

Training on Accessing Green Energy Solutions through Microfinance



Day 4: Beyond DevSEA – Integrating External Experiences and Lessons Learned

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THE ASIAN DEVELOPMENT BANK's MISSION



To help our developing member countries
reduce poverty and **improve quality of life**

ADB's CORE BUSINESS



- Loans
- Equity Investments
- Guarantees
- Technical Assistance
- Grants
- Policy Dialogue
- Finance and Advice for Development Solutions
- Knowledge and Partnerships

ADB's ENERGY POLICY 2009

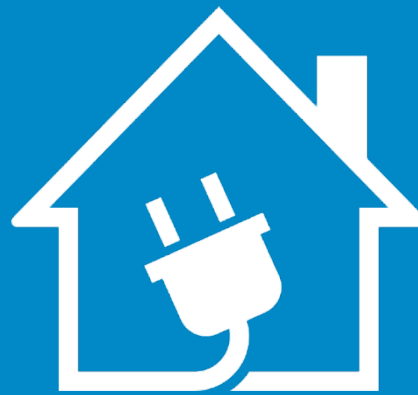
Prioritizes sustainable energy and low-carbon development

Three main pillars:



Promoting clean energy development:

Renewable Energy &
Energy Efficiency



**Maximizing access
to energy** for all
especially the rural poor

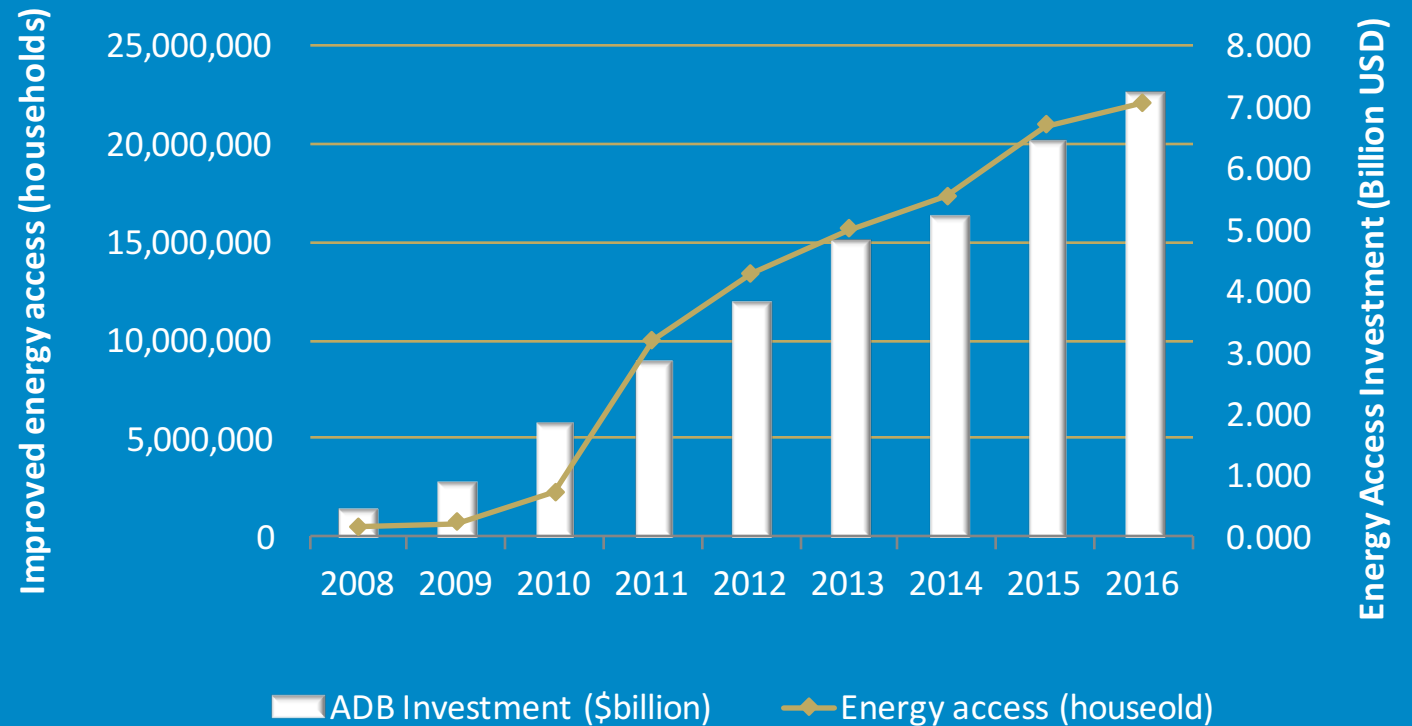


**Policy reform in
energy sector** to
support low-carbon
development

ADB's ENERGY ACCESS INVESTMENT (2008-2016)

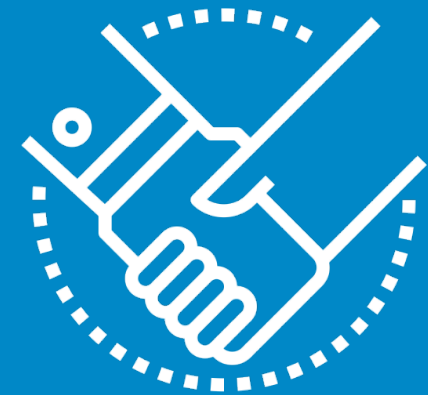
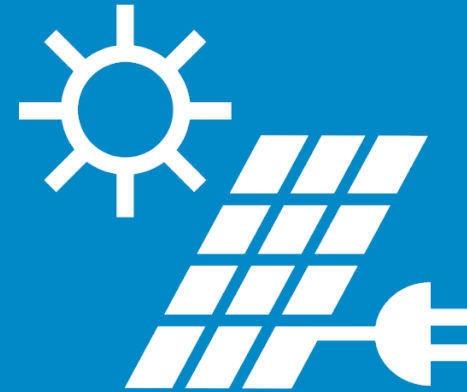
- **\$7.2B** ADB investment in EA
- **110.3M** beneficiaries from ADB's EA investments

**Impact of ADB's Investment on Energy Access
(2008 – 2016 cumulative)**



ENERGY FOR ALL INITIATIVE

- **Established** in 2008
- **Increase ADB's investment in energy access (EA) projects** to scale up access to affordable, modern, and clean energy through renewable energy technologies
- **Develop partnerships** with other stakeholders to reach 200mio by 2020 – **Energy for All Partnership**



CLUSTER TA SUBPROJECTS

- **A** | Renewable energy mini-grids & distributed power generation
- **B** | Energy access for the urban poor
- **C** | Sustainable Energy for All Hub for Asia Pacific
- **D** | Project Development & Investment Facilitation

FOUR PILLARS OF ENERGY FOR ALL

Increasing investment in Energy Access through:

- **Knowledge Management**
 - Case studies, reports
- **Capacity Building**
 - Thematic workshops
 - Mentoring
- **Project Development**
 - Piloting/testing of business models
 - Structuring of pilot transactions
- **Investment Facilitation**
 - Matchmaking of sustainable energy projects/ companies with investors



ENERGY FOR ALL PARTNERSHIP

Since 2009

- **Energy for All Partnership** to develop strategic partnerships and alliances with energy access stakeholders
- To provide energy access to 100M by 2015
- **Goal increased** to provide energy access to **200 million by 2020**



• TARGET
100M with access
to modern energy

• REACHED
~125M by Dec 2015


• NEW TARGET
additional 200M with access to
modern energy

KNOWLEDGE MANAGEMENT

E4ALL Website and SE4ALL

[Login](#) | [Join the Partnership](#)

[Energy for All Initiative](#) [Energy for All Partnership](#) [Sustainable Energy for All](#)



Hybrid Solar-Diesel System, Romblon

Two hundred forty-four households in Cobrador Island, Romblon, Philippines has round-the-clock electricity which now supports the community's livelihood, and education and healthcare systems.

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Access to modern, cleaner energy is essential to human development. Yet the majority of the world's energy poor are living in Asia and the Pacific: more than 700 million people still have no access to electricity and almost 2 billion people still burn wood, dung, and crop waste to cook and to heat their homes.

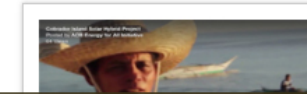
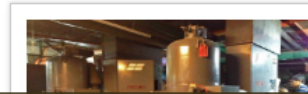


ADB aims to maximize energy for all, especially the rural poor, and founded The Energy for All Initiative to strengthen its investments and increase its project portfolio in energy access. The initiative develops and mainstreams approaches for scaling up access to affordable, modern and clean energy among the region's poor. This includes household access to electricity from renewable energy technologies such as micro-hydro, solar, biomass, and small wind power, as well as access to clean cooking fuel, such as LPG or biogas from livestock manure.

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KNOWLEDGE MANAGEMENT

CAPACITY BUILDING

PROJECT DEVELOPMENT

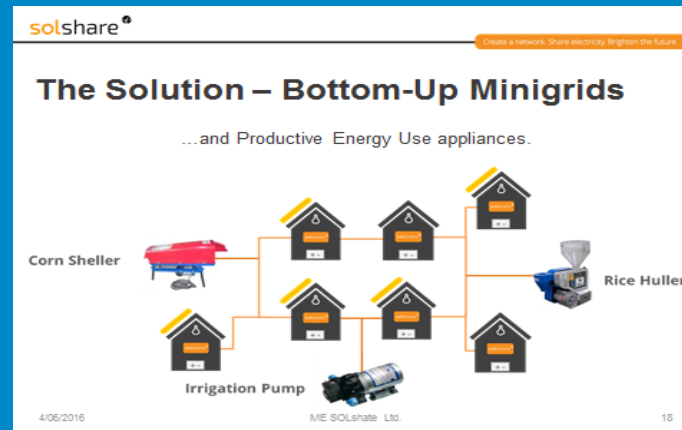
South and Southeast Asia

- **Bangladesh:** Swarm Electrification Pilot Project
- **India:** Simpa Networks
- **Nepal:** Solar mini-grids in Khotang, Okhaldhunga District
- **Pakistan:** Rent-to-own SHS project in Western Punjab
- **Myanmar:** Solar mini-grids in Magway, Mandalay, and Sagaing Regions



BANGLADESH - SWARM ELECTRIFICATION

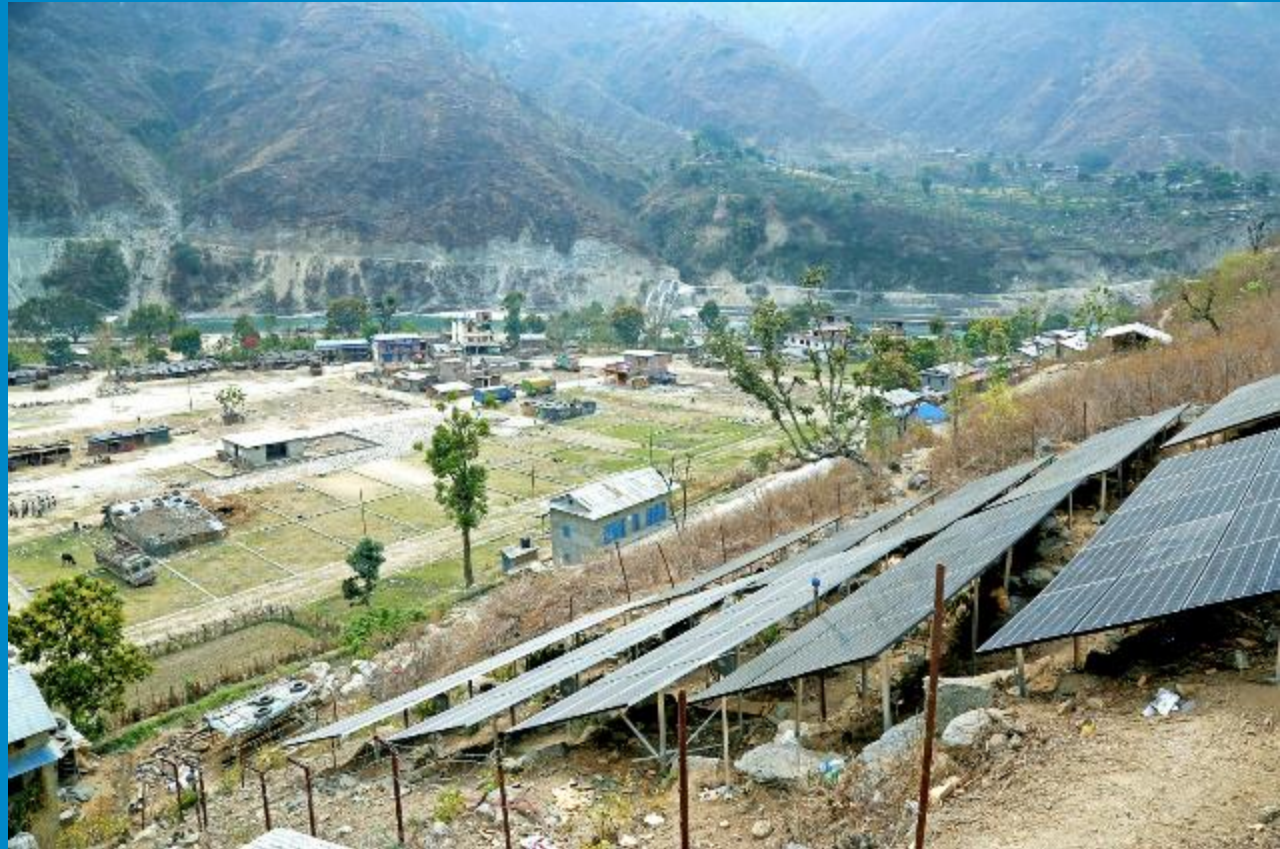
- Piloting of innovative technology (SOLshare box) with interconnection of 225 households to divert excess solar energy from SHS to poor households that cannot afford a SHS of their own
- Establishment of a market place to allow trading of energy between households & piloting of productive use components
- With more than 3.5 million SHS in use in Bangladesh there is high potential for scale up



NEPAL – SOLAR MINI-GRIDS

Solar Mini-grids in Remote Rural Communities

- 35kW solar power provides 95kWh of electricity daily
- Energy access to 83 households + 25 businesses
- Private sector/community/local bank
- Strong partnership with government
- Locals trained for operation and maintenance
- Innovative technologies: Prepaid metering / mobile payment



NEPAL – SOLAR MINI-GRIDS

PILOT: Solar Mini-grids in Rural Communities

Developments since start of operations:

- System expansion: 72kW system to serve telecom towers (anchor load)
- Extension of grid: neighboring village connected
- Increased economic activity: 61 business connected since and interest in more e.g. grinding mills, milk chilling plants
- Additional connections: around 140 households
- Significant load increase: 50-60%



PAKISTAN – SOLAR HOME SYSTEMS

- Provision of 1,500 Solar Home Systems in off-grid villages in Western Punjab
- **Technology Innovation:** GSM-based remotely controlled metering systems as basis for pre-paid model
- **Innovative Financial Mechanism:** end-consumer financing, rent to own model
- Private sector distribution, maintenance, and customer service in the selected districts



INVESTMENT FACILITATION

Collaboration with ADB's Private Sector Operations Department

Simpa Networks:

- Pay-as-you-go business model
- Mobile payments to purchase solar home systems

ADB's Role:

- Equity investment: USD2M in 2012
- Debt financing: USD6M ADB/ CTF mini-grid fund in 2015



PROJECT DEVELOPMENT

Philippines

- **Mindanao:** Community based micro hydro power for livelihood development in Mindanao
- **Romblon:** Hybridizing with Solar in Remote Island
- **Antique:** Solar Hybrid using pre-paid metering in off-grid setting



MINDANAO – MICRO HYDRO POWER

Community-based Micro Hydro Power Project (MHPP) for Livelihood Development in Mindanao

- 25kW in Barangays Dalupan, Davao Del Sur; 30kW in Getsemane, Bayugan City
- Electricity for livelihood activities; excess is sold to an electric coop
- Collaboration with government
- Establishment and capacity building of community-based organizations and locals for MHPP operation and maintenance



MINDANAO – MICRO HYDRO POWER

Community-based Micro Hydro Power Project (MHPP) for Livelihood Development in Mindanao

- 50% of members of community-based organization (CBO) and 26% of MHPP operations are women
- Development of livelihood enterprises, installation, operation of a multipurpose corn mill
- Introduction of Revolving fund grant / micro-credit facility for CBO members



ROMBLON – SOLAR PV HYBRID

Hybridizing with Solar in Remote Island

- 30 kW solar PV plant and hybridizing with diesel gensets
- Power supply from 8h to 24h daily; connected all 244 households (up from 100)
- Incorporation of Li-ion batteries
- Collaboration with National Electrification Administration (NEA)



ROMBLON – SOLAR PV HYBRID

Hybridizing with Solar in Remote Island

- Collaboration with local electric coop (EC) for replication of business model in other islands
- Potential for Replication: islands electrified by NPC-SPUG run on 100% diesel/ ~61% less than 8 hours of power
- Access to government incentive schemes for clean energy access projects



ANTIQUE - SOLAR PV HYBRID

Hybridizing Solar Using Prepaid Metering in Off-grid Setting

- 50 kW solar PV hybridizing with diesel gensets
- Increased supply from 4 to 24 hours/day
- Collaboration with NEA
- Incorporation of lithium-ion batteries
- Pilot test prepaid metering in an off-grid setting
- Pilot test private sector participation in off-grid RE electrification



MICROFINANCE RELATED INTERVENTIONS

- **Stove+ Workshop:** Invited 2 MFIs and linked up with technology providers for clean cooking
- **Study report:** Review of energy needs & conduct of technology assessment for 4 MFIs
- **Training of trainers & women entrepreneurs:** for CARD clients (Sari Sari stores/ solar lanterns)
- **Resource Person** in MCPI annual conferences
- **Training** on Accessing Green Energy Solutions through Microfinance

POTENTIAL COLLABORATION WITH MCPI/ MFIs

- Join E4ALL Partnership:
energyforall.asia/energy_for_all_partnership
- Capacity building
- Technical Assistance: Studies, needs assessment, etc.
- Piloting of innovative financing & business models

To support scaling up of Clean cooking & other RE applications in rural areas & in urban areas

FOR MORE INFORMATION



ACCOMPLISHMENTS IN ENERGY ACCESS IN 2016

\$740
Million
Energy Access
Investment In
2016*



New connections to
electricity for **300,000**
households



Improved electricity
service to about
850,000 households

MYANMAR

Solar mini-grids in Magway, Mandalay, and Sagaing Regions

- Partnership with Ministry of Agriculture, Livestock and Irrigation
- Design and implement 12 mini-grids for 1,500HH for basic energy services and street lighting
- Community involvement and private sector as operators
- Geospatial planning to develop least-cost energy access and off-grid investment plan

