus storage hybrid projects will likely remain an important focus area for enabling the productive integration of clean energy.

Site Visit to Akshardham Temple, 2 November 2023, New Delhi

On the sidelines of the 6th Assembly, the ISA organised a visit to the Akshardham temple complex on 2 November 2023 for the visiting delegates. The temple complex houses a captive rooftop solar power plant of 1MW capacity which provides green power to meet its daily requirement, and also uses various energy-efficient technologies and practices, such as LED lighting and energy-saving appliances.



ISA's Targets

Director General of the International Solar Alliance, Dr Ajay Mathur, outlined the GSF's target to raise \$100 million, emphasising its potential to bring clean energy access to millions of households in Africa by 2030. Dr Mathur highlighted the urgent need for global investment, with the GSF aiming to address the stark disparities in renewable energy investments between developed and developing regions.

Dr Ajay Mathur, commenting about why the GSF is needed, said,

“The world requires an investment of \$12.5 trillion in renewable energy and \$23 billion in off-grid solar by 2030. The ISA through its Global Solar Facility is stepping up as current global solar investment falls woefully short, constituting only 10% of the required amount for achieving net-zero emissions. Additionally, there is a profound disparity in investments — with developing countries, home to over 50% of the global population, receiving just 15% of 2022's renewable energy investments. Sub-Saharan Africa's per capita renewable energy investment has plummeted by 44% from 2015 to 2021. In stark contrast, investments in North America are 41 times higher, and in Europe, they are 57 times greater. The GSF will further our vision of addressing the urgent need for universal energy access and a clean energy transition projects.”

Global Recognition And Commitment

Ms. Kate Hampton, Chief Executive Officer, CIFF, expressed their commitment to seed funding the GSF, acknowledging its role in unlocking critical institutional and private sector investment. Bloomberg Philanthropies echoed this sentiment, emphasising the potential for African countries to lead in solar power with the right capital injection.

Ms Kate Hampton said,

“We are thrilled to announce CIFF’s commitment to seed funding the International Solar Alliance’s Global Solar Facility, which will unlock critical low-cost institutional and private sector investment for solar in ISA Member Countries. Here and in all our work, CIFF is resolute in its commitment to championing clean,affordable energy, to driving the global energy transition, and to securing a livable planet for children and young people around the world.”

Anthia Williams, who leads environment programs at Bloomberg Philanthropies, said,

“African countries are positioned to be global leaders in solar power but lack the capital necessary to unlock their untapped potential. Bloomberg Philanthropies looks forward to continuing its partnership with the International Solar Alliance through the Global Solar Facility to help facilitate the widespread deployment of solar energy projects across the continent not only to help solidify the continent as a global leader in clean energy but also address the twin challenges of energy poverty and the climate crisis.”

Diversifying Investments For A Sustainable Future

The ISA emphasised the need to diversify solar energy investments in Africa, a continent with vast solar potential but only 1.3% of the world’s installed solar capacity. The GSF, following its launch at COP27, has been actively engaging with potential investors, development finance institutions, and regional partners.

Future Endeavours And Expansion Plans

Looking beyond Africa, the GSF envisions expanding to regions such as Asia, Latin America, and the Middle East. Regional Facilities will be tailored to meet specific requirements, and the GSF plans to invest in innovative technologies, support startups, and explore emerging solar energy sectors, further solidifying its role in the global clean energy transition.



Strategic Approach

ISA is a growing international organisation working towards the vision of facilitating energy access, security, and transition by delivering cleaner electricity to all by 2030. With this vision in mind, ISA supports governments around the world to improve energy access and security by promoting solar energy as a sustainable, affordable, and resilient way to transition to a carbon-neutral future.

Globally, ISA's work is focused around three key strategic priority areas – Analytics and Advocacy, Capacity-building, and Programmatic Support.

Analytics and Advocacy

ISA seeks to support Member Countries in the formulation of policies and regulations by publishing reports annually on technology, investments, and markets in the solar industry. The insights in these reports have helped countries chart out their solar trajectory and fast-track deployment of solar technologies by creating a conducive environment through pro-solar policies and regulations and enabling investor-friendly markets. Reports on green hydrogen, assessing the market in Africa and ecosystem readiness, have been internationally recognised and quoted by media. ISA will continue with annual editions of its flagship reports (Ease of Doing Solar, World Solar Reports) and is additionally launching a report on "Building Resilient Supply Chains".

Capacity-building

ISA is building capacity that propels solar investments. The Alliance is designing Solar Technology Application Resource Centres (STAR-C) across 10 countries to cultivate the necessary human capacity and skills to undertake energy transitions independently while boosting economic growth and job creation. Five STAR Centres will be operationalised in Ethiopia, Kiribati, Cuba, Uganda, and Somalia by the end of 2023. Under its goal to cultivate the necessary human capacity and skills to undertake energy transitions independently while boosting economic growth and job creation, ISA has trained and certified 3,342 personnel across 78 countries.

Programmatic Support

ISA has been actively working to ease the deployment of solar under its programmatic support. Through its nine programmes across 53 Member Countries, it is helping ease solar procurement, facilitating the development of bankable large-scale solar projects, arranging project management services,

and helping to set up institutional capacity. So far, about 7.65 GW of capacity has been aggregated across 19 countries through solar parks. To create a multiplier effect, ISA has collaborated with 33 global partner organisations, including the United Nations Environment Programme (UNEP), the European Union (EU), and the United Nations Industrial Development Organisation (UNIDO), among others.

The ongoing and future priorities across various activities have been envisioned in ISA's strategic plan.

Focus/Priority areas include:

Solar mini grids for rural electrification



Roadmaps and handholding of green hydrogen developments



Solar manufacturing



To 'solarise the world' by 2030, ISA plans to:

- Continue with annual editions of its flagship reports (Ease of Doing Solar, World Solar Reports) and launch a report on "Building Resilient Supply Chains";
- Scale up the STAR-C initiative to 50 countries by 2030 and organize industry-led certification programmes;
- Increase the number of projects in six programmes (beyond the current 9.5 GW), kick off projects in three new programmes;
- Expand and deepen engagement with private sector in terms of opportunities and challenges;
- Scale up the Global Solar Facility in Asia-Pacific and Latin America & the Caribbean, and the SolarX Startup Challenge in APAC, Europe, the Middle East, and Latin America & the Caribbean

• ISA's work will deliver on

10 GW installed capacity

Double the installed solar capacity in LDCs and SIDS



7 million tonnes/year

Reduce emissions from shutting down fossil-fuel-based electricity



Providing 18 million people

with electricity access: Eliminate energy disenfranchisement



3.7 million jobs

for assisting socio-economic growth



USD 10 billion

multiplier effect to facilitate industry and economic development



Impact of ISA's work

ISA's initiatives exemplify the practical application and effectiveness of solar technologies in various contexts. Customised to meet local needs, these projects are addressing specific energy requirements, rendering them highly relevant to each region and community. They also play a pivotal role in climate change mitigation. The successful

“ISA's efforts are harnessing the transformative potential of solar energy, delivering tangible benefits in sustainable energy access, community empowerment, employment generation, and climate change mitigation, ultimately propelling the global journey towards a sustainable and greener future.”

implementation and scaling of these projects is helping countries achieve their climate goals and transition towards a low-carbon economy.

ISA's work is contributing to progress on three Sustainable Development Goals (SDGs).

SDG 5: Achieving Gender Equality and Empowering Women and Girls

In many places around the world, women face great hardships and are exposed to health risks due to limited or no access to clean energy and continued dependence on conventional fuels for cooking and other household chores. Moreover, this diminishes their ability to engage in economically productive activities. Adopting renewable energy as a primary source of energy can be a game changer. Off-grid solar solutions can not only catalyse lasting

economic, social, and environmental change but also create economic opportunities and improve the quality of life for women in energy-challenged areas.

The success of the ongoing efforts to combat climate change hinge on several key factors, including closing the gender gap to increase the participation of women in the technical, scientific, and business development of the renewable energy sector. According to IRENA's World Energy Transitions Outlook 2022 report, there will be 139 million jobs worldwide in the energy sector by 2030. Reports in 2019 and 2022 revealed that the renewable energy sector employed a higher percentage of women than the energy sector overall. Within the renewable energy sector, the solar photovoltaic (PV) industry is the largest employer of women. According to IRENA, the share of women working in full-time positions in the solar PV industry was close to 40 percent - much higher than the share in the wind industry (21%), the oil & gas sector (22%), and the renewable energy sector overall (32%).

SDG 7 and 13: Affordable and Clean Energy & Climate Action

Access to reliable and sustainable energy remains a formidable challenge, particularly in the LDCs. This critical need for universal energy access to drive development and economic prosperity has been rightfully acknowledged and enshrined in the United Nations' Sustainable Development Goals (SDGs), specifically in SDG 7. However, despite concerted efforts, the ambitious targets of SDG 7 to achieve universal energy access by 2030 face significant challenges.

Simultaneously, the spectre of climate change looms as an imminent and undeniable threat to our global civilisation. Its impacts are already palpable, and the consequences will be nothing short of catastrophic unless decisive action is taken. Through education, innovation, and commitment to our climate pledges, we possess the power to effect the changes necessary to safeguard our planet. Moreover, these changes represent monumental opportunities to modernise our infrastructure, creating a surge in employment and fostering greater prosperity worldwide, thereby aligning with the imperatives of SDG 13.

ISA's goals and vision are fundamentally aligned with SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action), including its focus area of accelerating deployment and reducing costs of solar in developing countries. This commitment is deeply embedded in ISA's Theory of Change,

driving every endeavour.

In 2017, ISA embarked on a transformative journey with the launch of its pioneering programme, Scaling 'Solar Mini Grids'. This initiative was strategically designed to address the energy deficits in ISA Member Countries, specifically in regions plagued by unreliable or nonexistent grid infrastructure, including isolated island territories.

Beyond this, ISA extends its support to member countries in multifaceted ways, ranging from bolstering institutional capacities to refining policies and regulations. Through the provision of technical expertise and the establishment of pilot projects, ISA provides guidance and assistance in the pursuit of sustainable energy solutions.

ISA's Global Solar Facility, the ISA SolarX Startup Challenge, which nurtures entrepreneurial ventures, and the Solar Technology Application Resource Centre (STAR-C), a hub for capacity-building, collectively propel the unelectrified population towards the shared goal of achieving universal energy access by 2030. These initiatives stand not only as testament to ISA's deep commitment but also as concrete steps towards a future powered by affordable, clean energy, in perfect harmony with the global vision of sustainable development and climate resilience.



Highlights

To build a bankable pipeline and widen impact, ISA has committed to providing financial support of USD 84 million comprising USD 44 million* from Member Countries and USD 40 million from philanthropic organisations. Of this, USD 22.3 million have been received so far.

(*The Government of India has agreed to provide INR 100 crore per year from 2023 to the end of 2025. India's Ministry of New and Renewable Energy has transferred INR 100 crore to ISA for the year 2023.)

A corpus fund of USD 36 million has been initiated, with a contribution of USD 16 million by India.

The ISA office is co-located in the National Institute of Solar Energy (NISE) building

As ISA is the only international organisation led and promoted by India, constructing a landmark building on the outskirts of Delhi as its headquarters has considerable merit. While ISA was formally inaugurated and the foundation stone was laid on 25 January 2016, the agreement for the headquarters was signed on 26 March 2018. Five acres of land has been identified at the National Institute of Solar Energy (NISE) campus to establish a training centre.

Human Resources and Technical Capacity-building:

- 215 Master Trainers**
- 1226 Bankers trained**
- 466 Solar Water Pumping Systems**
- 373 Solar Mini-grids**
- 284 Solar Rooftops**
- 461 Solar Parks**

ISA's Priority Areas of Work



| Analytics & Advocacy

In a rapidly evolving solar energy landscape, global initiatives and innovations are driving solarisation to meet escalating energy demands. ISA, through its Analytics & Advocacy focus, champions the adoption of solar-friendly policies and practices in Member Countries. This is achieved through extensive research and reports covering technology, investments, and markets.

We will also delve into ISA's continuous collaboration with the private sector, envisioning a flourishing solar industry aligned with SDG 7 and 2050 net-zero targets.

The "Ease of Doing Solar Report" originated as a pilot initiative in 2019 that covered four countries. Now in its fourth edition (2022), this report provides detailed solar energy profiles of 107 countries. Rooted in extensive data research and analysis, this annual publication presents information on seven pivotal drivers: macroeconomy, policy enablers, technological feasibility, market maturity, infrastructure, financing ecosystem, and energy imperatives. Each Member Country of ISA is examined through multiple indicators, aiding in the identification of prevailing challenges, barriers, best practices, and lessons for hastening the energy transition through solar

“ISA actively assists Member Countries in formulating favorable solarisation policies and regulations, exemplified by flagship reports like “Ease of Doing Solar 2022” and “The Global Trends in Solar Power - 2023 Report”, which we will touch upon in this section.”

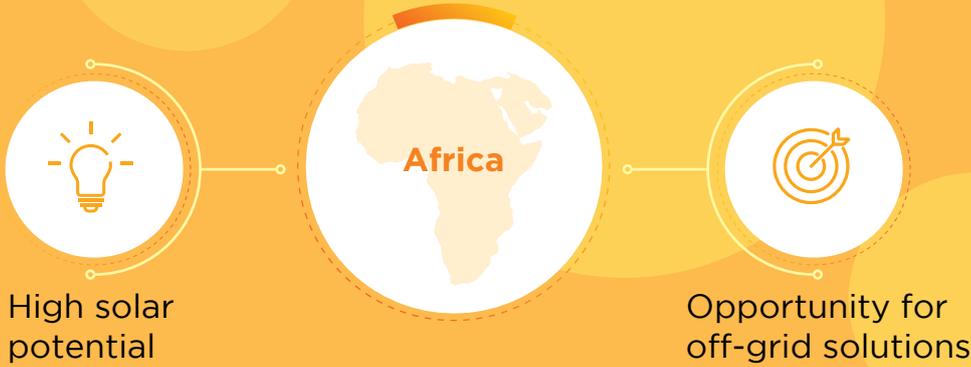
Covers **107 countries**
Examines **7 drivers**
Considers **24 parameters**
Includes **67 indicators**

Owing to strong solar potential, enabling policy ecosystem, mature markets, and robust power infrastructure, a set of 28 countries have been identified as **Achievers**

Highlights

The next set of classification, **Influencer**, has 50 countries followed by **Progressive** (22 countries) and **Potential** (7 countries)

Region-wise Highlights



Global Trends in Solar Power Report 2023

An extension of the EoDS initiative, 'The Global Trends in Solar Power - 2023' report delves deeper into the key trends shaping the global solar market, with a dedicated focus on ISA Member Countries. This report captures best practices and the latest developments in the global solar arena, encompassing renewable energy targets within the NDCs, policy and regulatory trends, technological advancements, market ecosystems, supply chain dynamics, and investment and employment trends within the industry.

135 countries have pledged towards net-zero targets, collectively covering **88%** of global emissions.

At the **2021 UN Climate Summit**, countries committed to a phased reduction of unabated coal power

135 countries have set renewable power targets, with **17 of them** specifying solar-specific targets.

2022 witnessed a global installed renewable power capacity of **3,372 GW**, backed by investments of USD 0.5 trillion in renewables and **USD 308 million** in solar

A total of **1,053 GW** of global installed solar energy capacity was achieved in 2022

The renewable energy sector provided employment for **12.7 million individuals** worldwide in 2021, with **4.3 million jobs** specifically in solar PV, constituting one-third of the total renewable energy workforce in that year

Fossil fuel subsidies reached **USD 532 billion** in 2021, underlining the urgent need for sustainable energy alternatives

World Solar Reports 2023

Illuminating the Path to Sustainable Energy

Solar energy stands as the linchpin in the global pursuit of a sustainable, low-carbon energy landscape. Yet, in Least Developed Countries (LDCs) and Small Island Developing States (SIDS), a dearth of knowledge regarding solar technologies, market trends, and investment landscapes hampers progress in mitigating climate change. The International Solar Alliance's flagship Global Solar Reports on technology, investments and markets emerges as a beacon, shedding light on the strides made in technology, market dynamics, and investment scenarios, offering a compendium of the year's highlights, supported by facts and figures.

These reports are instrumental in empowering nations, policymakers, and leaders with critical insights to expedite their solar transition

Highlights

- 

Solar energy's share in the global renewable energy mix catapulted from **8%** to an impressive **28%** in the past decade
- 

Cumulative solar installations reached a monumental **1.2 TW** in 2022, solidifying its position as the fastest-growing renewable energy technology
- 

Solar's ascendancy can be attributed to its technical and financial maturity, coupled with the inherent modularity and flexibility of solar technologies
- 

Innovation in finance including new instruments supporting credit guarantee is playing a key role in accelerating solar adoption globally

World Solar Report on Technology

This report provides a detailed exploration of solar photovoltaics (solar PV), with a spotlight on the dominant technology, crystalline silicon, and its remarkable advancements. The report also captures manufacturing of solar technologies status quo and recent trends in improvements in process efficiency.

Highlights:

- Continuous R&D efforts have yielded breakthroughs, elevating efficiency from 14.7% to 22% and power output per module from 242Wp to 600Wp over the last decade, positioning Crystalline silicon PV as the go-to choose for diverse applications.
- Solar energy technologies, notably solar PV, are at the center stage among the RE technologies with a six-fold growth rate over the last decade, the second-placed RE technology to date-wind- has a two-fold growth rate. Furthermore, solar PV is expected to continue its supremacy due to its various features like modularity, flexibility, maturity, etc. and is anticipated to reach an installed capacity of 16,887 GW in 2050 (56.4% total RE share).
- Crystalline silicon solar technologies, monocrystalline and multi-crystalline, play a vital role in the market and are expected to continue their dominance in comparison with thin-film technologies due to various favourable trends like improvement in efficiency, the downward track of the cost of components after the surge during the COVID-19 pandemic, with a current market share of about 98% for crystalline silicon and about 2% for thin-film technologies. Among crystalline silicon, mono-crystalline dominates by a share of 88.4% followed by multi-crystalline silicon which is fading off.
- Several promising crystalline silicon architectures of solar cells like TOPCon (record efficiencies of 25.8%), HJ (26.3%) and IBC (26.8%) are seeing initial stages of commercial production and are expected to book a major share of the market by 2033.

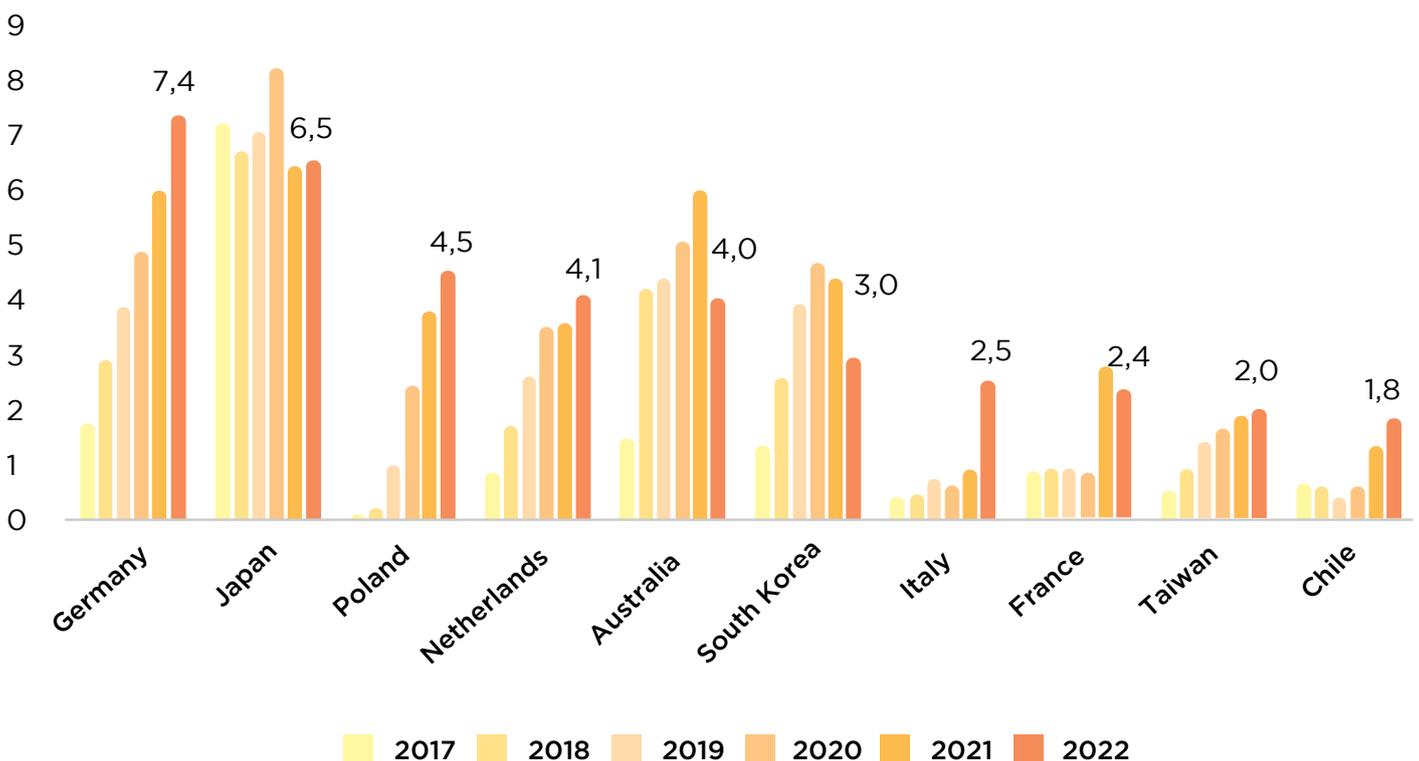
- Similarly, next-generation solar technologies like organic PV (record efficiencies of 15%), perovskite PV (23.6%), and tandem cells (32.5%), promising solar technologies, are currently under development. These technologies offer significant benefits and have the potential to drive future capacity installations. Further research and development activities are required to ensure that they achieve their potential.
- Streamlined manufacturing processes, technological innovations, and scalable production facilities have substantially lowered costs, propelling crystalline PV into the echelons of the world's most cost-effective energy sources



World Solar Report on Market

This report offers a comprehensive analysis of solar market dynamics, tracing its evolution from European beginnings to its current leadership in the Asia-Pacific region.

Top #6 to #15 annual PV addition 2017-2022(2022-ranking)



Highlights:

- With a staggering 37% compound annual growth rate (CAGR), solar PV emerges as the frontrunner in growth and potential.
- The market's dimensions in 2022 marks an 38% growth from 2021, triggered by the global energy crisis and the growing demand for clean and affordable electricity. It also represents an astounding 679% expansion compared to a decade earlier
- European solar market contracted from 21.9 GW in 2011 to a more modest 7 GW in 2016, opening doors for the Asia-Pacific (APAC) region to assume a prominent role in the global solar landscape
- Most of the leading solar markets in 2022 maintained their standings from the prior years, yet there were notable changes in rankings and the inclusion of new entrants owing to diverse growth patterns
- The adoption of solar PV shows a relatively uniform pattern across regions. In 2022, solar PV contributed to 5.1% of electricity in the APAC region. Following closely, Europe reached 4.8% (7.3% for EU27). Meanwhile, the Americas achieved 4.1%, and both the Middle East and Africa shared a similar standing of 1.7
- The global solar watt per capita stands at 144 W, while the podium in W/c has not changed with Australia, the Netherlands and Germany taking the lead, the two leaders have now surpassed the 1 kW of installed capacity per inhabitant, a landmark that was achieved by Australia alone in 2021

World Solar Report on Investment

This report provides an overview of global and regional solar investment trends, highlighting key regions, innovative financial instruments, economics driving solar investment, and investments needed to achieve Net Zero goals by 2050.

To keep up with the growing RE demand, it is not only necessary to ramp up solar manufacturing capacity around the globe but also **build diverse, resilient, affordable, and sustainable** supply chains

Asia Pacific and Europe & North America accounted for **55% and 33%** of global solar project development investment respectively. Within these regions; China, Germany, and USA have been consistently attracting the most annual solar investments.

Although spending on solar energy has increased significantly in recent years, it is

overwhelmingly concentrated

in a small number of developed countries where the solar PV market has achieved maturity.

The solar manufacturing supply chain is geographically concentrated in Asia Pacific region and particularly in China, making the manufacturing sector vulnerable to supply chain instability. To **minimize risks to the supply chain** due to global tensions and trade disputes, domestic manufacturing must be encouraged.

Global investments in the solar energy sector surpassed the - **\$300** billion mark in 2022, registering a massive increase of **36%** over 2021 levels

With the growing interest in solar-enabling technologies, increased investment in the **grid infrastructure and energy storage** is required to promote solar technology while increasing its reliability.

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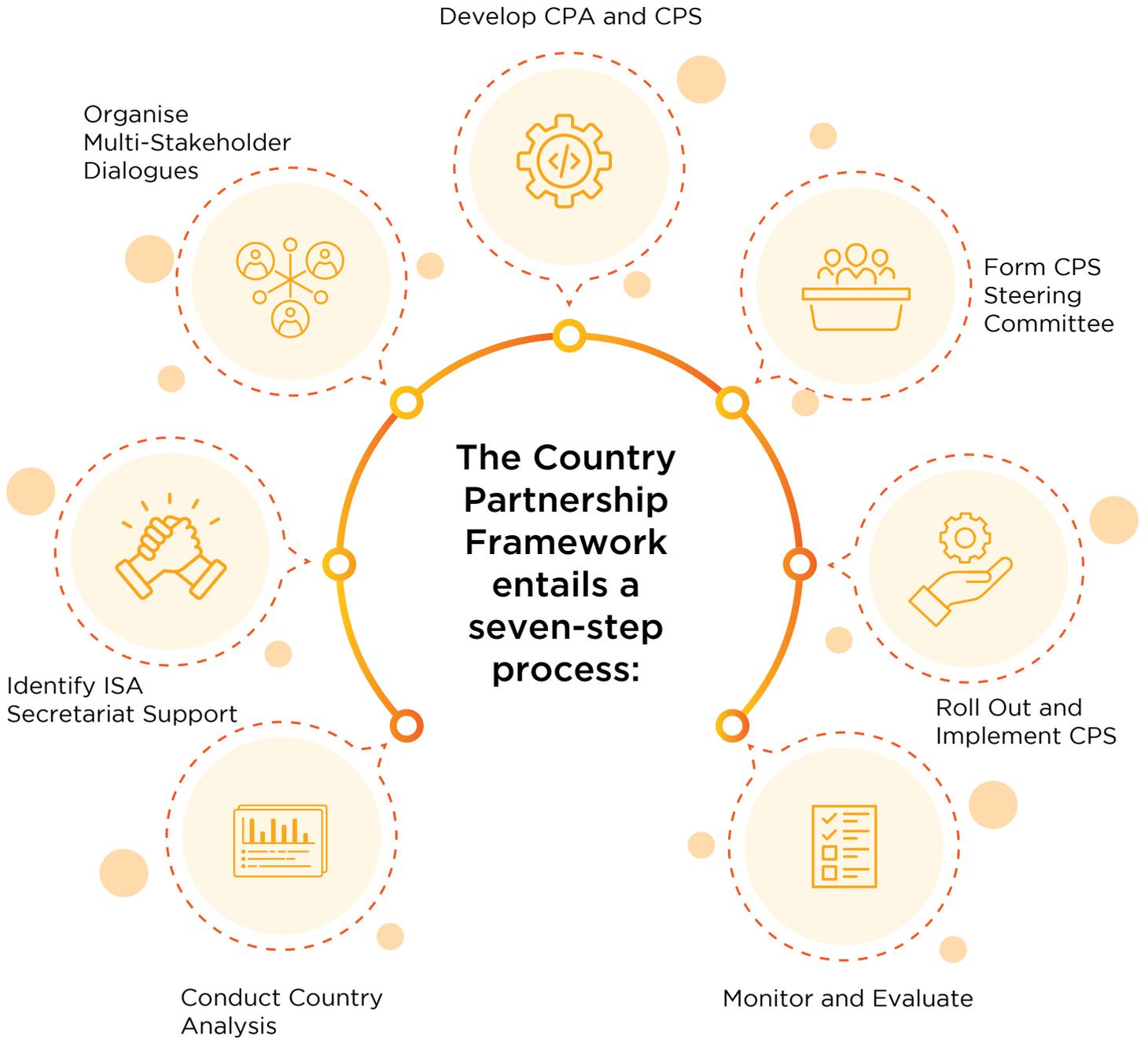
Country Partnership Framework of the ISA

In the pursuit of advancing solar energy deployment and clean energy transition, the International Solar Alliance (ISA) has outlined a comprehensive Country Partnership Framework for the period spanning 2022 to 2026. This strategic framework places significant emphasis on fortifying collaborations with key stakeholders including the private sector,

development institutions, and Member Countries. This deliberate shift aims to transition from sporadic, activity-based engagements to a more cohesive partnership.

“ The core of this framework lies in the Country Partnership Strategy (CPS), an integral component formalised through the signing of a Country Partnership Agreement (CPA) between ISA and a Member Country. This two-and-a-half-year agreement meticulously outlines actions, funding mechanisms, roles, and responsibilities tailored to align with both the development needs of the Member Country and the strategic priorities set forth by ISA. ”





A detailed analysis of the Member Country's context, climate change stance, solar energy potential, as well as factors facilitating or impeding solar deployment, are all scrutinised to pinpoint areas of potential action. These findings are then presented to a wide array of stakeholders,

encompassing various ministries, international development and financial institutions, and private sector entities within the country. This collaborative effort identifies joint priorities and opportunities for concerted action.

Subsequently, the framework guides the ISA Secretariat in determining the support it can extend to Member Countries and lays the foundation for a two-year Country Partnership Strategy. This strategy encompasses precisely defined actions, associated funding, and allocated responsibilities.

To facilitate seamless implementation, the framework advocates the establishment of a Steering Committee within the Member Country, tasked with overseeing the execution of the partnership strategy. It also establishes mechanisms for ongoing monitoring and evaluation to gauge the attainment of desired outcomes.

“ In essence, the Country Partnership Framework epitomises a systematic, evidence-driven, and adaptable approach to ISA’s engagement with Member Countries, all harmonised with their national priorities and plans. It serves as a dynamic tool that identifies critical areas of impact and formulates targeted plans to systematically address these gaps.”



Country Partnership Strategy Implementation Status

The implementation of the Country Partnership Strategy has yielded promising results, exemplified by recent accomplishments:

Bangladesh

In February 2023, ISA and the Power Division within the Ministry of Power, Energy, and Mineral Resources of the Government of Bangladesh formalised a Country Partnership Agreement. This landmark agreement has paved the way for a slew of solar initiatives, spanning from a comprehensive solar roadmap to solar applications in agriculture and health centers.

Bhutan

A Country Partnership Agreement with Bhutan is currently in the consultation phase and is anticipated to be signed by mid-October 2023.

Nepal

A Technical Mission led by ISA and ADB in July 2023 emphasised solar's pivotal role in Nepal's clean energy transition, aiming to accelerate its deployment.

Niger

A Technical Mission in March 2023 focused on key projects including grid-connected solar initiatives and the development of solar PV plants for hybridisation.

The Way Forward

Building on lessons learned and experiences shared by global institutions, ISA has identified key recommendations to enhance the country partnership process:



Country-Level Engagement

Organise events to gain deeper insights into country-specific needs, informing contextually specific and globally aligned Country Partnership Frameworks.



Institutional Capacity of ISA

Bolster internal institutional capacity to support Member Countries, aiding in the articulation and implementation of CPS, and facilitating decision-making and reporting.



Documentation of Country Contexts

Develop comprehensive documents detailing individual country contexts, with a specific focus on renewable energy plans and roadmaps, to guide the formulation of partnership strategies.



Capacity Augmentation of National Focal Points (NFPs)

Collaborate with NFPs to discern specific input requirements, strengthening their effectiveness in areas such as human resources, technical assistance, planning, administration, and communication.



Review Process for CPS Implementation

Institute a robust multi-stakeholder annual review process at various levels to fortify ISA's role in priority country groupings, seamlessly linking with regional initiatives.

Private Sector Interventions

ISA's Private Sector Engagement Strategy, meticulously designed and approved, stands as the cornerstone for propelling solar industry growth across all ISA Member Countries. This strategic framework is engineered to cultivate profound capabilities within Member Countries, propelling them towards the realisation of their energy security objectives through solar solutions. Key stakeholders in the sector - donors, investors, and commercial lenders - will experience enhanced efficiency in navigating the global energy transition landscape, thanks to improved data access, capacity building, and seamless coordination. Bolstered by robust policy frameworks and direct fiscal support, companies dedicated to overcoming energy access challenges will be empowered to extend their services to hitherto underserved populations. Together, these endeavors will position ISA and its Member Countries at the vanguard of the forthcoming wave of solar innovation.

In the pursuit of these ambitious goals, the ISA Secretariat has engaged closely with financiers, developers, and manufacturers, working tirelessly to promote solar initiatives in diverse regions.

This year, we have been focused on:



- **Cultivation of Resilient Global Solar Supply Chains**
- **Deepening collaborations**

Activities and Achievements

- 1. ISA Corporate Advisory Group (CAG)** Launched in September 2022, the ISA Corporate Advisory Group now boasts 29 distinguished members. This collective of thought leaders and experts provides invaluable insights and guidance in advancing private sector engagement strategies.
- 2. Transforming Solar: Supply Chains Workstream** This transformative initiative was unveiled at Clean Energy Ministerial (CEM) 13 in Pittsburgh (September 2022), jointly led by ISA and IRENA. Key countries including Australia, Germany, India, United Arab Emirates, and the United States have joined forces to chart the course for the solar manufacturing sector in 2023-24. At the CEM Senior Officials Meeting in Brazil (March 2023), pivotal discussions and decisions were made, laying the foundation for the year ahead.

3. Manufacturing Workshops and Roundtables

ISA organised impactful Manufacturing Workshops, both physically at the IRENA General Assembly in Abu Dhabi (12 January 2023) and virtually (6 February 2023). These events attracted a diverse group of over 100 participants. Additionally, Manufacturing Roundtables were convened for West Africa (Dec. 15), East Africa (Jan. 31), and the Middle East (Mar 16), collectively drawing over 250 participants.

4. EU-ISA Symposium on Research & Innovation

On 18 May 2023, the EU-ISA Symposium brought together luminaries in the field to explore avenues of support for research and innovation, further strengthening the foundation for solar advancements.

5. Report on “Building Resilient Solar Supply Chains”

In collaboration with the Becquerel Institute, a comprehensive report has been completed. This seminal document is slated for release at CEM/G20 in Goa in July 2023, promising to be a pivotal resource in the field.

6. Webinars and Symposia

- A webinar on Solar + Long Duration Energy Storage was co-hosted with the Long Duration Energy Storage Council on 12 April 2023. This event provided a platform for experts to delve into the synergies between solar energy and advanced storage solutions.
- Another impactful webinar took place on 11 May 2023, focusing on Eco-labels and certification. This event, co-hosted with the Global Electronics Council and Ultra Low Carbon Solar Alliance, addressed critical sustainability concerns in the solar industry.

7. Prominent Presence at Key Events

- ISA's initiatives have garnered significant attention and support through presentations and promotions at major events. Notable among these were appearances at Intersolar India (Ahmedabad, Jan 2023), the GOGLA conference (Kigali, October 2023), COP27 (Egypt, November 2022), and the SNEC PV Power Export and Conference (Shanghai, May 2023). These platforms have been instrumental in amplifying ISA's impact and influence.

Future Endeavors and Aspirations

As we set our sights on the horizon, several key initiatives are poised to drive the private sector's role in solar industry growth:



Survey for CAG Members: A survey will be conducted among CAG members to glean insights into challenges faced in developing and financing projects in developing markets. This invaluable feedback will inform targeted strategies moving forward.



Policy Briefs on Global Solar Manufacturing: ISA is in the process of preparing and consulting on policy briefs aimed at bolstering global solar manufacturing. These will be unveiled at CEM in Goa (July) and promise to be instrumental in shaping the future landscape of the industry.



Collaboration with The Nature Conservancy: Proposals are being refined for initiatives in collaboration with The Nature Conservancy. These endeavors are aimed at streamlining the process of identifying environmentally suitable locations for solar deployment, reducing time and effort.



Private Sector Roundtables: These forums will be convened at regional committee meetings, AGM, and COP28. ISA is actively seeking partnerships with esteemed organisations like the LDES Council, Climate Collective, and AFIDA to further enhance the impact of these discussions.

In addition to these specific initiatives, the ISA is committed to the ongoing augmentation of the Corporate Advisory Group (CAG), which includes the collection of crucial data on key areas of interest such as recycling, barriers to deployment, and financing. Moreover, concerted efforts will be made to provide tailored support to individual countries in formulating effective manufacturing policies. Finally, ISA aims to galvanise more developers to lend their support to project work, ensuring a comprehensive approach to industry growth.

“ The future is bright, and as we forge ahead, we are confident in the pivotal role that the private sector will play in propelling the solar industry to new heights. Together, we stand at the precipice of a sustainable energy revolution. ”

Here's a closer look at ISA's key contributions and initiatives:

The Global Solar Facility: A Game-Changing Blended Finance Approach

Approved during the Fifth Assembly, the Global Solar Facility encompasses an investment insurance and payment guarantee fund. High-level discussions involving industry experts and leaders underscored its potential to overcome financing barriers, mitigate risks, and pave the way for scalable solar investments across Africa.

Capacity Building

ISA Solar Fellowship for Mid-Career Professionals

The two-year fellowship offered by the ISA for mid-career professionals is an integral part of ISA's strategy and efforts to scale up solar deployments by enhancing the pool of skilled professionals available for solar projects in Member Countries.

The programme is targeted at policy makers, planners, administrators, and managers in government who have demonstrated leadership potential and public service commitment and can contribute to the development of solar energy projects in their home countries, thus furthering sustainable energy practices.

ISA has successfully run four batches of the programme and the fifth batch is currently underway. Since it was launched in 2018, 67 professionals from Member Countries and prospective Member Countries have completed the programme at the host institution, Indian Institute of Technology, Delhi, in India. The annual cost of the programme is around USD 500,000.

For the current batch, 21 students from 15 countries have been selected for the fellowship. The candidates will undergo the Master of Technology programme in Renewable Energy and Technology Management (with a specialisation in Solar Energy Technology and Economics).

Programme Eligibility and Highlights

Programme: Master Tech in Renewable Energy and Management (specialisation: Solar Energy Technology and Economics) commencing July

Host: Indian Institute of Technology - Delhi (Department of Energy Science and Engineering), India

Age: Not more than 45 years in SIDS and LDCs. And not more than 40 years for rest of the countries



Fellowship Objectives



Enrich expertise on solar energy at the policymaker's level by establishing a tailored programme



Expand the pool of national experts on solar energy in all its dimensions in ISA co-operating states



Harness ISA's network of worldwide academic institutions offering globally recognised high-level programmes on solar energy



Develop a global network of ISA Fellows and create channels of co-operation between member states



Promote greater co-operation between partnering institutions

Qualifications: 4-year Bachelor's Degree (or equivalent) in Chemical Engineering, Electrical Engineering, Electrical and Electronics Engineering, Electronics and Instrumentation Engineering, Energy Engineering, Engineering Physics, Mechanical Engineering, Power Engineering. Or Master's Degree in Physics, Electronics or Applied Physics with CGPA of at least 6.00 on a 10-point scale or at least 60% marks in aggregate

Work experience: Minimum 3 years work experience

Living Stipend: USD 750/- per month (paid by ISA for 24 months)

Programme Structure



The STAR-C Initiative: An international network of STAR Centres

Prominent among ISA's endeavours is a project with the Ministry of Europe and Foreign Affairs of France to build the capacity of ISA and Member Countries to structure an International Network of Solar Technology and Application Resource Centres (STAR-C) jointly implemented by United Nations Industrial Development Organisation (UNIDO) and ISA.

The project, launched in June 2022, focuses on strengthening quality infrastructure and standards for photo voltaic (PV) and solar thermal products and services. In the coming years, these centres will become more important than ever. The potential benefits of forming a regional and global network of the STAR Centres are also significant given the increasing number of countries are getting associated with ISA. ISA is engaged with potential donors for financial support to enhance the impact of this flagship programme globally.

The STAR-C initiative has made great strides in the past year and since the ISA Assembly decided in its first meeting in 2018 to set up STAR Centres to address the challenges developing countries faced with adoption of solar energy.

Developing countries, particularly in the Least Developed Countries (LDCs) and Small Island Developing States (SIDS) face both supply and demand side barriers such as lack of technical knowledge, awareness among decision makers and incentives for innovation, among others. The STAR Centres support capacity building and skills aligned with the training needs of each country to

-  Training and equipment needs specific to the country
-  Existing infrastructure and capacity of the host institution
-  Innovation and incubation ecosystem
-  Collaboration possibilities with host government and other agencies
-  Existing solar training curriculum for its content, purpose, duration, participants, delivery method as well as suggest improvements to gaps through STAR centers

boost economic growth and job creation.

In last year, under the STAR-C initiative, ISA has signed memorandums of understanding (MoUs) with over eight countries to establish STAR Centres and has also identified host institutions where they can be set up. Detailed country assessments have been completed in six countries - Ethiopia, Cuba,

Somalia, Cote D'Ivoire, Uganda and Kiribati. Based on the country assessments, ISA develops a detailed project report with a two-year work plan for the STAR-C activities as well as a business plan for sustainability of the -STAR Centres. Five STAR Centres are expected to be operational by 2023 end.

The ISA is also actively engaged with seven countries - Zimbabwe, Benin, Bangladesh, Venezuela, Sudan, Cameroon and Ghana - to set up STAR Centres, and formal expressions of interest have been submitted by the nodal ministries of these countries.

Similarly, the ISA is engaging with Tonga, Benin, Madagascar, Niger, and other Member Countries to set up STAR Centres. Initial discussions with the countries are promising and ISA intends to formalise the engagement for setting up centres in these countries in the coming months.

It also aims to improve local capacities in Bhutan, Papua New Guinea and Senegal to provide certified solar curricula and training as well as strengthen solar networks and knowledge management.

Country assessments under the STAR-C initiative analyse:

- Training and equipment needs specific to the country
- Existing infrastructure and capacity of the host institution
- Innovation and incubation ecosystem
- Collaboration possibilities with host government and other agencies
- Existing solar training curriculum for its content, purpose, duration, participants, delivery method as well as suggest improvements to gaps through STAR Centers

Major activities for 2023

- 
 Develop quality infrastructure frameworks for solar products and services in the three concerned regions and a qualification and certification framework
- 
 Develop training curricula on Solar PV, solar thermal technologies and other solar-related topics
- 
 Develop a sustainability strategy for a network of STAR Centres
- 
 Design and finalise the structure for the solar academy in consultation with the focal country

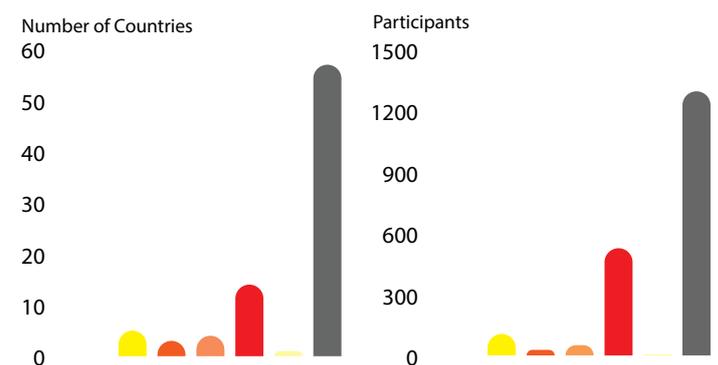
Online Training Programmes

The ISA conducted online training programmes to build capacity for stakeholders across Member Countries.



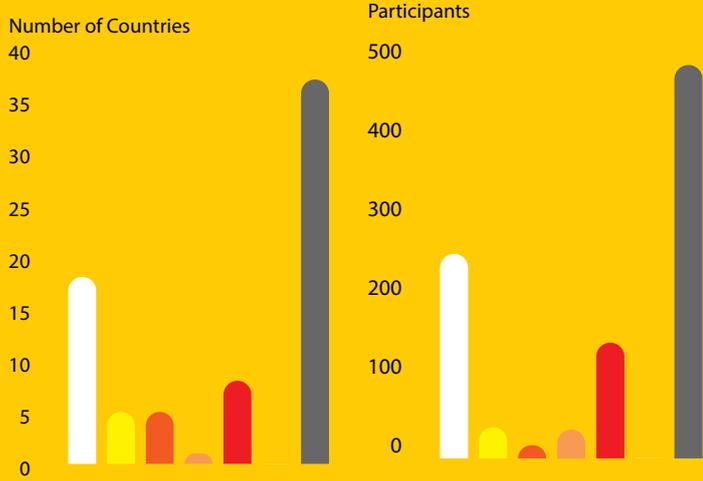
Banker's Training Programme

Under ISA's Banking Solar Initiative, bankers were trained to bridge the knowledge gap and develop specific skills needed to assess the techno-commercial feasibility and financial viability of setting up solar PV systems. They were also equipped to analyse various financial instruments, government schemes and policies, tools, business models and risk mitigation mechanisms that banks have adopted and deployed for renewable energy and energy efficiency projects. The training was conducted in August 2023 for about 65 participants from 16 ISA Member Countries who registered for the programme. The programme, which was free of cost for ISA sponsored candidates approved by the respective National Focal Points, has so far, impacted a total of 1291 participants.

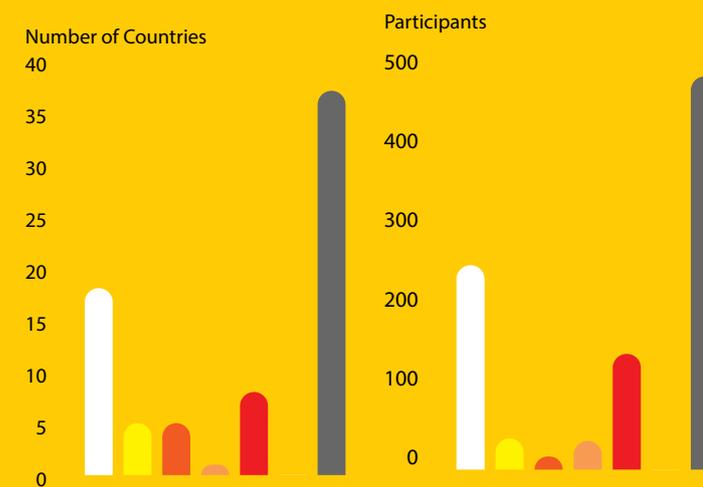


Technical Trainings

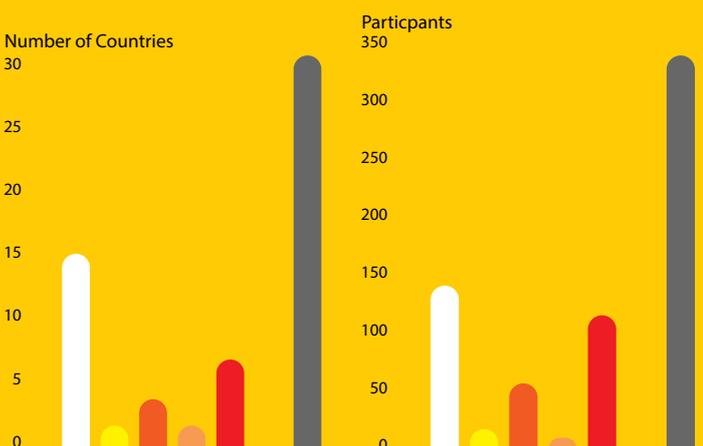
'Scaling Solar Application for Agricultural Use' programme: This is one of ISA's earliest programmes in the pursuit of sustainable utilisation of solar energy. The focus of the programme is to promote off-grid applications of solar power such as irrigation systems and home and street lighting, capable of functioning on stored solar energy. Trainings for this programme has impacted 466 individuals till August 2023.



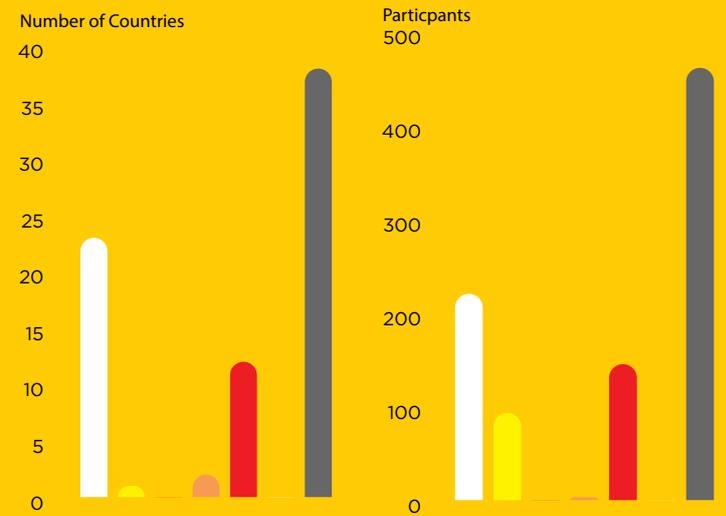
Scaling Solar Mini-Grids'-03: The programme primarily aims to improve the capacity of solar energy harnessed in Member Countries. Solar Mini-Grids are intended for those regions in Member Countries with limited or no connectivity to the energy grid system, to improve energy accessibility and reduce electricity costs. Until now, 479 participants have received training for the Solar Mini-Grids programme.



Scaling Solar Rooftops-04 programmes: The programmes primarily aim to improve the capacity of solar energy harnessed in Member Countries, with a focus on building solar rooftops as a solution to sustainable electricity generation in these nations. Until now, 318 participants have been trained for the Solar Rooftop programme.

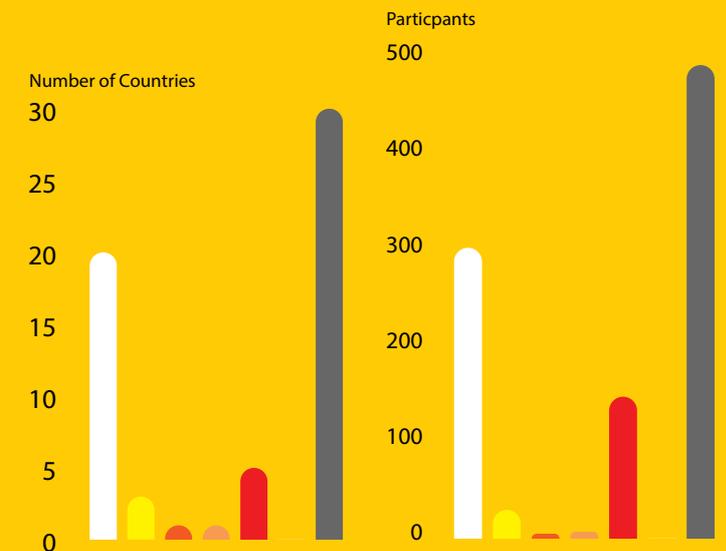


'Solar Parks-6' programme: Launched in 2020, this programme seeks to develop large-scale solar power generation zones involving grid-connected ground-mounted and floating solar projects in Member Countries. Until now, 461 participants have been trained for the Solar Parks programme.

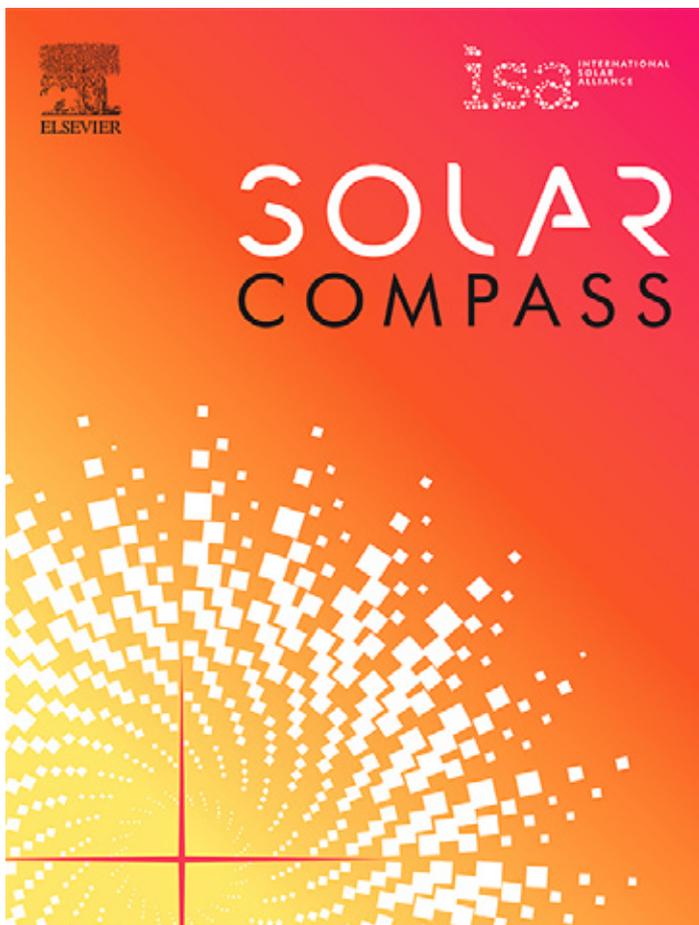


Trainings under STAR-C Programme

Recognising the urgent need to support ISA Member Countries with high potential for solar energy deployment, the ISA Assembly agreed to establish an international network of Solar Technology Application Resource Centres (STAR-C). The STAR-C Programme has developed three days training curricula for Member Countries on designing and delivering government led development schemes/programmes that are capable to respond to the variety of challenges including energy access faced by rural areas. Until now, 477 participants have been trained under this initiative. This is helping ISA Member Countries to build the convergence between their long-term energy goals and the rural development schemes programmes.



Solar Compass Journal



The Solar Compass is an open access peer reviewed journal, brought out by the ISA and Elsevier, a leader in research publishing and information analytics, with the aim of catalysing the adoption of solar energy globally. Launched at COP26, the journal, through rigorously researched and insightful articles on new technology and policy and case studies, seeks to expand the understanding and research around the use of solar power.

It is kept open access to provide freely accessible information that can help to rapidly increase use of solar energy, avoid the catastrophic impacts of climate change and enable the global community to achieve the ambitious goal of net-zero carbon emissions by mid-century and limit the global temperature rise to 1.5 degrees Celsius.

The journal acts as vital link to bridge the information gaps needed to accelerate adoption of solar energy. It recognises that energy is the key to development and solar energy is cheaper than fossil fuels both in the short and long term.

Solar Compass has a global advisory board consisting of visionary leaders and an editorial board of renowned experts with Dr Yogi Goswami, Distinguished University Professor of Chemical, Biological and Materials Engineering, University of South Florida, as its editor-in-chief.

The journal is an important initiative by the ISA to increase understanding and research around the use of solar power and features successful case studies in the hope of wide-scale replication.

The Solar Compass journal helps to address three essential goals:



Avoid catastrophic impacts of climate change



Realise ISA's vision of rapid increase in solar energy usage



Enable the global community to achieve the ambitious goal of net-zero carbon emissions by mid-century and limit the global temperature rise to 1.5 degrees Celsius



Regulatory support

Accelerating the global attainment of the SDG Goals of universal energy access, energy security, and energy transition is a crucial priority for ISA as a critical driver of inclusive growth and a gateway to abating climate change. Through its countrywide experiences, ISA has noted that grants and donor-funded projects (both from ISA and other development partners) to its Member States are not viable in the long term due to the lack of requisite business models and enabling regulatory frameworks in the absence of external donor support. Opportunities to scale solar energy development require significant regulatory action, which necessitates collaboration among government and public and private sector stakeholders.

Keeping with its five-year strategic plan to provide programmatic support to Member Countries, ISA has rolled out regulatory support to member states in establishing sustainable and viable solar-receptive regulatory frameworks.

ISA's model of regulatory support

1. Technical assistance

ISA provides Member States with the relevant technical assistance to address regulatory impediments to investments in solar energy in their respective countries. This entails detailed research, assessment, and analysis of existing and emerging policy, legal and institutional issues relating to the development of sustainable utility solar parks, mini grids, rooftop solar and other solar-powered energy solutions.

2. Assessment and analysis of policy

ISA assesses investors' potential challenges, including tariff regulations, permitting and licensing mechanisms, and analyses existing and emerging policy, legal and institutional issues relating to the development of sustainable mini grids. ISA also seeks to understand the unique aspects of each country for designing the policy and regulatory frameworks for solar energy deployment and integration in the country's energy mix.

ISA's regulatory support to Member States aids in:

- Creating a pipeline of sustainable and scalable solar energy projects in the long run.
- Streamlining legal and regulatory framework for sustainable and affordable solar energy.
- Attracting and stabilising private sector investments in solar energy generation and distribution.
- Strengthening and promoting clean energy

generation in each country's energy mix in contrast to fossil fuel generation by regulatory frameworks that accommodate solar utility parks for generation, and/or microgrids in rural and remote areas.

- Facilitating the establishment of effective energy regulations that will aid Member States in meeting their NDC targets through increased investments and a transition to clean energy.
- Improving energy access and security for the millions of unelectrified population, especially in the LDC and SIDs Member States.

The ISA's regulatory support project has taken off in four African countries – Ethiopia, Uganda, Sudan and Somalia. Consultations are in place to extend the support to Bhutan, Nepal and some ISA Member Countries in the Small Island States.

Regulatory Support to Uganda



Uganda holds significant potential for renewable energy, enjoying minimal yearly variation due to its Equatorial location. However, its solar energy stabilisation remains low. An effective regulatory framework is essential to foster sustainable business models and stabilize solar investments for the benefit of millions of Ugandans who lack reliable access to energy. Towards addressing this need, the ISA has conducted a Needs Assessment Mission on August 28 and 29, 2023.

Regulatory Support to Fiji



Global decarbonisation efforts hinge on nations adopting and implementing renewable energy sources to power their economies. This is especially critical for vulnerable regions like the Pacific Islands, including Fiji, facing heightened risks from global warming and climate change. Fiji's heavy reliance on imported fossil fuels escalates energy prices and compromises its energy security. Presently, 55% of Fiji's electricity is derived from renewables, primarily hydropower and biomass, with hydropower dominating. Recent assessments highlight that Fiji's abundant hydropower, solar, wind, biomass, and biofuel can collectively meet domestic energy needs, lowering costs, increasing access, and fostering energy independence. The ISA conducted its Needs Assessment Mission in August 24 and 25, 2023 in Fiji, to identify areas of required regulatory interventions.

Regulatory Support to Nigeria



Nigeria's commitment to sustainable development, renewable energy integration, and climate mitigation is transforming its energy landscape. ISA is supporting Nigeria's transformation by providing technical assistance and training to Nigeria's local

capacity to establish sound, sustainable, and viable solar-receptive regulatory frameworks. The ISA's preliminary mission to Nigeria has identified the Nigerian government's areas of interest, with ongoing discussions and actions. Recognising the importance of policy and financial instruments, ISA has also carried out a four-day training workshop to provide an understanding of these topics to power stakeholders and Ministry officials.



The workshop was aimed at enhancing stakeholders' understanding of policy instruments, financial mechanisms (e.g., Feed-In Tariff, Net Metering/Gross Metering, and Tariff Subsidies); providing them with knowledge and tools for effective energy policy design and implementation; deepening awareness of carbon credits for climate change mitigation; exploring sustainable business models for renewable energy and environmental sustainability; and facilitating networking and knowledge exchange among government officials and industry experts.

Programmes and Projects

Programmes

Scaling Solar Applications for Agricultural Use

Over the last year, there has been significant progress on the Scaling Solar Applications for Agricultural Use (SSAAU) programme's vision of implementing Solar Water Pumping Systems (SWPs) and Solar Home Lighting Systems (SHLs) as well as facilitating technical assistance. The programme has gathered traction, garnering an aggregate demand of 2,76,277 SWPs from 24 ISA nations, followed by the first ever international competitive bid for price discovery.

Based on the expressions of interest (EOI) received from Member Countries regarding the installation of SWPs, requests for proposals (RFPs) for feasibility studies have been issued in five countries: Niger, Ethiopia, Cuba, Fiji, and Comoros, under ISA's programmatic support funds for SSAAU.

The implementation of pilot SWPs projects has been approved under IBSA Fund facility in 10 countries and will be undertaken with UNDP as the implementation agency. Feasibility studies have already started in six of these 10 countries, namely, Togo, Mali, Sudan, South Sudan, DR Congo, and Niger.

An MoU has been signed with the International Water Management Institute (IWMI) in Sri Lanka to work for the development of projects and programs on solar energy, while steps to install 1 million SWPs

have been initiated in 13 other countries under ISA-GGGI (Global Green Growth Institute).

IWMI has completed the scoping study on SWPs in six countries – India, Bhutan, Maldives, Bangladesh, Sri Lanka, and Nepal – and submitted it to the Asian Development Bank.

ISA is also assisting nine Member Countries in developing demonstration projects on SWPs. The detailed project reports (DPRs) of these nine countries have been approved and grant agreements signed. Projects have been successfully completed in Jamaica and Togo, and work is underway in the rest of the countries. The projects are being implemented by ISA's implementation agency, NTPC, and in some cases, by the Member Countries themselves.

In addition to the progress made in implementation, ISA has also focused on robust documentation and knowledge sharing. Over the last year, we have prepared and shared eight business models and pre-feasibility reports of SWPs for 25 member nations. E-handbooks on SWPs and SHLs have also been developed and shared with countries for knowledge dissemination. So far, 466 people from 40 countries have been trained under the SSAAU programme.

The SSAAU programme's progress is catalysed by its well-established methodology that helps achieve its goals. Some features of this methodology are:



Adopting common methodologies and procedures for needs assessment in agricultural and rural settings



Developing common standards and protocols for testing, monitoring, verification and certification



Establishing a network of technological research centres to find solutions for the identified needs



Monitoring projects and actual performance of applications to further improve standards and execution



Streamlining and coordinating tendering, documentation and processes for procurement of systems and components



Setting up common training courses, e-learning for most actors involved in all phases of the projects to improve access to knowledge and technical know-how



Exploring innovations and technological advancements that can be undertaken to further improve de-centralised solar applications for agricultural use

Affordable Finance at scale

Created with the objective of exploring innovative and profitable financial arrangements to fund solar projects and renewable energy practices, ISA's Affordable Finance at Scale programme helps to mitigate the risks involved in innovative energy

practices and facilitate low-cost solar energy solutions on a large scale. Under this programme, ISA has partnered with financial institutions across the world to assist solar power development projects.

Key Financial Institutions which have Partnered with ISA



The programme seeks to fulfil four key objectives, each furthering ISA's commitment to enable financial resources for the adoption of solar energy



Innovative
Financial Tools



Large Scale Low-cost
Solar Financing



Financing for Technical
Development



Guidelines for Solar
Project Financing

Innovative financial tools

The World Bank, along with French bilateral agency Agence Française de Développement (AFD), launched the Solar Risk Mitigation Initiative (SRMI), endorsing ISA. This venture allows reduced public funding and attracts potential private sector investors to solar projects in developing countries. The World Bank has also pledged USD 337 million to the Regional Off-Grid Electricity Project (ROGEP) in 23 ISA Member Countries in Africa. Additionally, the European Investment Bank (EIB) is working on a project to promote off-grid electricity development in Africa. It intends to achieve this through a grant of EUR 60 million and act as a financial intermediary for the projects.

Large scale, low-cost solar financing

To facilitate solar projects in ISA Member Countries, the Export-Import Bank of India (Exim Bank) has allocated USD 1.4 billion, while AFD has committed EUR 700 million. ISA is also in the process of proposing similar arrangements with financial institutions in Australia, the Netherlands, and the UK to support more projects.

Financing for technical development

The Asian Development Bank has given a USD 2 million grant to be utilised for technical assistance in solar projects of ISA Member Countries in South Asia.

Scaling Solar Mini Grids

ISA has played a pivotal role in advancing solar energy solutions globally and the Scaling Solar Mini Grids (SMG) programme is one of the key initiatives helping to do this. It caters to the needs of Member Countries with limited or no connectivity to the grid but with potential to harness solar energy. The objective of the programme is to promote universal energy by 2025 while harnessing solar power and reducing electricity costs.

In 2022, several Member Countries laid the foundation to channel affordable and sustainable energy to their regions. In all, 19 countries have expressed interest in scaling up solar mini grids accounting for a cumulative capacity of 786 MW to be generated from solar mini grids.

ISA is currently aiding Ethiopia in establishing a portfolio of financially viable projects. The goal is to develop solar mini grid projects across the country adding to a cumulative capacity of 100 MW. ISA is actively conducting site assessments for 29 locations as part of this effort. ISA has also shared draft mini grid feasibility reports for six Member Countries to proactively promote access to solar energy and empower nations.

At G20's 4th ETWG Minister's meeting held in Goa, India, in July 2023, ISA launched the 'Roadmap of Solar Energy for Universal Energy Access' ISA-G20 report. The report is part of ISA's initiative to support Member Countries to create the right policy, regulatory framework and ecosystem to attract private players to set up solar mini grids in rural areas through sustainable business models.

This apart, in keeping with the commitment to knowledge sharing and capacity building in solar, ISA has developed and shared a solar mini grid e-handbook with Member Countries. It has trained 405 professionals from 38 Member Countries through online technical programmes under the SMGs initiative and technicians across 15 Member Countries in the development and maintenance of SMGs.

Implementation Model of SMGs in Member Countries:

-  Design SMGs based on demand analysis and energy consumption patterns
-  Formulate policy framework and regulatory standards within Member Countries with concerned authority
-  Shortlist Solar Power Developer (SPD) responsible for commissioning SMG projects at given locations
-  Manage distribution of SMGs depending on the total energy demand
-  Determine tariffs and sign power purchase agreements based on mutual preference of consumers and authorities
-  Explore methods of revenue collection based on the type of consumer and their consumption patterns

Scaling Solar Rooftops

ISA's Scaling Solar Rooftop programme was launched in March 2018 to promote, assess potential, harmonise demand, and pool resources for rapid deployment and scaling up of rooftop solar (off-grid and grid-connected) in Member Countries. Since then, 22 Member Countries have submitted expressions of interest (EOIs) to join the programme (12 from Africa, 3 from Latin America and the Caribbean, and 7 from Asia Pacific) amounting to a cumulative capacity of 1059.19 MW.

Currently, ISA is implementing solar rooftop projects across 13 Member Countries as part of its Demonstration Projects. Nine of these projects involve solarising healthcare facilities and four are focused on solarisation of buildings. Demonstration Projects in four Member Countries – Guyana, Mali,

Niger, and Comoros – have successfully been commissioned. ISA is also assisting Ethiopia and Sao Tome & Principe in the development of pilot solar rooftop projects.

Towards capacity building and knowledge sharing, ISA has conducted technical training programmes for 318 professionals across 32 Member Countries. It has prepared an e-handbook on rooftop solar and shared it with Member Countries.

It has empanelled global firms to conduct in-depth assessments of the readiness of Member Countries and prepare bankable Detailed Project Reports (DPRs) after physical site assessments. The preparation of a bankable DPR is underway for Comoros following a comprehensive site visit.

Additionally, ISA has shared a comprehensive feasibility report on scaling rooftop solar projects with 15 Member Countries, furthering the organisation's mission to foster sustainable solar energy solutions worldwide.

The key Focus areas of the programme



Demand aggregation



Policy and Regulatory support



Technical Assistance to Member Countries



Development of Bankable Projects



Facilitation of Affordable Finance



Capacity Building

Scaling Solar E-Mobility & Storage

Ushering in sustainable development e- mobility and energy storage

ISA's programme on 'Scaling Solar E-Mobility & Storage' aims to create an enabling ecosystem for large-scale energy storage system deployment and accelerate the adoption of solar energy in the E-mobility sector among ISA Member Countries.

ISA is actively exploring various energy storage technologies, including batteries, compressed air energy storage, gravity energy storage, and pumped hydro energy storage. Evaluating aspects such as efficiency, safety, reliability, and recyclability is crucial.

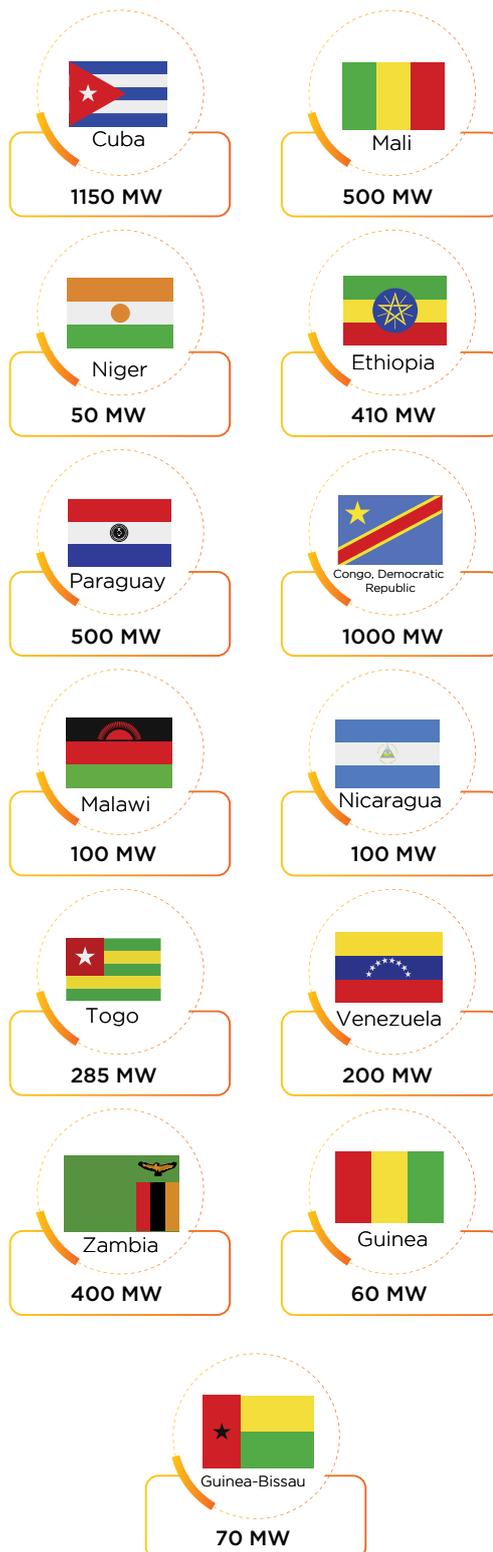
Summary of Progress and Initiatives

- ISA has joined the Energy Storage Partnership programme of the World Bank in June 2023, collaborating with multilateral agencies, governments, research institutions, industry associations, and philanthropies to promote energy storage solutions tailored to the needs of developing countries' power systems.
- This engagement included participation in the ESP Stakeholder Forum and the ninth ESP Partners Meeting in the UK, featuring site visits related to storage installations.

“ We plan to develop a comprehensive Storage programme and a solar-charged EV programme, focusing on issues across the value chain aimed at supporting our member nations in capacity building to help accelerate manufacturing, implementation/ operations and circular economy. ”

Solar Parks

ISA's programme to develop solar parks was launched in April 2020. Since then, the programme has made significant strides thanks to the collective experience, knowledge, and competence of ISA



Member Countries and partner organisations. So far, 20 Member Countries – 13 from Africa, 5 from Latin America and the Caribbean, and 2 from Asia Pacific – have collectively amassed a capacity of nearly 7.65 GW.

ISA has formally endorsed the Project Management Consultancy (PMC) services provided by NTPC Ltd, with 13 Member Countries entrusting them with overseeing the implementation of nearly 6.5 GW of solar energy projects, the details of which are as follows:

Some of the achievements of the programme are as follows:

- Proactive preparation of the Preliminary Assessment Report for **32 Member Countries**
- Technical country missions in **13 countries:** Benin, Cuba, Ethiopia, Togo, Mali, Venezuela, Paraguay, Niger, Bangladesh, Nepal, Bhutan, Nigeria and Malawi.
- Online training sessions on Solar Park and Floating Solar technology benefitting **461 participants from 41 countries**
- Workshop for solar parks in Ethiopia with capacity of **410 MW**, including a **10 MW floating solar PV project**

In addition to the above achievements, NTPC has floated the first RFQ for ground-mounted projects in Cuba with a capacity of 1250 MW. As part of this exercise, the bidding process for selecting solar developers for a 60 MW solar PV project has been completed and negotiations for the Power Purchase Agreement (PPA) are underway.

Solarising Heating and Cooling Systems

'Solarising Heating and Cooling Systems' is a programme launched by ISA at the Third ISA Assembly. The programme aims to integrate solar energy in heating and cooling systems across commercial, industrial and residential sectors. This would have a specific impact on the food

industry, significantly reducing post-harvest food loss and potentially doubling farmers' income. This impact would be especially relevant to many developing countries, where this programme would complement ISA's interventions to promote solar pumps for agricultural use. At the global level, climate-resilient cold chain infrastructure has the potential to reduce greenhouse gas emissions by approximately 19-21 gigatonnes of CO2 equivalent (GtCO2e) by 2050.

ISA has documented three case studies on solar cooling storage. These case studies will feed into ISA's capacity building efforts, providing important technical knowledge needed to scale solar cooling storage. ISA has also prepared guidelines on the selection of solar heating and cooling system sites. The progress on this programme has further been assisted by marketing, stakeholder networking and information exchange through reports, workshops, seminars, and other media. In the future, this programme will expand to also cater to building air-conditioning, industrial solar heating, district heating and residential systems.

This programme is implemented in consultation with Member Countries who volunteer to participate. Following this, ISA assists in:



Assessing demand potential for solar heating and cooling systems in Member Countries



Facilitating aggregation of demand



Setting targets and formulating implementation plans



Assisting Member Countries to achieve economy of scale, reduction in costs and speedy programme implementation, either directly or through authorised agency

Solar PV Battery and Waste Management

ISA's Solar Photovoltaic (PV) Battery and Waste Management programme is a new initiative launched in October 2021. The programme aims to facilitate the reduction of solar and battery waste through recycling and reusing components wherever possible.

Solar PV Battery and Waste Management programme goals



This programme works towards effective waste management in the solar industry by:



Promoting implementation of the 3Rs principle (Reduce, Re-use & Recycle) in Member Countries for solar and battery waste management



Engaging with national agencies and policymakers



Developing regulations to reduce future solar battery waste generation



Assisting in identifying opportunities in restoration and reuse of solar components



Creating a framework for solar and battery waste collection and recycling



Identifying international organisations to partner with in different stages of development

The Solar PV Battery and Waste Management programme has commenced building a comprehensive knowledge base to achieve its goals. In September 2023, ISA and United Nations Environment Programme (UNEP) completed an in-depth study on the solar PV waste landscape in India. Tenders aimed at developing a comprehensive solar PV waste management toolkit and recycling guidelines for solar PV batteries are currently under consideration.

Assessments on critical materials, especially on the use of copper in solar, are being conducted with a regional focus. To disseminate insights and recommendations and to facilitate awareness and access to information, ISA employs reports, workshops, seminars, and other outreach tools. The programme actively promotes and encourages effective collaboration among ISA partner agencies, stakeholders and independent groups through marketing and networking.

Solar for Green Hydrogen

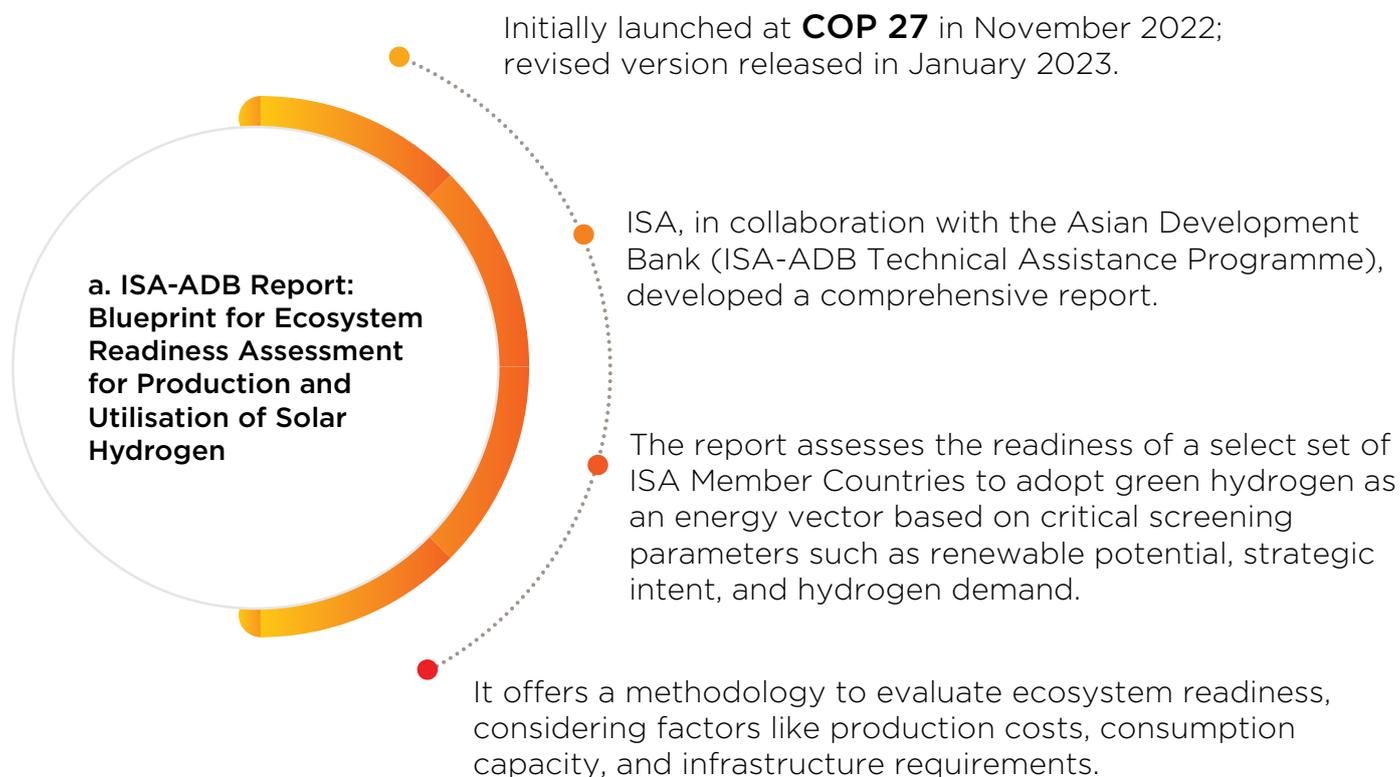
Hydrogen as a catalyst for sustainable energy transition

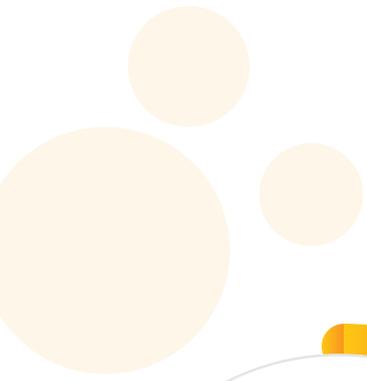
In an era marked by a collective commitment to combat climate change and achieve net-zero carbon emissions, hydrogen has emerged as a transformative technology capable of unlocking energy transition across a myriad of challenging sectors. From refineries, fertilisers, and steel production to cement manufacturing, heavy-duty transportation, aviation, and dispatchable backup power, the potential of hydrogen is immense.

What makes this journey even more promising is the symbiotic relationship between hydrogen and solar energy. As we harness the power of the sun to produce hydrogen sustainably, it becomes imperative for all stakeholders, including Least Developed Countries (LDCs) and Small Island Developing States (SIDS), to stay at the forefront of developments in the emerging green hydrogen space. The ability to replicate these projects swiftly, once the technology is commercialised, holds the key to accelerating our transition to a sustainable future.

Summary of Progress and Initiatives

1. Reports





Released in **March 2023 in Brussels.**



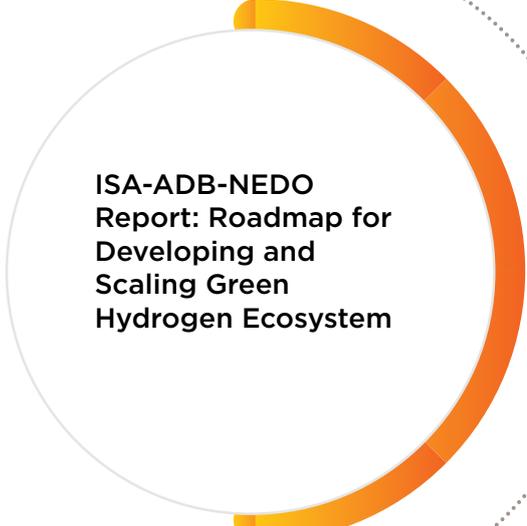
**ISA-EIB-Africa Union
Report: Africa Solar
Hydrogen Project
(ASHyP)**

Collaborative effort between the International Solar Alliance, European Investment Bank, African Union, Government of Mauritania, HyDeal, and UCLG Africa (United Cities and Local Governments of Africa).

Explores the potential for green hydrogen development across Africa, focusing on hubs in Mauritania, Morocco, Southern Africa, and Egypt.

Presents a roadmap for technical, economic, environmental, and financial solutions to facilitate commercial development.

Demonstrates that solar-powered green hydrogen can be produced at less than **EUR 2/kg**, making it economically competitive with traditional fossil fuels.



**ISA-ADB-NEDO
Report: Roadmap for
Developing and
Scaling Green
Hydrogen Ecosystem**

Tentatively planned for launch in the Assembly Tech conference on **November 1, 2023.**

A deep-dive study into Chile, India, and Brazil, exploring recent technological advancements in green hydrogen production, emerging regulations, county-level market assessments, and supply chain development.



Circulated by **MNRE to G20** in May 2023.

ISA's Brief on Green Hydrogen Innovation Centre (GHIC)

Part of the **G20 - ISA** Green Hydrogen Partnership.

Introduction of the virtual Green Hydrogen Innovation Centre (GHIC) aimed at supporting green hydrogen production, utilisation, trade, knowledge sharing, and competency building.

The GHIC will facilitate incubation for startups, provide certified training, and host Expert Working Groups, serving as a dynamic one-stop gateway for all things related to green hydrogen.

2. Events

ISA has organised Green Hydrogen sessions at various conferences and events, including:

ISA-ADB-MNRE Technical conference at ISA Assembly, New Delhi (**October 19, 2022**)

COP 27 in Egypt (**November 14, 2022**; ISA-ADB side event, Geneva, with GHO, Geneva as co-host and EU as Knowledge Partner)

India Energy Week Green Hydrogen event (**February 8, 2023**)

ISA-GHO-GWEC Webinar on 'Developing Green Hydrogen Standards and Certification in India' (**March 1, 2023**)

Green Hydrogen G20 ETWG side event, 'Green Hydrogen-Accelerating Net Zero Pathways' (**April 2, 2023**, Gandhinagar, Gujarat, hosted by MNRE; Co-sponsors: ISA-WRI-SECI)

ISA's Panel participation on Green Hydrogen at the Asia Clean Energy Forum (**June 15, 2023**, hosted by ADB, IRENA, and Green Hydrogen Organisation).

'Green Hydrogen Standards and Certification' Side event at CEM, Goa (**July 18, 2023**, ISA-ADB event)

3. Partnerships & MoUs

- a. MoU with the Green Hydrogen Organisation, Geneva
 - Signed in March 2023 to foster global collaboration on Green Hydrogen Standards and Regulations and establish the Global GH Policy Hub under Programme 9.
- b. MoU with Denmark Embassy
 - Signed on July 10, 2023, for strategic cooperation regarding the expansion of solar and wind energy and green hydrogen in developing countries.

4. Upcoming Projects in Q4, 2023

- a. Readiness Assessment of Green Hydrogen in African Countries
 - Funded by Denmark Embassy.
 - A comprehensive study assessing the GH ecosystem in selected African countries and identifying opportunities and challenges in expanding affordable GH alongside offshore/onshore wind and solar energy.
- b. Phase 2 of ISA-ADB Report
 - Ecosystem Readiness Assessment for Production and Utilisation of Solar Hydrogen in ISA Member Countries.

G20 Launch

- a. ISA's Green Hydrogen Innovation Centre Portal
 - Launched on July 22, G20 Energy Transition Ministerial, Goa.
- b. Inclusion of GHIC Initiative in G20 New Delhi Leaders' Declaration
 - Released during the G20 Leaders' Summit on September 9, 2023.



Demonstration Projects

Background

ISA demonstration projects were conceptualised during the third Standing Committee meeting on May 27, 2020, taking into consideration the demands from Least Developed Countries (LDCs) and Small Island Developing States (SIDS) Member Countries of the ISA.

“ The primary objective was to showcase the potential of various solar technology applications in beneficiary Member Countries, bolstering their capacity for future project scalability. These pilot projects aimed to exemplify the feasibility and efficacy of solar solutions, advocating for their widespread adoption across diverse regions, with the aspiration of inspiring replication in respective nations. ”

Consequently, a dedicated Project & Evaluation monitoring team was established on August 8, 2020. The project's funding was envisioned to be sourced from ISA's administrative expenditure savings. A comprehensive plan was presented to the esteemed President of ISA on August 20, 2020, proposing financial backing of up to USD 50,000 for innovative solar pilot projects across 47 eligible Member Countries, encompassing all LDCs and SIDS within ISA's membership as of that date. Invitations were extended to all, soliciting the submission of their proposals. The projects were designed to be executed through three modalities: Direct Support to a Member Country (self-implementation), Implementation by ISA, and Co-financing with ISA partner organisations (Agency Implementation).

Recognising the distinctive needs and preferences of each country, it was determined to provide support across diverse sectors, including health, education, drinking water, agriculture, among others. Out of the 27 expressing interest, 9 prioritised solarising healthcare centres, 4 aimed to establish solarised cold storage facilities, 10 sought assistance for solar water pumps, while the rest sought support for projects like solarising schools, government edifices, street lighting, and desalinating drinking water.

Key Accomplishments

Detailed project reports for all

27 countries

completed and approved by September 2023

Grant agreements signed with

26 countries

16 countries

opted for self-implementation

11 projects

handled by ISA through NTPC India

Projects distributed regionally:

17 in Africa, 4 in Latin America and Caribbean (LAC), and 6 in Asia-Pacific

8 projects

accomplished to date, including solarisation of health centres in Comoros, Guyana, Niger, & Mali

Uganda

Solar Irrigation Projects
in Jamaica & Togo

Solarisation of a school building

in Kiribati and Uganda, with Kiribati's remote island location being notable.

Voices of Appreciation for ISA



“ We are happy about the solar installation done by ISA. Before that, we had no electricity, but now we have electricity all the time. We can work comfortably and use our medical equipment, fans, and light bulbs without any interruptions or shortages. It has made a big difference for us. ”

Ms. Salia Wallets

Nurse In Health, Centres Koula, Mali



“ Now there will be no more power cuts. It is a great joy and a relief for us. I am very happy and immensely grateful to the ISA. ”

Mr. Liassou Youssoufa

Patient Gaweye Hospital, Niger



“ As a patient, this gift goes straight to my heart, and I thank the team once again. ”

Ms. Chamsia Boubacar

Patient Gaweye Hospital, Niger



“ The existing solar system was not sufficient to operate medical equipment. However, after the installation of a new solar system, including battery storage, by ISA, it has become possible to operate costly medical equipment, including ultrasound machines, even during night time. ”

Mr. Dr Lerone Henry

Doctor, Orealla Healthcare
Centre Guyana



Orealla Healthcare Centre, Guyana

Future Goals

ISA aims to complete the ongoing demonstration projects, serving as a tangible testament to the benefits of solar energy, its potential in addressing energy challenges, curbing carbon emissions, and contributing to sustainable development. A comprehensive impact assessment study is currently in the conceptual phase, aiming to evaluate the projects' techno-commercial, environmental, social, and economic footprint. The best practices and innovative approaches gleaned from this study will be disseminated as case studies, poised for replication in future ISA programmes.

Building on the success of demonstration projects, ISA intends to embark on additional solar ventures under various ISA programmes, encompassing solar water pumps, mini-grids, solar rooftops, and other innovative endeavours.



Solarisation of Nawai Junior Secondary School on Tamana Island, Kiribati

“ Through fruitful collaborations with Member Countries and partners, ISA endeavours to implement effective solar initiatives, customised to address specific needs and priorities, thus fostering innovation, knowledge exchange, and capacity augmentation in solar energy. Through these concerted efforts, ISA aspires to instigate positive change, expedite the transition towards solar energy, and craft a brighter and cleaner future for all. ”

IV Resource Mobilisation

In line with the mandate of the ISA Framework Agreement, ISA has developed a Strategic Plan for the next five years to support the mobilisation of investments of about USD 1 trillion in ISA Member Countries by 2030. The Strategic Plan envisages programmatic support focusing on Least Developed Countries (LDCs) and Small Island Developing States (SIDS) Member Countries, capacity building support for all developing Member Countries, and analytics & advocacy support for all Member Countries. The plan aims to support Member Countries in developing a vibrant solar energy ecosystem and creating a viable and bankable solar energy project pipeline through readiness & enabling activities, risk mitigation & innovative financing instruments, investment mobilisation, and promotion of technologies. In the short run, ISA has mobilised about USD 80 million from both governments and philanthropies this year. ISA has estimated an expenditure of around USD 300 million till CY 2026. This will enable ISA to fulfil the goals articulated in its Strategic Plan.

Strategic Plan Goals



Facilitate mobilisation of
USD 1 trillion
in solar investments



Enable
1000 GW
of new solar capacity



Help
1000 million people
with enhanced access to electricity



Reduce
1 billion tonnes
of carbon emissions

The resources will be used for specific activities to further ISA's Strategic Plan, which includes:

- Policy support and training
- Implementation support
- Knowledge, data, analytics, and advocacy support
- Support global initiatives like building a roadmap for mobilisation of USD 1 trillion in solar investments and Green Grids Initiative – One Sun, One World, One Grid (GGI-OSOWOG)



To achieve these goals, ISA is looking forward to receiving support from numerous stakeholders, including Member Countries and global foundations. A partial list of stakeholders is as follows:

Republic of India

Approx.

USD 40 million

for core budget activities

Republic of France

EUR 1 million

for STAR-C

United Kingdom

GBP 1 million

for GGI-OSOWOG implementation

United States of America

USD 960,000

for programmatic support

Global Energy Alliance for People and Planet

USD 25 million

for three to four years for the three priorities of the strategic plan

Sweden

USD 50,000

for programmatic support (capacity building and STAR-C)

Japan

USD 36,000

for programmatic support for mini grids

Children's Investment Fund Foundation (CIFF)

USD 8 million

for four years for supporting the three priorities of the strategic plan

Sequoia Climate Fund

USD 0.5 million

for one year for capacity building and programmatic support / USD 2 million for 2 years

Bloomberg Philanthropies

USD 6 million

for three years for analytics & advocacy, and programmatic support

The John D. and Catherine T. MacArthur Foundation

USD 0.4 million

for two years for programmatic support

Update on resource mobilisation efforts

ISA has launched two flagship products to mobilise resources: one, the SolarX Startup Challenge for Africa to promote and two, the Global Solar Facility consisting of the payment guarantee fund, insurance fund and investment fund (USD 200 million to start with for Africa).

The ISA has no membership fee. Article VI of the Framework Agreement of ISA states that the operating costs of the Secretariat and Assembly, and all costs related to supporting functions and cross-cutting activities, form the budget of ISA and are inter-alia covered by voluntary contributions by its Members, UN & its agencies, and other countries. The expenditure of the ISA has been met so far by

the general grant received and interest accrued on the general grant. It can also be met from the interest earned on the Corpus Fund.

The ISA Secretariat has made assertive outreach efforts to Member Countries and global foundations to seek resources. The Secretariat has submitted specific proposals to potential donors. The essential elements of the design and governance of the multi-donor trust fund were approved by the Fourth ISA Assembly. The key focus of ISA's Strategic Approach is to promote solarisation in Member Countries.

V Data, Evaluation & Learning

Data has been a guiding light for ISA's many programs and initiatives. It has helped to improve program effectiveness and provide better financial and advisory support. Over time, ISA has also collected a wealth of information on solar for its various reports.

As the next logical step, ISA has decided to digitise this data and make it more readily available through a portal for querying and analytics to be used across multiple applications for those who need it. Through this, ISA wants to drive greater awareness about solar and solar adoption, and build the portal as the de facto destination for everything solar.

ISA is committed to measure, monitor, evaluate and continuously use the learnings to track and improve outcomes for better alignment with goals and objectives. This section details the progress made on various fronts with data, evaluation, and learning.

Solar data portal

In line with ISA's aim to be a knowledge leader on 'everything solar', it intends to make comprehensive data on solar more easily accessible to everyone. To that end, it has started work on a web-based Solar Data Portal in August 2023 with the objective of building it into the 'go to destination for solar data'.

ISA will digitise the wealth of data collected as part of its various flagship reports such as Ease of Doing Solar (EoDS), Solar Investment Report, Solar Market Report, and Solar Technology Report, as well as other publicly available sources, and make them available on the portal.

The portal will have a user-friendly interactive dashboard with attractive visualisations like maps, charts, icons and query-based functionalities. It will be hosted on the ISA website.

Monitoring, Evaluation and Learning Policy

To align each unit's work with ISA's Strategic Plan for 2022-2026, this year the Monitoring, Evaluation and Learning (MEL) team worked with all the ISA units to identify key performance indicators (KPIs) to measure their work. Additionally, a draft Monitoring, Evaluation and Learning Policy has been developed, with guidelines for regular monitoring of the Secretariat's work.

These performance monitoring mechanisms will help the Secretariat measure and report its work efficiently and take corrective measures to meet its objectives outlined in the Strategic Plan.

Outcome Evaluation

ISA has provided technical and financial assistance to 27 Least Developed Countries (LDCs) and Small Island Developing States (SIDS) to set up demonstration solar projects under various themes such as solarisation of health centres, solar water pumping systems, solar cold storage and other innovative pilots. In 2023, an outcome evaluation of the demonstration projects has been initiated to understand the relevance, effectiveness, efficiency, impact and sustainability of this initiative. ISA aims to utilise learnings from this evaluation to make



Data

Solar data portal that will be go-to-destination for everything so Portal will have a wealth a data for the ISA’s flagship reports



Evaluation

KPIs for units, framing of MEP Polic Regular monitoring and corrective actions to align with Strategic Plan objectives



Learning

Outcome evaluation of demo projects in 27 LDCs, SIDS Learnings to improve effectiveness



Solar energy profiles of 107 Member Countries of ISA

Extensive data research and analysis on key drivers such as macroeconomy, policy enabler and technological feasibility

Ease of Doing Solar Report

Identification of challenges, barriers, best practices, and lessons to accelerate transition to solar



Key trends in the global solar market with a focus on ISA member countries

Global Trends in Solar Power

Best practices and latest developments in global solar space



Global Initiatives



ISA and the G20 under India's Presidency



Through 2023, as an international partner organisation of the 2023 G20 Presidency, the International Solar Alliance worked towards fast-tracking development, in the G20 countries and globally, while also advocating for solar utilisation to mitigate climate change. It highlighted the importance of a climate-friendly economy and actions that enable the uptake of solar and other forms of renewable energy, in least developed economies and small island states.

The ISA contributed widely to the G20 process. The Alliance's core engagement was its support for the Energy Transitions Working Group under the Sherpa Track, and to the Framework Working Group and Sustainable Finance Working Groups in the Finance Track. The Director General, representing ISA at the meetings highlighted the need to enable and facilitate three actions, and a set of partnerships.

- 1. To build the knowledge and capacity of all countries to produce, transport and use low and zero carbon hydrogen.** ISA has launched the Green Hydrogen Innovation Centre (GHIC) to enable this action.
- 1. To enable solar mini grids to provide universal energy access, especially where grid extension is expensive.** ISA submitted that financial guarantees will help crowd-in private sector investment into solar mini grids, and it has started such a guarantee to its Member Countries in Africa.
- 1. To build entrepreneurs in these countries who can, with help, become large organisations of tomorrow, supplying solar energy across countries and regions.** ISA has identified, and is strengthening, 20 solar startups in Africa. It will be conducting a similar exercise in the Asia & Pacific Region, and then the Latin America & Caribbean region.

The ISA's contributions to the G20 Energy Transitions Working Group were included in the G20's New Delhi Declaration in the section on Implementing Clean, Sustainable, Just, Affordable & Inclusive Energy Transitions. The G20 committed to supporting the acceleration of production, utilisation, as well as the development of transparent and resilient global markets for hydrogen produced from zero and low-emission technologies and its derivatives such as ammonia, by developing voluntary and mutually agreed harmonising standards as well as mutually recognised and interoperable certification schemes. To realise this, we affirm the 'G20 High Level Voluntary Principles on Hydrogen', to build a sustainable and equitable global hydrogen ecosystem that benefits all nations. We take note of the Presidency's initiative to establish the Green Hydrogen Innovation Centre steered by the ISA.

ISA's work throughout the G20 process has been exemplary in showing that partnerships and making coalitions are essential in the climate challenge. Synergistic actions multiply the impacts of actions taken, and solar energy is a force multiplier for development and climate action. The Director General asserted the ISA's support in accelerating solar deployment for mitigating climate change.

As an international partner organisation of the 2023 G20 Presidency, ISA participated in the first global energy event, India Energy Week, hosted in Bengaluru from 6-8 February 2023, where it hosted a pavilion showcasing its activities and achievements and conducted immersive discussions on important themes.



DG - ISA had the privilege of meeting Hon'ble Prime Minister Narendra Modi during the G20 Summit



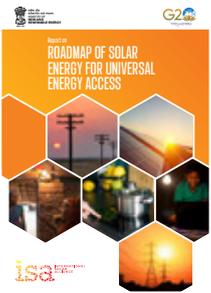
DG - ISA with President Luiz Inácio Lula da Silva of Brazil at the G20 Summit 2023



DG - ISA met with Hon'ble António Guterres Secretary General of United Nations at the G20 Summit 2023

At the G20 Summit 2023, DG - ISA with Saudi Arabia's Energy Minister, HRH Prince Abdulaziz bin Salman

Later, in July 2023, ISA released four reports at the G20 Energy Transition Working Group Meeting held in Goa.



The 'Roadmap of Solar Energy for Universal Energy Access' report suggests a decentralised and resilient approach for using energy to bring social, economic, and environmental benefits to underserved communities in Africa.



The 'Building Resilient Solar Supply Chains' report, developed by ISA in collaboration with Becquerel Institute, is intended to be a conversation starter with ISA Member Countries and global actors on how to work together to boost investment and capacity in solar manufacturing. It will also serve as a basis for

dialogue between policymakers, manufacturers, and developers to help them create robust solar manufacturing ecosystems within their countries and around the world.



The 'Ease of Doing Solar (EoDS)' is ISA's annual publication. The 2022 edition provides the solar energy profiles of 107 ISA Member Countries, including information on seven key drivers - macroeconomy, policy enablers, technological feasibility, market maturity, infrastructure, financing ecosystem, and energy imperatives. It identifies

challenges, barriers, best practices, and lessons for accelerating energy transition through solar energy.



The 'Global Trends in Solar Power - 2023' report is an extension of the EoDS initiative. It captures key trends and developments in the global solar market, with a focus on renewable energy target, policy/regulation, technology, market ecosystem, supply chain, investment, and employment in ISA Member Countries.

The EoDS and the 'Global Trends in Solar Power - 2023' reports will help governments fast-track the deployment of solar technologies by introducing pro-solar policies and regulations, building strong project pipelines, and enabling investor-friendly markets. They will also help bilateral and multilateral organisations, MNCs, and other stakeholders synchronise their efforts towards meeting energy needs in an affordable, equitable, and sustainable manner. These two reports are a precursor to the 'EoDS Data Portal' that ISA is developing as a go-to source for data on solar energy.

ISA's G20 contributions

The ISA has worked with the G-20, and its Presidency, towards fast tracking development, in the G-20 countries and globally, while also mitigating climate change by promoting solar utilization through:

- 1 Increasing utilization and production of solar hydrogen, and enhancing global trade in solar hydrogen;
- 2 Enabling rural energy access using solar mini-grids, while also promoting a more geographically diversified manufacturing base; and
- 3 Recognizing start-ups in the solar sector

Facilitate the creation of the Green Hydrogen Innovation Centre which was included in the G20's Delhi Declaration

Accelerated solar transition through its Global Solar Reports providing vital information on manufacturing, technology, markets and investments

1	2	3	4
Roadmap of Solar Energy for Universal Energy Access	Building Resilient Solar Supply Chains	Ease of Doing Solar	Global Trends in Solar Power-2023

Unique features of the Green Hydrogen Innovation Centre



Country Insights
(country-level announcements, missions and targets)



GH Community
(Live interactive platform for global hydrogen community)



Live Chatbot
(AI-and ML-supported robotic bot for quick support & address queries)



Skill Development
(Certified e-learning podcasts, industry expert interviews, etc.)



Global Startup Program
(Platform to support startups and provide opportunities to connect with financiers)

Green Hydrogen Initiatives

ISA, together with India's Ministry of New and Renewable Energy and the Asian Development Bank, has developed the Global Hydrogen Innovation Center – a multifaceted web portal with state-of-the-art information on green hydrogen, including the latest sectoral developments across the globe, relevant publications and industry reports, policies, codes and standards, and details on upcoming events and conferences.

The Green Hydrogen Innovation Centre, a vital contribution by ISA to the 2023 G20 Energy Transition Working Group Meeting processes, was included in the G20's New Delhi Declaration. It is a vital contribution by ISA to the 2023 G20 Energy Transition Working Group Meeting processes.

ISA and the G20 Presidency are also working to facilitate the creation of a 'Global Center of Excellence' platform that will support the production, utilisation, and trade of green hydrogen, besides providing a platform for knowledge-sharing and building competency in the green hydrogen value chain. The platform will facilitate the creation of a Task Force and Working Groups across Member Countries to assess and facilitate the green hydrogen readiness level. ISA has prepared a country readiness framework and tested it out in more than 30 countries. Views from other countries are being sought.



Knowledge Dissemination

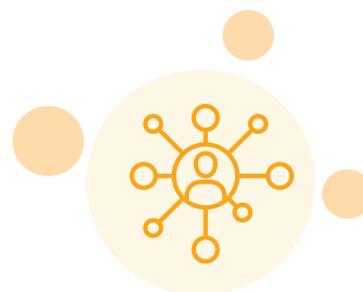
GHIC to serve as a **one-stop knowledge repository** on various topics of green hydrogen like:

- Global projects
- Case studies
- Reports
- Research publications



Best Practices and Learnings

- Access country policies, regulations, standards, and code through the portal
- Outreach to stakeholders
- **Portal to provide country-level insights** for green hydrogen along with potential and demand of green hydrogen



Network and Partners

- GHIC will aid developers in providing **details about OEMs for Electrolyzers, Fuel Cells, Storage providers**, and their products, along with **EPC/ system integrators**, and later identifying possible **financing partners**

The International Solar Alliance @ COP28

ISA played a pivotal role in demonstrating solar energy's critical role in the global energy transition at the 28th UNFCCC Conference of the Parties (COP28) held in Dubai from November 30 to December 12, 2023. The ISA delegation showcased its commitment to advancing solar energy solutions, addressing disparities, promoting a just energy transition, and fostering global collaborations. At COP28, ISA highlighted and strengthened its strategic partnerships and initiatives and unveiled innovative endeavours, further solidifying the organisation's commitment to sustainable development.



The Solar Hub, ISA's COP28 pavilion, hosted 36 dynamic sessions that were curated to drive global solar deployment, create green jobs, build consensus for widespread solar adoption, prioritise solar energy, facilitate partnerships, and advocate for coordinated global action. Of these, 18 were co-hosted by ISA's organisational partners including ADB, SELCO Foundation, AfIDA, GEAPP, HIEx, SEforALL, NSEFI, World Bank, Global Solar Council, CII, IWMI, UNDP and others.

Initiatives Launched at COP28

Global Solar Facility: Unlocking Investments Solar Across the Globe

The Global Solar Facility (GSF) in Africa was created to stimulate high-potential solar technologies by attracting private capital to flow into Africa's underserved markets while ensuring a payment and insurance mechanism as a first-loss guarantee. The event sensitised delegates about the facility, and fostered discussions between investor groups, member countries, and various donors & partners, for successfully operationalising the facility.

ISA has achieved a significant milestone with the operationalisation of the inaugural pilot project under its Global Solar Facility (GSF) in the

Democratic Republic of the Congo (DRC). ISA, through its GSF, is supporting Nuru, a leading solar power company in the DRC, to develop and construct 15 megawatts (MW) of solar metro grid capacity across three Eastern Congo provinces. This collaboration, in partnership with the Multilateral Investment Guarantee Agency (MIGA) of the World Bank Group, was announced at the G20-Clean Energy Ministerial meeting in Goa in July 2023. Nuru plans to deploy an additional 39 MWs in subsequent phases, with the anticipation of providing power to up to 5 million people by 2025. In a country where less than 20% of the population has access to electricity, Nuru's utility-scale solar metro-grids will provide 24/7 reliable and renewable energy to urban DRC communities.



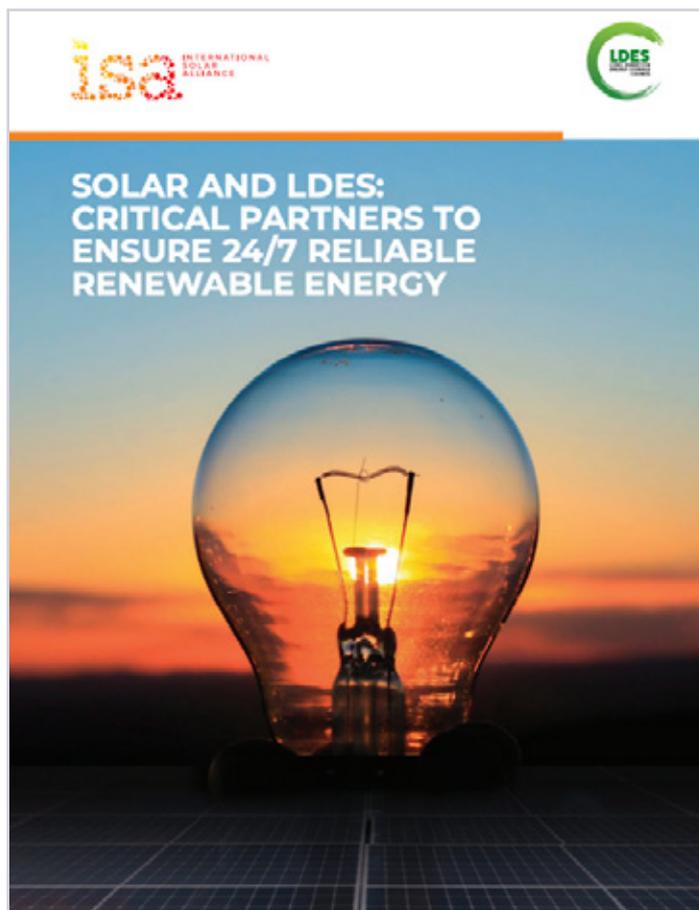
SolarX: Promoting Entrepreneurship for Solar Across the Globe



The 'Solarx: Promoting Entrepreneurship for Solar Across the Globe' session launched the second leg of the SolarX Start-up Challenge to accelerate the pace of low-carbon technology development in the Asia-Pacific region. Aimed at fostering collaboration, encouraging entrepreneurship, and catalysing investments in the region's solar sector, the challenge will select 20 APAC startups who will be provided access to an intensive acceleration programme, mentorship by seasoned professionals, access to potential investors and diverse APAC markets, and a \$15,000 cash grant. The Sequoia Climate Foundation is supporting the Asia Pacific edition of the SolarX challenge.

Reports launched at COP28:

Solar and LDES: Critical Partners to Ensure 24/7 Reliable Renewable Energy



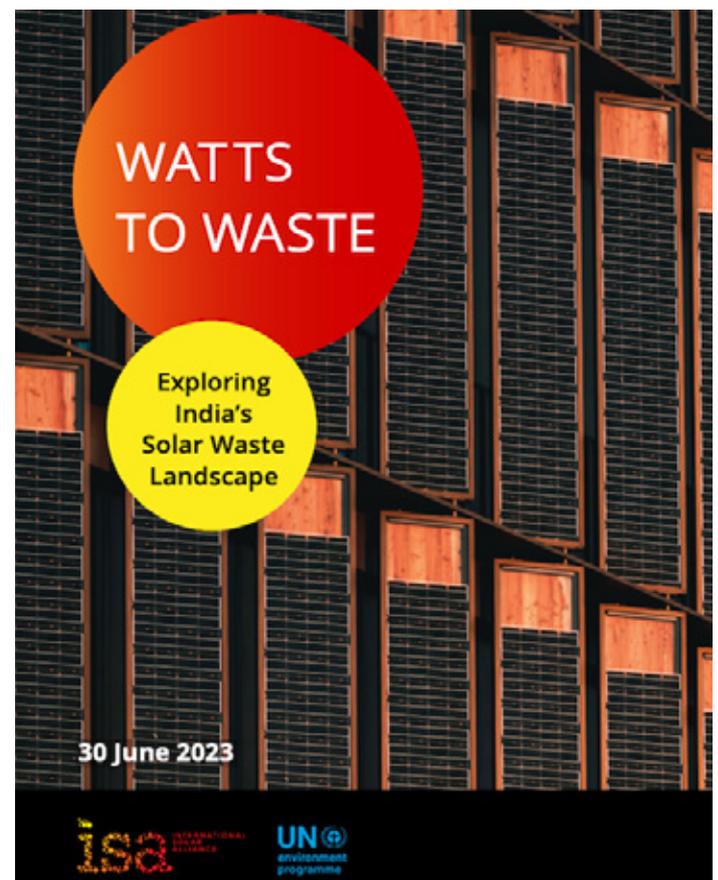
ISA, in collaboration with the Long Duration Energy Storage (LDES) Council, presented a visionary report at COP28, envisioning 75,000 gigawatts of solar capacity by 2050. The report titled, 'Solar and LDES: Critical Partners to Ensure 24/7 Reliable Renewable Energy' emphasises the critical role of LDES in ensuring continuous and reliable renewable

energy. It outlined key findings, economic viability in isolated regions, global market potential, barriers, and proposed solutions. The report offers a set of policy recommendations, urging increased global targets for solar and LDES, streamlined permitting processes, enhanced R&D, and the reallocation of fossil fuel subsidies to renewable sources and energy storage.

A case study featured in the report focuses on isolated island utilities in the US, illustrating the financial viability of Long Duration Energy Storage in regions grappling with limited interconnectivity and soaring local fuel costs. This study underlines the efficacy of the combined forces of solar, wind, and LDES, emerging as the most cost-effective solution to achieve the coveted goal of 100% renewable energy. The integration of Long Duration Energy Storage is identified as the optimal pathway to propel economies worldwide towards full decarbonisation.

Watts To Waste - Exploring India's Solar Waste Landscape

Addressing a crucial concern of solar waste management amid the global solar surge, ISA released a report titled, 'Watts To Waste - Exploring India's Solar Waste Landscape'. In collaboration with the United Nations Environment



Programme (UNEP), this report navigates through the multifaceted challenges and opportunities associated with managing solar waste in India. The report gives due emphasis to the incorporation of solar modules under the newly implemented E-Waste Management Rules, 2022, as a part of India's adoption of responsible and sustainable practices in the solar sector.

The report also covers the need for robust policies and disposal infrastructure for the proper management of solar waste. It offers strategic approaches for solar waste management and focuses attention on the need for technological advancements to optimise recycling processes, particularly focusing on cost-effective recovery of high-purity materials. The global challenge in solar tech recycling underscores the necessity for collaborative efforts to bridge the existing technology gap - drawing attention to ISA's strategic role in shaping effective waste management strategies for India.

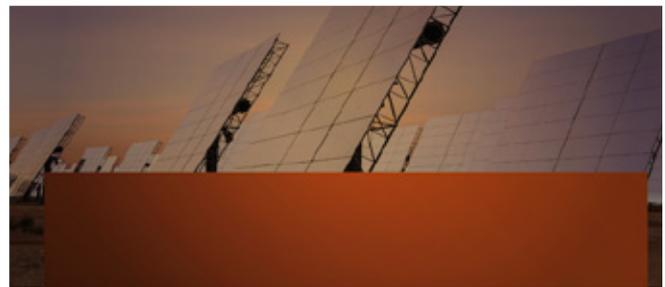
Tripling Global Renewable Energy Capacity by 2030: Solar Leading the Way



The 'Tripling Global Renewable Energy Capacity by 2030: Solar Leading the Way' report covers solar's pivotal role in tripling global renewable energy capacity by 2030, aligning with the G20 New Delhi Leaders Declaration and the goals of the COP28 Presidency. It outlines how solar energy, with 226

GW installations in 2022, is poised for exponential growth, projecting 1 TW by 2022, 10 TW by 2030, and an ambitious 60 TW by 2050. The report underlines the need for global collaboration, policy harmonisation, and technological innovation to address challenges in this global solar roadmap. It also acknowledges regional disparities in renewable energy (RE) capacity, with some regions requiring to nearly triple their capacities and the need for greater solar storage capacity to meet these tripling goals. To address barriers to solar energy adoption, such as storage integration, regulatory support, and financial incentives, the report emphasises collaborative efforts involving governments, industries, and communities. Achieving the target of tripling global RE capacity requires annual investments in solar reaching \$500 billion by 2030, necessitating innovative financing tools, commitment from commercial financial institutions, and the mobilisation of institutional investors. The report stresses the importance of national commitments, urging countries to include solar-specific targets in their Nationally Determined Contributions. The report concludes by emphasising solar energy's job creation potential, and the importance of education, training, and capacity-building programmes to align the workforce with the demands of the renewable energy sector. Reskilling and upskilling initiatives for vulnerable communities and those in fossil fuel industries are identified as critical components in ensuring a just and inclusive transition towards a sustainable energy future.

Unleashing Renewables in Advancing Economic, Social and Environmental Equity



Unleashing the role of Solar
In advancing economic, social and environmental equity

Created as part of a collaborative effort with the Boston Consulting Group, the 'Unleashing Renewables in Advancing Economic, Social and Environmental Equity' focuses on leveraging solar power for global energy equity and urgent climate action. Highlighting the need for tailored solar solutions, the report outlines the critical role of solar power in advancing economic, social, and environmental equity. It also emphasises the urgent need for tailored solutions to fast-track universal energy access, reduce global emissions by 43% this decade, and tackle energy poverty by 2030.

ISA sessions @COP28 - In the Spotlight:

At COP28, ISA representatives participated in several sessions and initiatives addressing critical aspects of the global transition towards sustainable energy. Topics ranged from exploring the potential of green hydrogen in high energy-intensive sectors to discussions on financing models at the intersection of climate, health, and equity. Sessions highlighted the urgency to accelerate solar energy efforts for universal energy access by 2030 and the importance of combining solar energy with long-duration energy storage. The conference also institutionalized the annual Global Stocktake on solar energy to track progress and contribute to enhanced Nationally Determined Contributions under the Paris Agreement. Notably, the One Sun, One World, One Grid initiative aimed to connect renewable energy sources across continents through a trans-continental power transmission grid. ISA's engagements included discussions on people-positive energy transitions, financing local energy transitions, and mechanisms to accelerate climate financing in emerging and developing markets. These sessions underscored the interconnected challenges and opportunities in achieving a just and sustainable energy transition worldwide.

ISA's Engagements @COP28 - In focus

During the COP28 conference, several impactful sessions and initiatives unfolded, addressing crucial aspects of the global energy transition. The SDG Global South Pavilion hosted a panel discussion, organized by the Global Energy Access Partnership Program (GEAPP), exploring the challenges and opportunities of a people-positive energy transition globally. The UNFCCC Action Lab, hosted by ISA and the Asian Development Bank (ADB), centred on 'Financing Local Energy Transitions,' discussing insights on mobilizing capital for renewable energy projects in developing markets. Stakeholders gathered at the Hilton Palm Jumeirah for a consultation facilitated by GEAPP, exchanging views on advancing a people-positive energy transition through solar energy, green

hydrogen, and decentralized renewable energy. The Global Renewables Alliance Pavilion emphasized actionable steps to mobilize finance for the energy transition, while the Energy Transition Council Secretariat panel discussion, organized by TERI, delved into achieving just energy transitions and aligning with SDGs. The GCC Pavilion focused on recognizing the importance of crediting renewables in achieving a net-zero future, stressing the need for harmonizing standards. CEEW-CII Leaders' Dialogue discussed key issues and priorities for the energy transition in India and globally, highlighting the role of innovation, policy, and finance. The World Climate Foundation panel explored mechanisms to accelerate climate financing in emerging and developing markets, addressing issues of risk mitigation and blended finance. Additionally, COP28 featured notable highlights, including Romania joining ISA and the initiation of the Global Solar Facility in the Democratic Republic of Congo, aimed at increasing access and energy security. ISA also engaged in a ministerial breakfast to discuss the Global Solar Facility and signed MoUs with the East African Power Pool and Climate Parliament, furthering collaborative efforts in advancing renewable energy goals globally.

Looking ahead

ISA's impactful initiatives at COP28 demonstrate a concerted effort towards a cleaner, more sustainable future. From promoting entrepreneurship and addressing solar waste challenges to advancing global renewable energy goals, ISA's commitment to a just and inclusive energy transition were evident at COP28. The organisation's collaborations, reports, and strategic projects position solar energy as a transformative force in the global fight against climate change.



Global Partnerships

Over the years, the ISA Assembly has granted 'Partner Organisation' status, under Article VIII of the ISA Framework Agreement, with a total of 49 United Nations agencies, multilateral development banks (MDBs), development finance institutions (DFIs), international organisations, and public organisations. These partnerships optimise ISA's efforts to manage ongoing programmes and projects by providing essential technical assistance, facilitating investment mobilisation, mitigating risks, and bolstering the capabilities and expertise of ISA's Member Countries. These collaborations also serve as a crucible for the inception of innovative solar energy initiatives.

ISA's recent partnerships include those with:



UNIDO for enhancing the institutional, technical, and networking capacity of Member Countries by creating a network of expertise and training centres under the Solar Technology Application Resource Centres (STAR-C) programme.



UNDP for implementing solar water pumping systems (SWPs) in 10 countries with the India, Brazil, and South Africa (IBSA) fund of USD 2 million.



Asian Development Bank (ADB) for the ADB Technical Assistance Programme for Bangladesh, Bhutan, the Maldives, Nepal, Sri Lanka and India; Support in developing the Green Hydrogen Innovation Centre; and scoping studies on strengthening healthcare and agriculture through solar-based solutions.



IRENA for promoting a web-based Solar City Simulator application that supports the scaling of solar rooftop projects on healthcare facilities, schools/institutes, residential, commercial and industrial consumers, exclusively in El Salvador, Mali and Sao Tome & Principe.



UNEP for an ongoing study on the global solar and battery waste recycling landscape.



Invest India for the SolarX Startup Challenge, which invites startups to come up with innovative, cost-effective, and scalable local solutions to address some of the persistent challenges faced by the solar sectors in ISA Member Countries.



USAID for a joint fund for solarising health centres; promoting solar solutions and collaborations around the world; and sharing learnings from India with other developing countries.



GEAPP for financing solar mini-grids, agriculture, rooftop projects, and the STAR-C programme.



Health Innovation Exchange (HIEx) for the ISA CARES initiative, which equips primary healthcare facilities in ISA Member Countries with essential solar-based power infrastructure to enhance health outcomes, strengthen healthcare capacity, and bolster crisis preparedness.



European Investment Bank (EIB) and Multilateral Investment Guarantee Agency (MIGA) for the Global Solar Facility, which invests in new technologies that enhance the efficiency of solar energy, startups that enable faster implementation of solar energy, and emerging areas in solar energy.



World Resources Institute for developing a roadmap for mobilising USD 1 trillion in the solar sector.



Global Off-Grid Lighting Association (GOGLA) for the Solar Grand Challenge; sponsoring the South Asia Forum for Distributed Energy; and promoting off-grid solutions in lighting, agricultural applications, and productive use.

SolarX Startup Challenge 2022-23

ISA, in collaboration with Invest India, launched the first edition of the SolarX Startup Challenge at COP27 on 10 November 2022 at Sharm-el-Sheikh, Egypt, to boost entrepreneurship and startups in the solar energy sector and address energy and investment gaps. The Challenge seeks innovative, cost-effective, and scalable local solutions to persistent challenges faced by the solar sectors in ISA Member Countries. It aims to promote the solar energy sector, reduce the energy crisis gap, and boost the solar startup ecosystem.

The first edition of the SolarX Startup Challenge was held in Africa. The participants were given 10 problem statements pertaining to challenges and gaps faced by the solar energy ecosystem and were invited to submit solutions to address any of them.

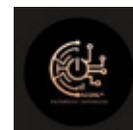
ISA received over 180 applications for the SolarX Startup Challenge from 28 countries, from which 50 applications were shortlisted. After a rigorous assessment, the Evaluation Committee selected the top 20 winning startups. These winners were from 10 different African countries, and seven (7) of them were women-led.

The innovations of the winners of the SolarX Startup Challenge will be supported by ISA, Invest India, and other partners for wider implementation through mentorship support programmes, investor connect programmes, and market access programmes. The acceleration programme will be delivered virtually and physically to ensure outreach to all finalists across the African continent.

Solar X Startup Challenge for the Asia-Pacific region

The SolarX Start-up Challenge's Asia-Pacific leg was inaugurated during the 'Solar X: Promoting Entrepreneurship for Solar Across the Globe' session. Its objective is to expedite the development of low-carbon technology in the region. Twenty startups from the APAC region will be chosen to participate. They will receive access to an intensive acceleration program, mentorship from experienced professionals, exposure to potential investors and markets in the APAC region, and a \$15,000 cash grant. The Sequoia Climate Foundation is backing this edition of the SolarX challenge.

The 20 winners of the SolarX Startup Challenge - Africa Edition



**EG
Platform
Limited**

Global Solar Facility

The world needs to invest USD 12.5 trillion in renewable energy by 2030, and USD 23 billion in off-grid solar installations to transition to clean energy and ensure universal access to energy. However, current global solar investments are only around 10% of what is needed to achieve net zero status. More than 50% of the world's population, residing in developing countries, received only 15% of global investments in renewable energy in 2022. Per capita renewable energy investment in Sub-Saharan Africa declined by 44% between 2015 and 2021. The disparity in investment levels becomes strikingly evident when one compares the investments in Sub-Saharan Africa with those in North America and Europe; the investments in North America are 41 times higher, while investments in Europe are 57 times higher.

Developing countries received a disproportionately small portion of global renewable energy investments in 2022. The Global Solar Facility aims to correct this imbalance.

ISA has formed a Global Solar Facility (GSF) to stimulate high-potential solar technologies by attracting private capital to flow into underserved markets while ensuring a payment and insurance mechanism as a first loss guarantee. It is important for this facility to begin in the regions with the largest need. Africa, despite having the highest potential for solar energy, accounted for only around 1.3% of global installed solar capacity in 2021. At the same time, Africa has nearly 600 million people without access to electricity. This makes a strong case for distributed solar installations.

Therefore, ISA is commencing the GSF in Africa, and specifically the Democratic Republic of Congo, a country where less than 20% of the population has access to electricity. The ISA is supporting Nuru, a leading solar power company in the DRC, to develop and construct 15 megawatts (MW) of solar metro grid capacity across three Eastern Congo provinces. Nuru's utility-scale solar metro-grids will provide 24/7 reliable and renewable energy to urban DRC communities. Nuru plans to deploy an additional 39 MWs in subsequent phases, with the anticipation of providing power to up to 5 million people by 2025.

Thereafter, the GSF will be rolled out across other regions, such as the APAC region, the Middle East, and Latin America & Caribbean. These regional facilities will be customised to suit the needs of each region.

The GSF will start with Africa and then expand into other regions.

The GSF will support new technologies that enhance the efficiency of solar energy; startups that enable faster implementation of solar energy; and emerging areas in solar energy. In the long term, it may also expand to encourage cutting-edge research for solar energy across the world.

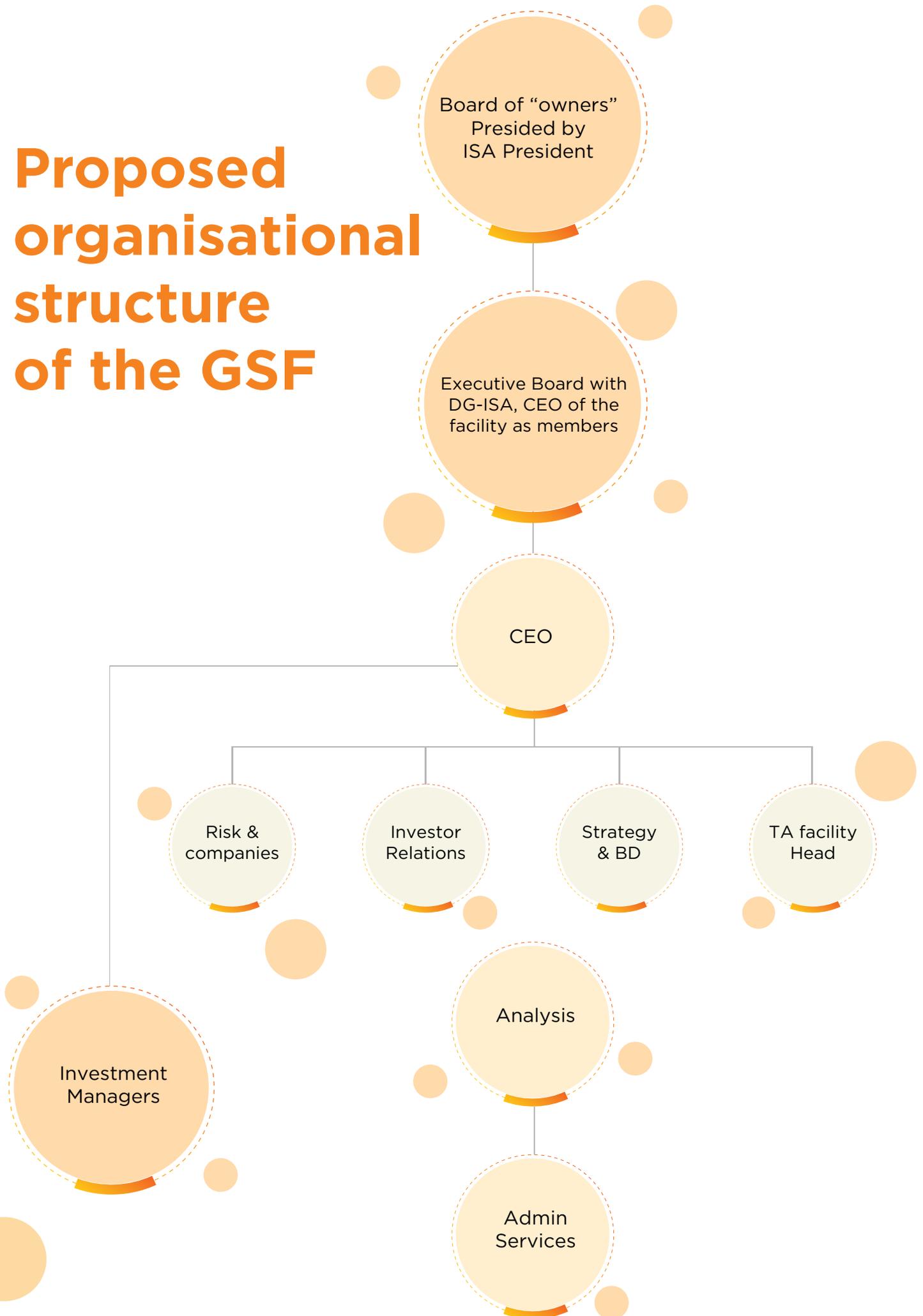
Composition of the GSF

The GSF will have three funds:

- A payment guarantee fund
- An insurance fund to mitigate project risks
- An investment fund for technical assistance for addressing gaps in the regulatory framework



Proposed organisational structure of the GSF



Actions so far

- The ISA Secretariat announced the GSF at a high-level event at COP27 in Egypt to gauge and establish investors' appetite. High-level representatives from Multilateral Investment Guarantee Agency (MIGA), GCF, French Government, World Bank, and IFC participated in the event.
- The ISA Secretariat held multiple hybrid and in-person discussions with potential investor groups, including the EIB, MIGA group, World Bank, and pension funds from the Nordics, including Norad, PK Denmark, and Africa 50. The first investor roundtable was held in the Nordics in March 2023, where about 30 investors from Copenhagen, Oslo and Stockholm joined it.
- ISA has signed MoUs with MIGA to help in operationalising the GSF at the 14th Clean Energy Ministerial meeting in Goa in July 2023.
- ISA has also signed MoUs with Africa50 and the BOAD group to help in creating bankable pipelines of projects in Africa.
- ISA has appointed Edhina Advisory to help in operationalising the GSF.

Next steps

- The Government of India has agreed to look at the possibility of investing up to USD 25 million in the GSF as seed capital.
- ISA will look to secure the first in-principle financial close of the GSF during 2023 by engaging with various governments and investors.
- ISA will engage a commercial private fund manager(s) for managing and socialising the facility to mobilise resources for scaling up solar energy investments in emerging geographies, starting with Africa.

One Sun, One World, One Grid (OSOWOG)

The One Sun, One World, One Grid (OSOWOG) initiative is rooted in the vision put forth by the Hon'ble Prime Minister of India at the First Assembly of the ISA in October 2018. Driven by the mantra "The sun never sets", OSOWOG envisages the interconnection of all forms of renewable energy (solar, wind, hydro, and green hydrogen) generators, storage, and loads across continents with a trans-continental power transmission grid. The initiative was endorsed by all the Member Countries at the Third Assembly of the ISA in October 2020. Furthermore, the 'One Sun Declaration' was approved by the Fourth Assembly of the ISA.

ISA supervises feasibility studies and the development of the roadmap for setting up cross-border transmission links for a globally integrated grid network under the OSOWOG initiative

“The concept of “One Sun, One World, One Grid” involves establishing connections between different regions, with the underlying assumption that the countries involved will have friendly relations, although challenges exist. The success of the initiative hinges on fostering cooperation among diverse governments and market forces.”

- Dr Ajay Mathur, Director General of the International Solar Alliance

GGI-OSOWOG

In 2021, the Governments of India and the UK partnered to merge the UK's Green Grids Initiative (GGI) with OSOWOG. The GGI-OSOWOG initiative, launched at the World Leaders' Summit at COP26, is endorsed by 80 ISA Member Countries. The first-ever international network of global interconnected solar power grids, GGI-OSOWOG aims to connect 140 countries to continuous solar power and bring together national governments, international financial and technical organisations, regulatory bodies, power system operators, and knowledge banks, to develop the infrastructure required for clean energy.

GGI-OSOWOG enhances the viability of solar projects, reduces storage needs, and plays a pivotal role in helping countries meet the Paris Agreement target. Moreover, it signifies a substantial investment in low-carbon emissions by reducing reliance on fossil fuels and non-renewable energy sources. Beyond environmental benefits, it also promises economic advantages, including reduced living expenses and improved livelihoods.

Actions completed and underway on OSOWOG

The vision of interconnected green energy under this initiative spans South and Southeast Asia, Europe, the Middle East, and Africa. It aims to unlock renewable potential, balance reserves, and stabilise power markets. Significant progress has been made in this direction in India and many other parts of the world.

ISA aims to be the go-to platform that brings together resources from around the world to surgically target the challenges faced by ISA Member Countries in their solarisation journey. ISA aims to leverage its unique position of being "the platform of platforms" with intergovernmental support to assist in overcoming any political and financial challenges that might be encountered along the way.

ISA, with the support of the World Bank, onboarded the consortium led by France's EDF to conduct a technical study to identify viable pilot interconnections in three phases. The first phase (Assessment) has been completed; the second

phase (Simulations) is nearing completion; and the third phase (Final roll-out of the framework) is expected to be completed by the end of the year.

Beyond India's existing interconnections with neighboring countries such as Bangladesh, Bhutan, Nepal, and Myanmar, we are now also witnessing the emergence of collaborations between India and Sri Lanka, the UAE, Saudi Arabia, and Singapore. It is anticipated that a regulatory framework to govern these inter-regional connections will be established very soon.

In line with this objective, The Fifth Meeting of the ISA Regional Committee for Asia and the Pacific Region held in Abu Dhabi from 24-26 July 2023 highlighted the importance of the OSOWOG for realising the potential of solar energy.

The global discussion on OSOWOG has commenced, and we are now witnessing collaborations between countries. A regulatory framework will be established shortly.

At the 14th Clean Energy Ministerial and 8th Mission Innovation meeting, ISA organised a high-level dialogue on OSOWOG, which emphasized the importance of collaboration, political commitment, technological innovation, and robust infrastructure in realising the potential of interconnected renewable energy grids to drive a sustainable and efficient global energy transition.

ISA is working towards more intergovernmental discussions to identify potential pathways for countries and regions as well as other stakeholders, including public and private sectors, to come together for successful implementation of the OSOWOG initiative.

ISA Engagements

ISA actively engages with organisations that share the vision of universalising energy access through solar energy. These collaborations are strengthened by ISA's participation in global conferences and international fora to promote discourse on the development and utilisation of solar power. ISA regularly engages with global stakeholders through such platforms and encourages them to work towards the shared goal of environment-friendly energy generation.



Meeting with H.E. Mr Marten Van Den Berg, Dutch Ambassador to India, to discuss issues concerning solar, green hydrogen, and manufacturing supply chains



Meeting with the Chief Minister of Meghalaya



ISA partnered with the World Climate Foundation to enhance solar financing in Africa



H.E. Mr Mario Ronconi, DG, EU International Partnerships and HE Mr Ugo Astuto, Ambassador of the European Union to India



ISA delegation met with Hon'ble Zahid Maleque, Ministry of Health, Bangladesh.



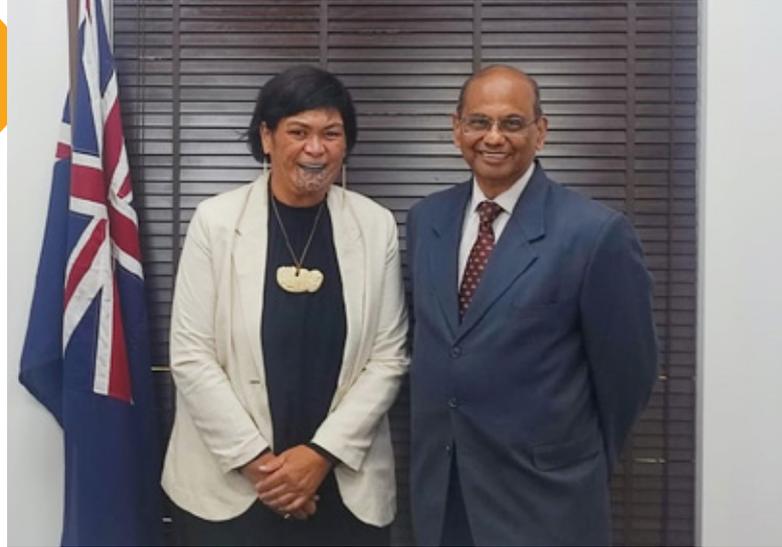
Visit to Asian Development Bank headquarters in Manila and meeting with ADB leaders to discuss increasing solar deployment in LDCs and SIDS, and ISA's blended finance facility for APAC



DG ISA met with Hon'ble Masatsugu Asakawa, President, ADB on the sidelines of the G20 Summit Delhi



Meeting with Ms Jennifer Morgan, State Secretary and Special Envoy for International Climate Action, German Foreign Office, to discuss areas of cooperation, including solar mini-grids, green hydrogen, payment guarantee mechanisms, and capacity-building



Meeting with Ms Nanaia Mahuta, Minister of Foreign Affairs, New Zealand, to discuss increasing solar deployment in Pacific islands



Meeting with Mr Kris Peeters, Vice President, European Investment Bank, to discuss ISA's new initiatives and strengthening collaborations



Meeting with Mr Karolis Zemaitis, Vice Minister, Lithuania, to discuss areas of cooperation in scaling solar deployment and addressing climate challenge



Meeting with Egyptian Foreign Minister, Mr Sameh Shoukry on the sidelines of the G20 Foreign Ministers' Meeting to discuss acceleration of solar deployment

Promoting Gender Equality

ISA intends to leave no one behind in its efforts to solarise its 116 Member and Signatory Countries. ISA is working towards ensuring a just and inclusive energy transition through gender mainstreaming and empowerment. Solar photovoltaic has emerged as the leading employer in the renewable energy sector, boasting a commendable balance in terms of gender representation. The solar PV industry provided employment to an impressive 4.3 million individuals, constituting a remarkable one-third of all renewable energy jobs worldwide. Notably, women accounted for a substantial 40% of this figure, reflecting a progressive stride towards inclusivity and gender equality. This statistic is nearly double the proportion of women employed in the wind industry (21%) and the oil and gas sector (22%). Moreover, it surpasses the average share of women engaged in all renewable sectors, which stands at 32%.

Gender equality in the solar sector is not only a matter of social equity but a cornerstone of sustainable progress. Achieving parity ensures that the sector benefits from a wider pool of talent and a diverse range of perspectives. This, in turn, leads to more ingenious solutions, heightened efficiency, and ultimately, a more robust and adaptable solar industry. Policies and practices that champion gender inclusivity create a dynamic and creative workspace, enabling the sector to overcome challenges and adapt to a rapidly evolving energy landscape.

In the drive for climate action, women's leadership is a formidable force. This is especially evident in the solar sector, where women in leadership positions emphasize collaboration, community engagement, and long-term sustainability. Their influence extends far beyond the boardroom, inspiring a new generation of female leaders and demonstrating that gender equality is not only possible but essential in achieving our climate goals. In ISA's SolarX Startup Challenge, seven (7) women-led startups were selected as winners. By promoting and supporting women in leadership roles, ISA is not only fortifying the solar sector but also propelling global efforts towards a more sustainable and equitable future.

This year, ISA representatives also participated in several global forums to advocate the need to promote women's leadership and participation in the solar energy sector.



ISA Digital Footprint

ISA's digital media presence helps in communicating about the organisation's vision and initiatives with relevant stakeholders across geographies and age groups. The content includes updates on activities, event proceedings, and future initiatives. By promoting its activities and creating a reservoir of information online, ISA aims to increase global involvement and investment in solar energy initiatives.



ISA Secretariat



Functions and Recruitment

The ISA General Assembly 2022 approved a staff strength of 50 for the ISA Secretariat to strengthen and establish it as a fully functional organisation.

The Secretariat comprises the Director General who is the Chief Executive Officer and other staff. Responsible to the Assembly for a term of four years, the key assignments of the Director General include providing support for the organisation and functioning of the Secretariat.

Key functions

- Assist the National Focal Points in preparing the programmes, proposals and recommendations submitted to the Assembly.
- Provide guidance and support to members in the implementation of each programme, including for the raising of funds.
- Act on behalf of the Assembly, or on behalf of a group of members participating in a particular programme, when so requested by them; and establish contacts with relevant stakeholders.
- Set and operate all means of communication, instruments and cross-cutting activities required for the functioning of the ISA and its programmes, as approved by the Assembly.

Merit- Based Recruitment Approach

The ISA secretariat appoints General Service, National Officer, and International Professional staff. Based on the General Assembly's approval of the recruitment and selection framework (defined in the Manual of Regulation Chapter 9), ISA has devised a recruitment strategy and an action plan.

The ISA primarily recruits staff from its Member Countries. The international staff belonging to different nationalities ably reflects ISA's commitment to maintaining its global character. Moreover, consideration is also given to qualified candidates from signatory and prospective Member Countries, irrespective of their nationality.

ISA strives to obtain employees that reflect its geographical representation and diversity. A merit-based recruitment programme called STAR (Situation, Task, Action, Result) has been introduced to help with talent search. The STAR method is a structured manner of responding to a

behavioral-based interview. It helps predict how a candidate will perform in each job if hired based on real-life examples of past behaviour to understand a candidate's skill set beyond their resume.

These positions are to be filled with a combination of General, National, and International Staff. The General Assembly approved the organigram comprising these roles, which include: Two Assistant Director Generals supported by five P4 positions corresponding to the Chiefs of Units and 14 International positions. General (12) and National Staff (17) will fill the remaining 29 positions.

Current Status of Recruitment

Since May 2023, the ISA Secretariat has been able to recruit 16 staff members. The recruitment for the remaining roles is at various stages. The staff recruited to date represent diverse nationalities, cultures, strengths, and abilities, with a strong gender equity. ISA is an equal-opportunity employer and strives to achieve gender parity at all levels.

Enterprise Resource Planning (ERP) plays a pivotal role at the ISA Secretariat, serving as the backbone of organisational operations. The ERP system helps integrate and manage critical functions such as finance, procurement, project management, and human resources, enabling efficient resource allocation and streamlined decision-making.

Given the dynamic nature of the solar energy sector and the need for meticulous planning and resource optimisation, ISA's ERP ensures data accuracy, real-time insights, and robust collaboration across teams. This helps in contributing significantly to our mission of promoting solar energy adoption on a global scale. ERP systems help us tie together a multitude of business processes and enable the flow of data between them. The system has helped us eliminate data duplication and provide data integrity with a single source of truth.

SAP SuccessFactors Employee Central

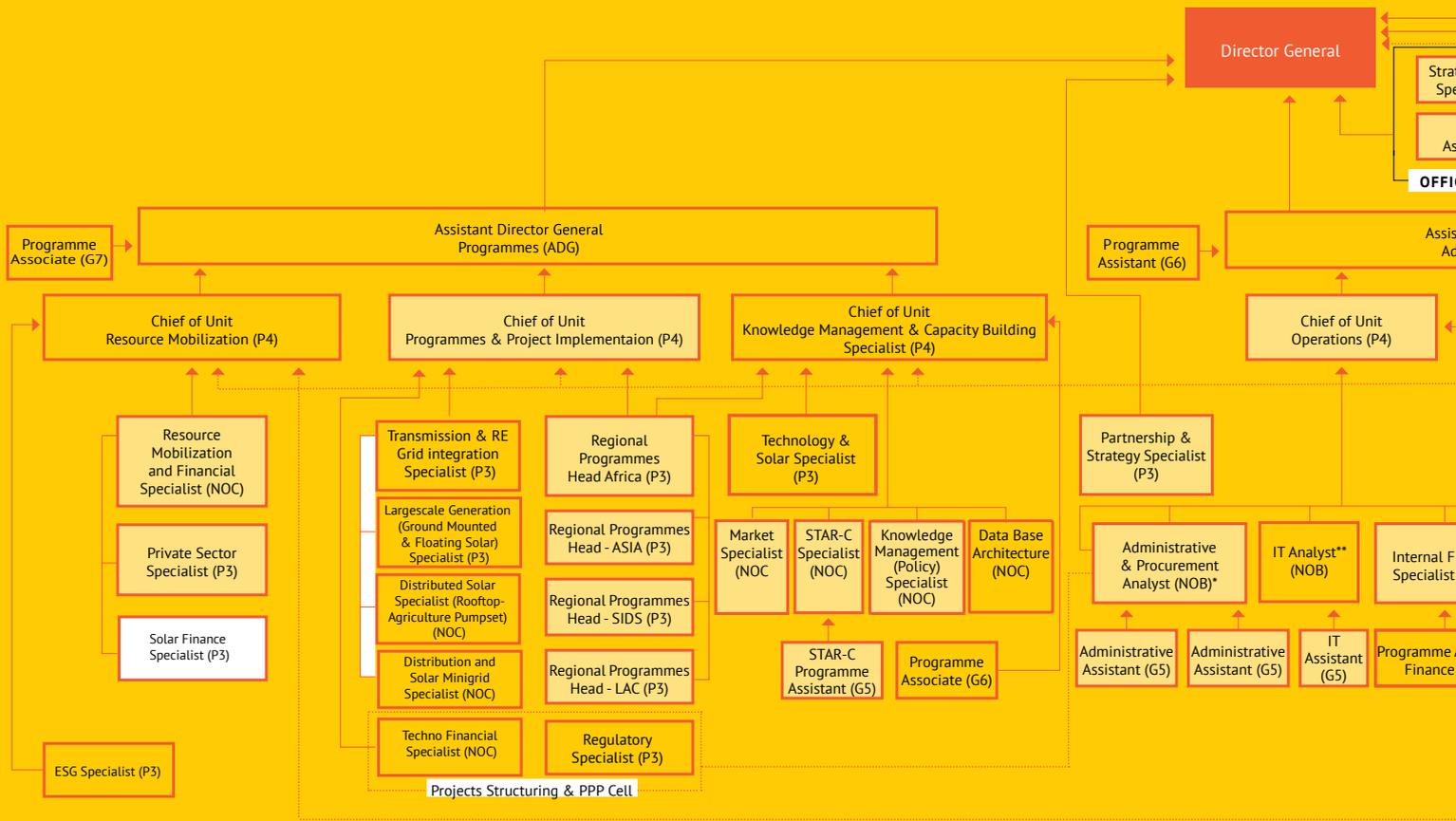
The ISA Secretariat has adopted modules of the SAP SuccessFactors Employee Central, to ensure that ISA is a process and rule driven organisation.

SAP SuccessFactors enables ISA to flexibly manage all its HR needs by:

- Providing a system of engagement that aligns with modern workforces' expectations of the user interface and user experience.
- Providing a comprehensive, integrated, and searchable employee and organisational information.
- Providing position management and organisational charting to create the right structures for an agile organisation that supports departments, teams, and individuals.
- Providing smart automation, with intelligent services and HR workflows across system and business functions, enables users to manage processes.

Additionally, SAP SuccessFactors Employee Central offers data protection and privacy functions such as consent management, data blocking, data retention and purge, read and edit logging, and reporting helping ISA Secretariat maintain data compliance.

INTERNATIONAL SOLAR ALLIANCE SECRETARIAT

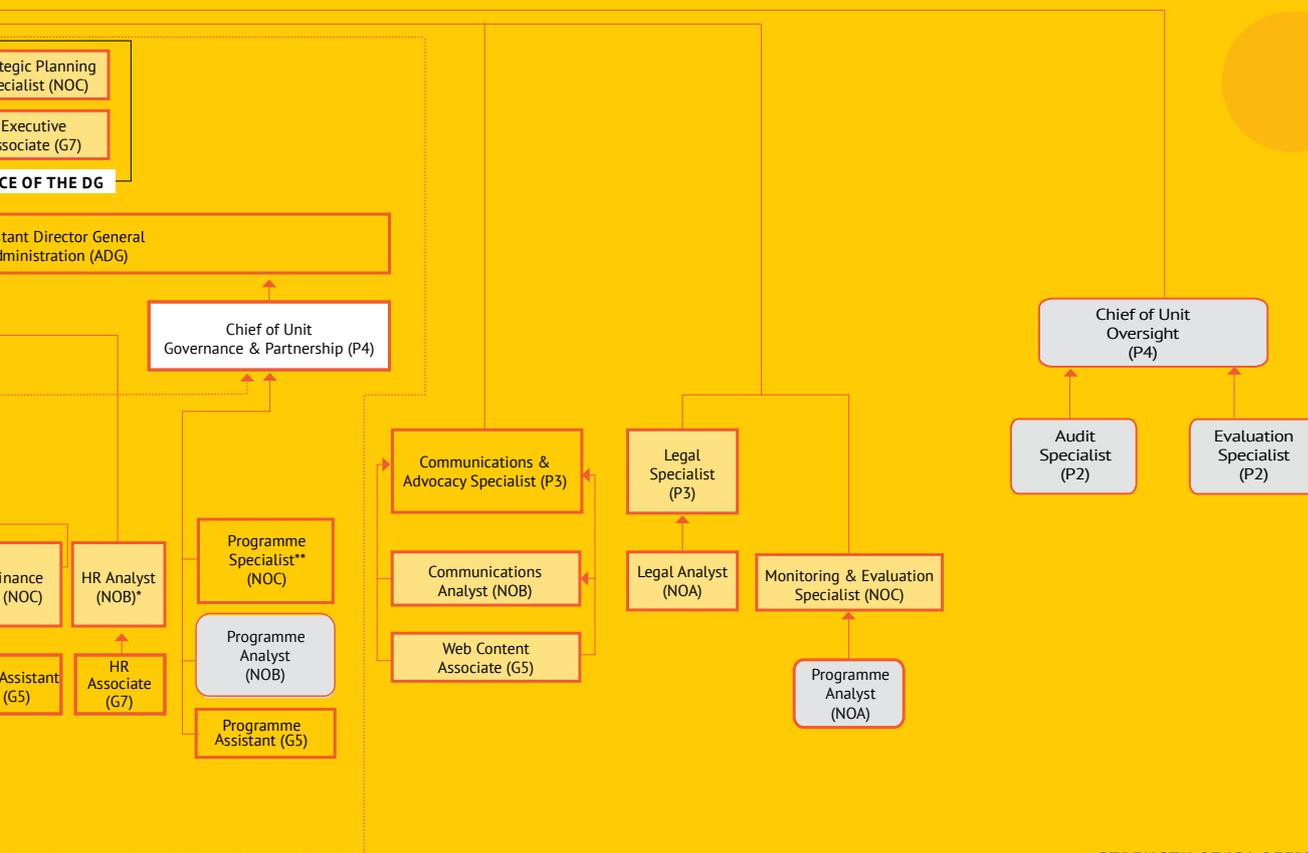


- Approved and Recruited
- Approved and Vacant ***
- Proposed and Yet-to-be approved
- Direct Reporting
- - - Cross Support

* HR Analyst/coordination responsibilities
 * Administrative & Procurement Analyst/coordination responsibilities
 ** Change in positions without an increase in the sanctioned approved strength in 2022
 *** This includes positions that were filled previously and have fallen vacant recently

* [Details of the Secondment\(s\) are available by clicking here](#)

ORGANISATION CHART



STRENGTH OF ISA OFFICIALS

ISA Director General	
Assistant Director General	: 2
Professional Category (P4)	: 5 (Approved), 1 (Proposed)
Professional Category (P3)	: 14
Professional Category (P2)	: 2 (Proposed)
National Professional Officers	: 17 (Approved), 2 (Proposed)
General Staff	: 12
Total ISA Officials	: 50 (Approved), excluding DG, 5 (Proposed)

Financial Statements for the Year Ended December 31, 2022

I. Statement of financial position as at December 31, 2022

(Amount in USD)

Particulars	Note No.	As at December 31, 2022	As at December 31, 2021
Assets			
Current assets			
Cash and cash equivalents	3	74,67,444	29,38,313
Bank balances other than cash and cash equivalents above	4	3,33,612	19,13,926
Prepayments	5	9,42,654	2,88,984
Other current financial assets	6a	5,34,279	1,85,693
Total current assets		92,77,989	53,26,916
Non-current assets			
Property, plant and equipment	7	56,888	44,726
Intangible assets under development		41,863	38,853
Other non current financial assets	6b	3,62,22,329	4,24,24,968
Total non-current assets		3,63,21,080	4,25,08,547
Total assets		4,55,99,069	4,78,35,463
Liabilities			
Current liabilities			
Accounts payable and accrued liabilities	8	23,00,452	8,62,443
Total current liabilities		23,00,452	8,62,443
Non-current liabilities			
Long-term provisions	9	62,998	8,341
Total non-current liabilities		62,998	8,341
Total liabilities		23,63,450	8,70,784
Net assets/equity			
Corpus fund	10	4,14,65,098	4,20,02,733
General fund	11	16,55,604	34,48,395
Award fund	12	18,09,907	16,52,092
Specific fund	13	62,16,582	31,40,852
Foreign currency translation reserve		(79,11,572)	(32,79,393)
Total net assets/equity		4,32,35,619	4,69,64,679
Total liabilities and net assets/equity		4,55,99,069	4,78,35,463

Significant accounting policies

2

See accompanying notes forming part of the financial statements

1 to 24

II. Statement of Financial Performance for the year ended December 31, 2022**(Amount in USD)**

Particulars	Note No	For the year ended December 31, 2022	For the year ended December 31, 2021
Revenue			
Contribution received		-	1,104
Other income	14	3,82,213	2,55,865
Total revenue		3,82,213	2,56,969
Expenses			
Fellowship and training		4,43,282	2,54,419
Conference and workshop expenses		28,34,578	3,78,389
Consultants, external experts and other project costs		27,88,629	9,37,728
Staff cost	15	17,55,602	5,67,348
Other general expenses	16	10,93,361	7,42,412
Depreciation	7	6,354	2,252
Less: Transfer to Specific Fund	2.01(e)(ii)	(22,82,730)	-
Total expense		66,39,076	28,82,548
Deficit for the year		(62,56,863)	(26,25,579)

Significant accounting policies
See accompanying notes forming part of the
financial statements

2
1 to 24