

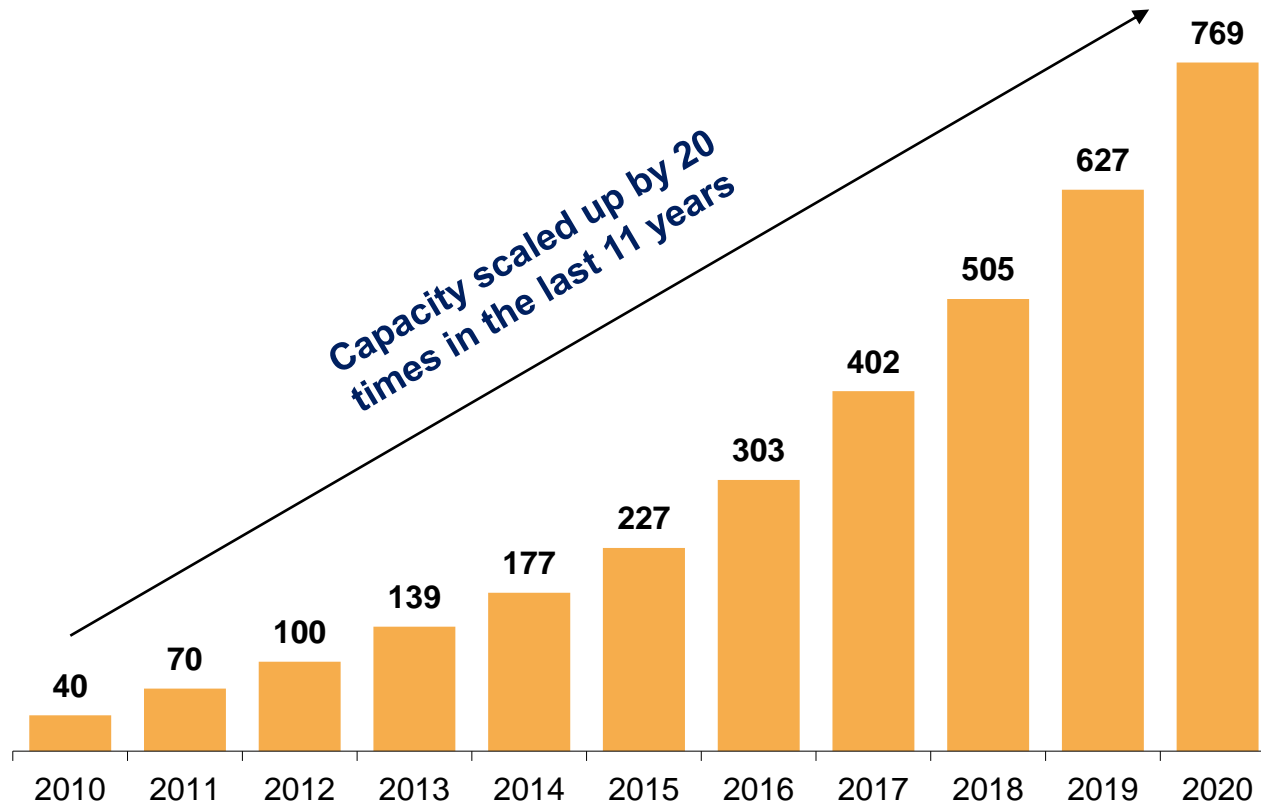
Training of 35000 stakeholders

Objectives and Future Roadmap

10th March 2021

Solar has seen remarkable growth over the last decade

Cumulative Solar Capacity (GW), 2010-2020



Source: Renewables Global Status Reports (REN21)

← Key factors contributing to growth of solar →

Increasing competitiveness against conventional sources

Significant expansion of corporate purchasing

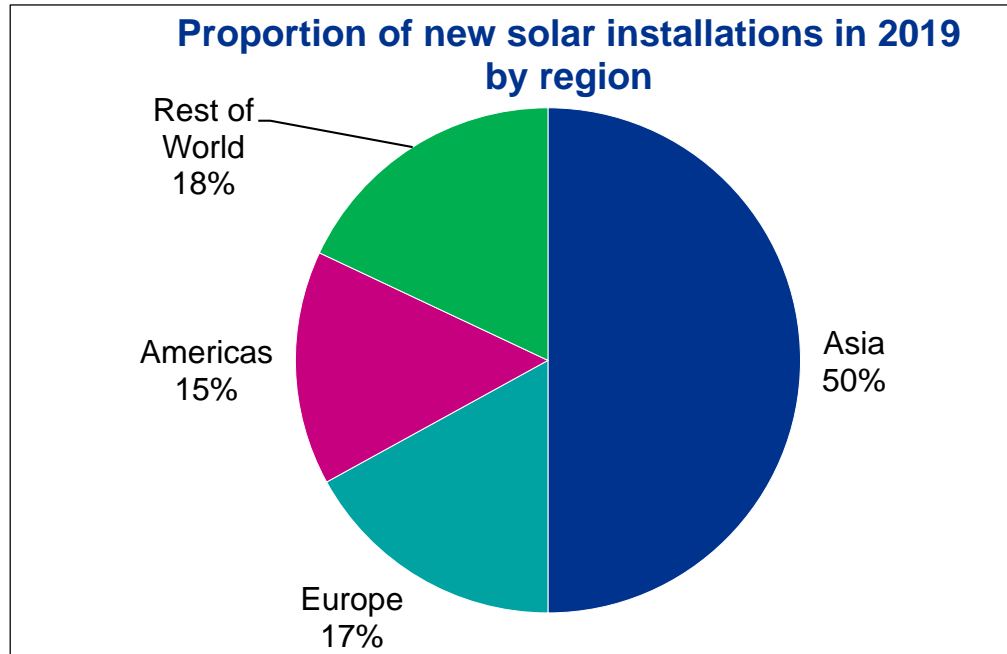
Rapid rise in distributed solar systems

Increasing demand in emerging markets

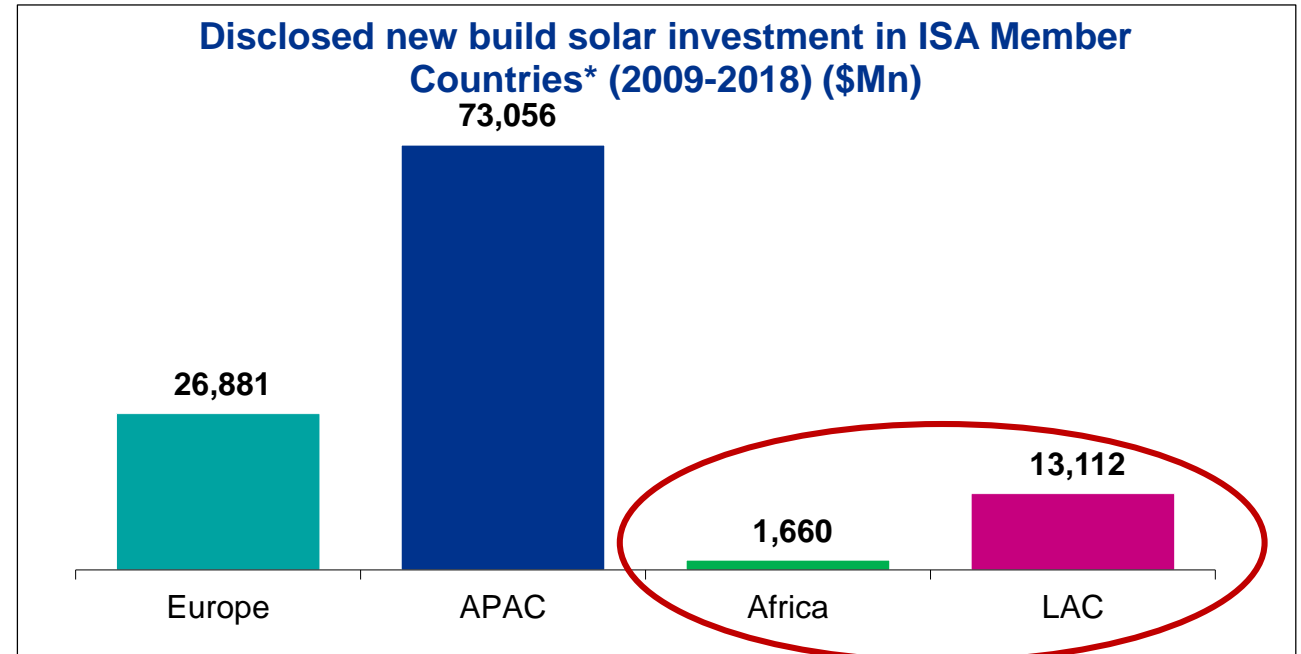
Enhanced government efforts towards reaching clean energy targets

Rising environmental concerns regarding GHG emissions

However, the growth in installations remains skewed towards more mature markets



Source: Renewables 2020 Global Status Report (REN21)



Source: BloombergNEF

Top 5 markets- China, United States, India, Japan and Vietnam constitutes **56%** of the solar capacity installed in 2019

For seventh consecutive year, the **Asian region** eclipsed all other regions and **accounted for more than half of global additions**

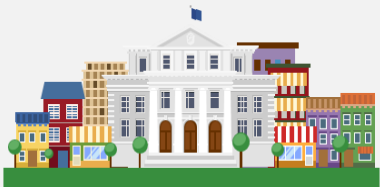
Africa has only received a fraction of solar investment compared to other regions

*Excludes Japan and Australia

Developing markets continue to face a lot of institutional and regulatory issues

Limited Institutional Capacity

Governments have limited capacity to manage, structure and negotiate private power concessions



High Transaction Costs

Individually negotiated contracts and financing weigh down smaller solar projects with excessive transaction costs that increase tariffs



High perceived risk and cost of capital

Long development cycles, poor credit situation of power utilities and political risks result in high equity and debt costs



Absence of established business models

Lack of proven and feasible business models, limiting the scale up of solar projects in different countries



Lack of awareness among stakeholders

Lack of awareness among all stakeholders such as consumers, distribution utilities and implementing agencies leads to delays in project execution



There is a need for Institutional Strengthening and Capacity Building of key stakeholders on aspects related to procurement, business models and financing

Skillsets required for different stakeholders

	Stakeholders	Skillsets
Equipment manufacturing	Manufacturers	<ul style="list-style-type: none">• Understanding market conditions• Cost optimization• Liasioning
Project Conceptualization	Project Developers/ Entrepreneurs, Policymakers	<ul style="list-style-type: none">• Tracking market, policies, opportunities• Site Selection• Drafting Bids
Project Financing	Bankers, Financial Institutions, Project developers	<ul style="list-style-type: none">• Understanding project cash flows• Financial model structuring• Liaison with banks
Project Commissioning	Project Developers/ Entrepreneurs	<ul style="list-style-type: none">• Government approvals, permits, licenses - Liasioning with different departments• Project Management• Dispute resolution
Project Operation & Maintenance	O&M contractors, Project Developers, local community	<ul style="list-style-type: none">• Technical operation knowhow• Breakdown and preventive maintenance• Performance Monitoring

Existing Training and Skill Development Initiatives



ISA's Initiative for Capacity Building of 35000 stakeholders

ISA has developed a large-scale capacity building initiative for training and skill development of 35000 stakeholders in the next 3 years. The programme was officially launched on 29th January 2021 on the eve of Meeting with Head of Missions of ISA Member and prospective Member countries

OBJECTIVES

Support in
Institutional Capacity
Building across ISA
Member Countries

Help Member
Countries enhance
their capabilities for
conceptualization
and management of
various solar
projects

Reinforce the
understanding of the
utilities, Nodal
Ministries, regulators
and other
stakeholders of the
pre-requisites for
developing
technically feasible
and bankable solar
projects

Facilitate
accelerated
deployment of solar
projects

Structure of ISA's Capacity Building Programme (1/2)

ISA has planned to train 5000 stakeholders across each of its seven programmes covering diverse topics and issues.



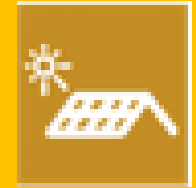
**Scaling Solar Applications
for Agriculture Use**



**Affordable Finance at
Scale**



Scaling Solar Mini-Grids



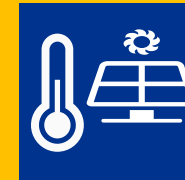
Scaling Solar Rooftop



**Scaling Solar E-Mobility
& Storage**



Solar Parks



**Solarizing Heating and
Cooling Systems**

Structure of the training programme (2/2)

ISA has partnered with Skill Council for Green Jobs to implement the capacity building programme in a phased manner through Certified Master Trainers. 300 online training programs will be conducted in a year with average batch size of 40 participants.

S.No.	Programme	Targeted Stakeholders	Broad Coverage
1	Scaling Solar Rooftop	<ul style="list-style-type: none">Industrial/ Commercial establishments, Developers, Installers	<ul style="list-style-type: none">Technological architecture of the rooftop plantEnergy generation estimation & performance indicatorsCritical factors in Site selection for rooftop projectBest installation practices, associated risk & safety measures
2	Solar Parks	<ul style="list-style-type: none">Officials of Renewable Energy or Energy Ministry / Electricity Distribution, Generation, Transmission and Trading Companies or Departments of Government/Electricity Regulatory Authorities/other relevant Officials from Departments & Ministries	<ul style="list-style-type: none">Overview of Solar Parks conceptTechnological architecture of Solar ParksCase Studies with a specific focus on Policy and Regulatory Framework of Solar parksBusiness Models that can be adopted for Solar Parks
3	Scaling Solar Mini-Grids	<ul style="list-style-type: none">Officials from Energy/ Renewable energy departments, electric utilities and regulators	<ul style="list-style-type: none">Concept of Off Grid & Hybrid Solar PV Mini GridsAnalysis of operational issues of Solar PV Mini GridsPolicy and Regulatory Framework for Solar PV Mini GridsDifferent business model used in mini grid plantsFinancing of a mini grid & its benefits

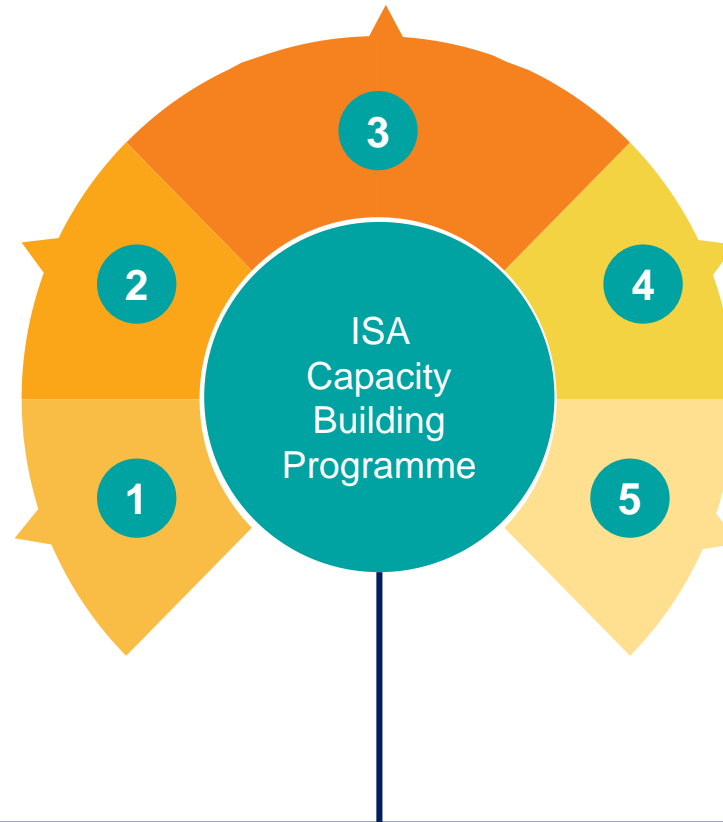
The development of training and course curriculum for other ISA programmes is also under progress

Expected Outcomes

Contribute towards **formulation/ revision of policies and regulations** suited to the need of the countries

Increased awareness about various solar projects and financing mechanisms amongst government and other key stakeholders

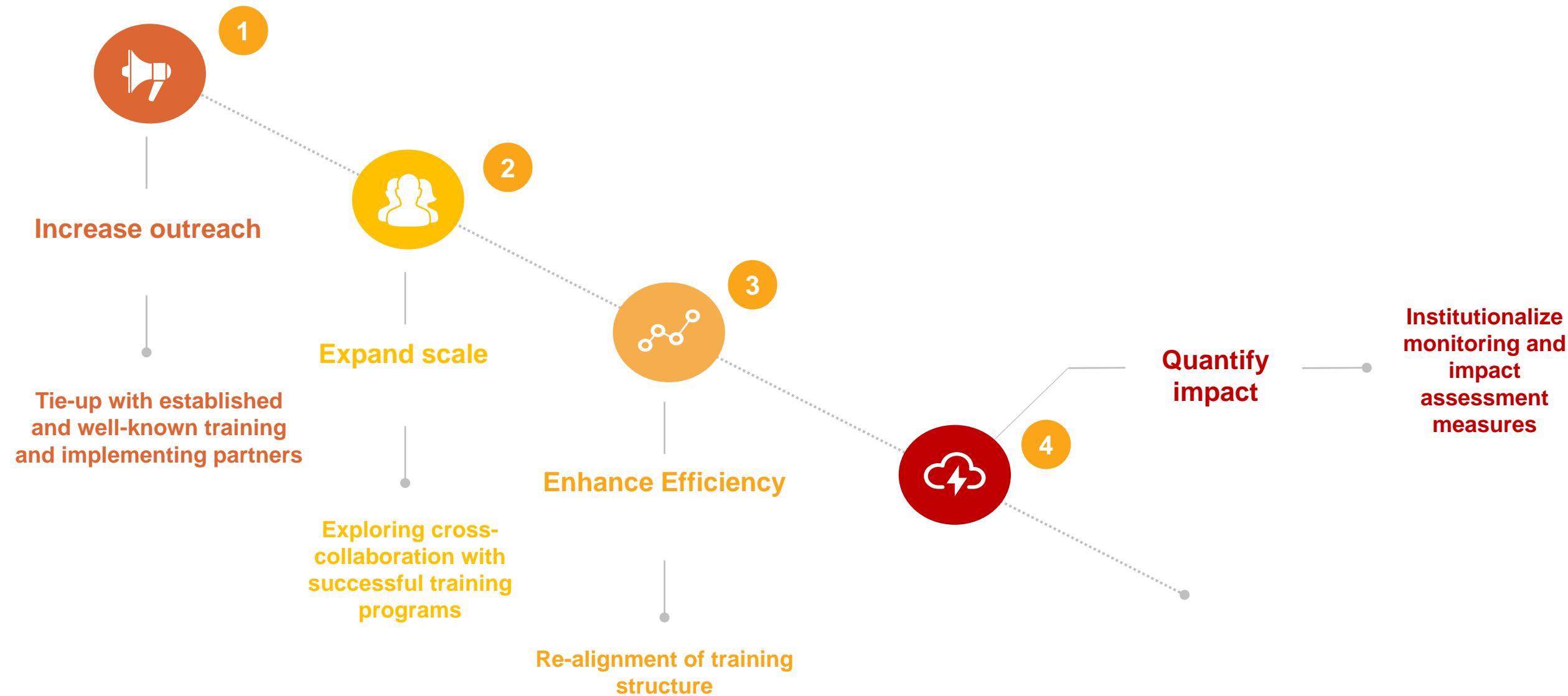
Increased technical understanding of the officials from various Member Countries on aspects related to architecture, grid integration, O&M, business models and other issues related to different types of solar projects



Develop **understanding on conceptualizing project proposals** and structuring projects in a viable manner

Support in strategic decision making with regards to deployment of various solar solutions

Future Roadmap- Key Considerations



Increase Outreach

The outreach of the capacity building programme can be expanded significantly through partnership with well-known and established international training partners. This will also help in aligning the training content as per global needs and requirements.



Solar Heating and Cooling (IEA)



Australian Renewable Energy Agency



Fraunhofer Institute for Solar Energy Systems



**European Energy Centre (EEC)
The Renewable Energy Institute**



Det Norske Veritas



Solar Energy International (SEI)



Renewables Academy AG



International Solar Energy Society



European Union Energy Initiative (EUEI)



Expand Scale

The ISA could leverage its network to explore cross-collaboration with existing training programs offered across the globe. Accordingly, solar focused course content could be developed in partnership with key organizations and institutions.



Support in mobilizing larger number of stakeholders thereby increasing the overall efficiency and scale of the programme



Leverage the existing training material and content



Enable knowledge and information exchange knowledge to identify the existing skill gap areas



Create a global network of partner and affiliate organizations for offering training across various geographical regions



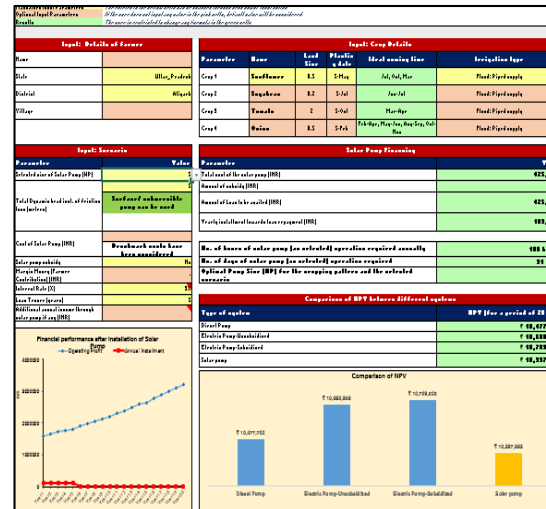
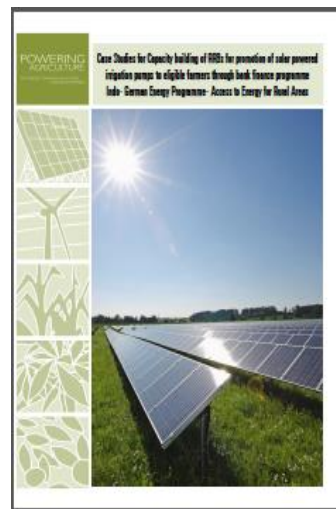
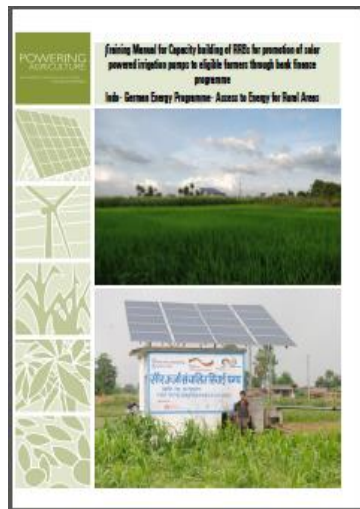
Assistance in making the trainings more hands-on and practice oriented

GLZ Capacity Building Programme to enable solar pumps financing by bankers- India

Objectives

- Support capacity building of bank officials responsible for financing solar powered irrigation pumps to eligible farmers as per the existing government programmes
- Provide technical assistance to officials of regional rural banks involved in undertaking the necessary due diligence bank loans (group or individual loans) for solar powered irrigation pumps through existing government schemes

Knowledge Products- Training Manual, Case Studies, Solar Pump Toolkit, FAQ Manual, Whiteboard Videos



Key Activities under the programme

- Designing a **focused training needs assessment study** and **capacity gap assessment** to capture the present areas of skill development of rural bankers for promotion of solar powered irrigation pumps
- **Literature Review of the existing training and skill development materials** available and customization of the existing training materials
- **Piloting of the training materials** designed for the bankers and collection of feedback on the materials from the sector experts
- **Organize the capacity building training programme for more than 175 bankers across 6 districts over 3 states** of West Bengal, Bihar and Uttar Pradesh; delivered training sessions in the form of lectures to the participants
- **Organizing 6 Kisan Melas for more than 340 farmers across the three states for conducting demonstration of solar pump technology to farmers**
- **Designing of knowledge products and tools** such as training manual, solar pump case studies, solar pump toolkit and financial model and white-board videos to facilitate due diligence process for the bankers

Solar Training and Education for Professionals (STEP)- US

Objectives

- Innovative programmes for solar workforce to train 75,000 beneficiaries in solar energy
- Aiding job creation through increased solar adoption and improve solar installation times by educating all professionals of the ecosystem of solar projects
- Comprehensive training programme for the workforce encompassing realtors, appraisers, insurance companies and code officials, having an efficient, that may improve inspection compliance, expedite system permitting, reduce liability and insurance costs, and increase consumer confidence



Key Activities under the programme

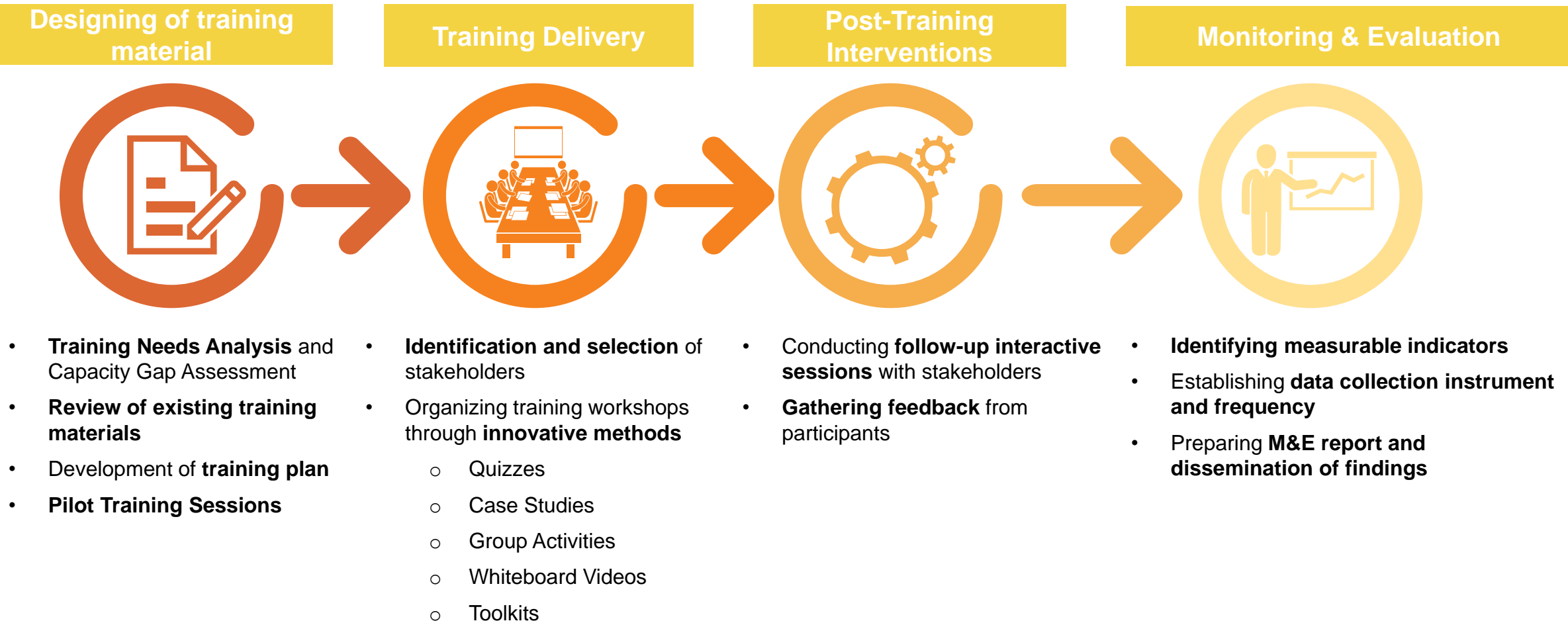
- **Integrate elements of solar training** under existing professional development platforms
- **Explore available training materials** and customize it as per the needs of the training program
- Develop a comprehensive online course for participants- **PV Online Training Course (PVOT)**
- **Conduct end-term evaluation to evaluate the satisfaction of the participants** with the training content and structure
- **Identify and create a network of organizations/ associations/ institutes** for increasing outreach of the training program

Source: Office of Energy Efficiency & Renewable Energy (US), International Code Council (ICC), Solar Energy International

Enhance Efficiency- Realignment of training approach

In order to ensure a more pro-active approach to development of course curriculum, ISA should explore re-alignment of training structure in future which would be more needs oriented and demand driven

Suggested Approach for Training programme



Enhance Efficiency- Institutionalizing Online Learning Management System

To ensure sustainability and sufficient scale up of the capacity building initiative, ISA could institutionalize Online Learning Management System which will be a demand driven self-paced online learning system targeted at diverse stakeholders

Features of Online Learning Management System

Resources for stakeholders

- Brochures, reports and presentations
- Newsletter
- Knowledge Products
- E-Learning

Events

- Notifications for upcoming events such as pre-bid meetings, workshops, webinars etc.
- Registration links for important events

General Information

- About ISA
- Activities being undertaken under each programmes
- Contact details of key ISA officials
- FAQs



**User
Friendly**

**Learn from
Anywhere**

Self-Paced

**Wide Range
of Topics**

The E-Learning Advantage

Thank You

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