



June 2017

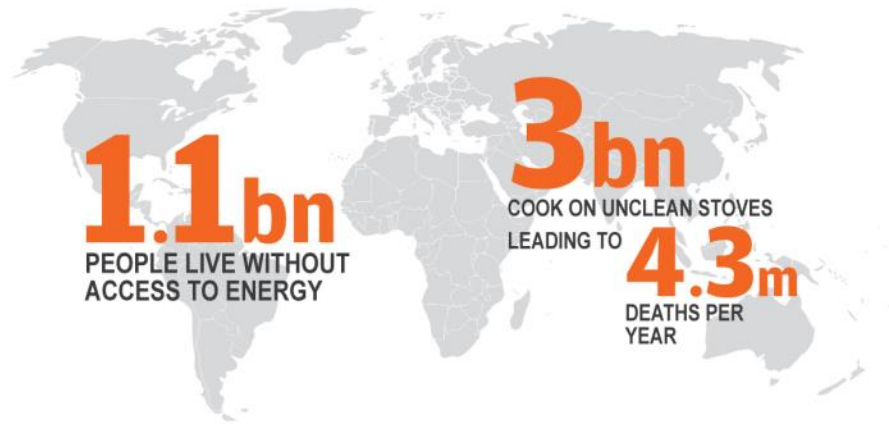
GLOBAL INSIGHTS INTO INNOVATIVE CLIMATE-SMART ENERGY FOR ASIA

Presenter: **Molly Hurley-Dépret**

OUTLINE OF PRESENTATION

- The Smart Villages Initiative
- Lessons from our engagement in Asia
- Innovative examples: business models, technology, and policy
- Lessons Asia can draw from other regions
- Final policy messages

ENERGY AS A CATALYST FOR DEVELOPMENT



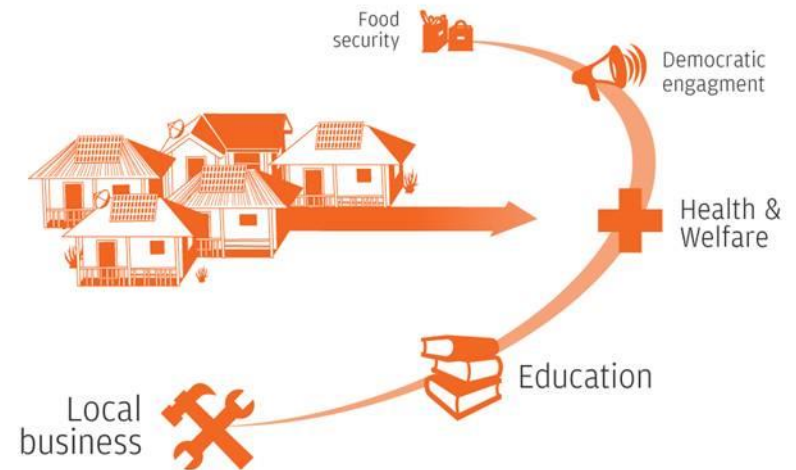
SMART CITIES



SMART VILLAGES

47% of world's population and 70% of the world's poor live in rural villages

- Grid connection is not always sustainable for remote communities
- Decentralised model can bring advantages
- Opportunity/need to combine energy access with holistic development



SMART VILLAGES: SOME KEY FEATURES



Key services: education, health , clean water and sanitation

- ICT connectivity: distance learning and world's knowledge base
- Modern health services and tele-medicine
- Provision of clean water and safe sanitation



Foster entrepreneurship in the provision and use of energy services

- Capture more of the agricultural value chain
- Create new businesses



Through ICT connectivity, participate in governance processes

- At local, regional and national levels
- Smart communities with strong rural/urban linkages



Building more resilient communities better able to respond to shocks

**All enabled by access
to modern ENERGY**

THE SMART VILLAGES INITIATIVE

Focus: sustainable local energy solutions for rural communities

Policy advice: an insightful, ‘view from the frontline’ of the challenges of village energy provision for development, and how they can be overcome

Engagement: bringing together the key players: scientists, entrepreneurs, villagers, NGO’s, financiers, regulators and policy makers etc:

- **What are the barriers?**
- **How can they be overcome?**
- **What messages to funders and policy makers?**

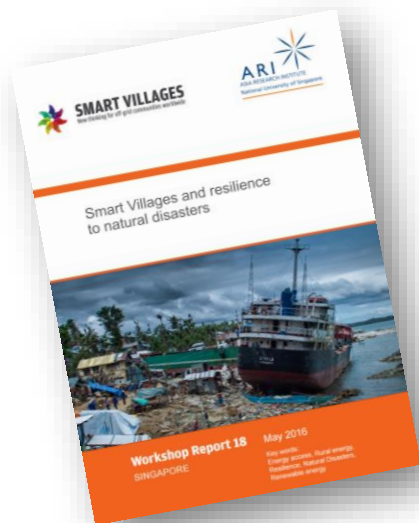


SIX REGIONAL ENGAGEMENT PROGRAMMES

- 
- **East Africa** – June 2014
 - **SE Asia** – January 2015
 - **South Asia** – April 2015
 - **South America** – January 2016
 - **West Africa** – May 2016
 - **Central America/Caribbean** – November 2016

12-18 month engagement programmes:

- **Workshops** → reports/policy briefs
- **Briefing meetings**
- **Capacity building event**
- **Media workshop**
- **Entrepreneurial competition**
- **Final event pulling together key stakeholders**



ACTIVITIES ACROSS ASIA



- Opening workshop – January 2015, Kuching, Malaysia
- Additional workshops held in Pakistan, India, Sri Lanka, Nepal, Bangladesh, Myanmar, Thailand, Indonesia, Philippines, Singapore, Korea, Malaysia
- Addressing disaster resilience, cookstoves, island energy needs, energy-water-sanitation nexus, energy-agriculture nexus, business models, innovative technologies etc.
- Impact studies in Malaysia with UNIMAS
- Entrepreneurs scaling-up competition in India
- Schoolchildren's poster competition in Pakistan

LESSONS FROM OUR WORKSHOPS IN ASIA ON OFF-GRID & CLIMATE-SMART ENERGY

- Solar home systems
 - Rapidly advancing technology / price drop
 - But need quality assurance
 - Micro-hydro more relevant in parts of Asia than elsewhere, but lacking business models
- Mini-grids
 - Financing remains a critical issue
 - Some companies are working in this area but patient capital + availability of debt remains problematic – need for public sector commitment and regulatory / policy clarity
 - Local capacity building and community engagement are key
- Cooking
 - Need to enhance product quality
 - Need more studies of health / environmental impacts
 - Technical / business support
- Water-food-energy nexus
 - Closely linked but often dealt with via sectoral approaches
 - Smallholder farmers & farming communities in particular
- Building resilience
- Unique needs of island / mountain / “most remote” communities



SMART VILLAGES

New thinking for off-grid communities worldwide

INNOVATIVE EXAMPLES FROM ASIA (1)

- **SNV: National Biogas Programme in Vietnam since 2003**
 - **158,500 domestic biogas digesters**
 - Access to a clean, renewable and reliable source of energy for more than **790,000 rural individuals** across 55 provinces and cities of Vietnam
 - **2,500 new jobs** in rural Vietnam
 - Trained nearly **1,700 biogas masons** and supported 355 biogas construction team leaders create biogas businesses
 - Provided pre-installation training to **164,525 households**. Provided training on post-installation and use of bio-slurry to 161,397 households
 - Reduced around **800,000 tonnes of CO2** equivalent per year
 - Successfully registered with the **Voluntary Gold Standard** Awarded with **1,290,876 carbon credits** under Gold Standard Voluntary Emission Reductions 2013-15



<http://www.snv.org/project/vietnam-biogas-programme>

INNOVATIVE EXAMPLES FROM ASIA (2)

- **IBEKA (The People-Centered Economic and Business Institute), Indonesia** – led by Tri Mumpuni and Iskander Kuntoadji
 - Notable for their strong community training/education focus in micro-hydro and engineering
 - IBEKA partners with rural communities to construct micro-hydro plants to produce electricity.
 - IBEKA also trains villagers to operate and maintain these hydro plants.
 - Just one example: the [Hydro Empowerment Network](#) offers many more examples across South and Southeast Asia



INNOVATIVE EXAMPLES FROM ASIA (3)

- **BOOND**, Rajasthan, India: Founder: Rustam Sengupta
 - Micro-utility model with mini-grids; Pay back period 3.5-4 years (US\$4.5 million in revenue and produces 8-10 MW per year)
 - Impacting more than 100,000 individuals and many small-scale enterprises.
 - People can service their own batteries: training
 - Challenges remain for companies no longer in the start up phase
 - To keep it affordable / profitable, the mini-grid does not power motor-based machinery



INNOVATIVE EXAMPLES FROM ASIA (4)

- **Sunlabob**, Laos / Hong Kong-based company, led by Andy Schroeter
 - Example of company that meets both on- and off-grid BOP needs – began with off-grid focus in Laos
 - Has installed more than 10,000 systems in over 500 villages and locations in Laos
 - Solar lanterns, solar home systems, solar water pumps, solar water purification, street lights...
 - Also notable for strong local inclusion + hands-on capacity building for long-term sustainability: technical training, accounting & bookkeeping skills to maintain village-run energy micro-enterprises



INNOVATIVE EXAMPLES FROM ASIA (5)

- **Thailand: The Integrated ICT and Renewable Energy Project under the Royal Initiative of Her Royal Princess Siridhorn: Pioneer classroom at Learning Center, Village of Khirilom**
 - This project focuses on a border area of Thailand / Myanmar
 - This border region includes some of the last villages to receive electrification in Thailand
 - The current project is to electrify 20 villages with the cooperation of the government, researchers, and mobile operators
 - Khirilom is about 2 hours drive from Chumphon
 - This village is powered by a nearby waterfall
 - In addition to electrification, education is central to the project – border guards teach at local schools and computers are powered as well



INNOVATIVE EXAMPLES FROM ASIA (6)

- **EcoEnergy, Pakistan:** Co-founded by Shazia Khan and Jeremy Higgs
 - Founded in 2010
 - Collected data for four years in 2,200 villages and 44,000 households prior to launching business
 - Created mapping tool post-survey to show how many hours per day people received electricity, who was off-grid, etc.
 - Pioneered PAYG for Pakistan: now a 95% repayment rate
 - Can help unbanked customers develop credit rating
 - Shifted business model from solar lanterns to solar home systems, with strong focus on small businesses
 - Shifted to a social enterprise model and are fundraising to meet goal of serving 50,000 customers over the next 3 years
 - Banks – risk averse



LESSONS FROM OTHER GLOBAL REGIONS

- **East Africa:** The strength of the PAYG model for solar home systems or pico solar, use of mobile money, and relative openness to market-driven solutions compared to many other regions
- **West Africa:** Productive uses of energy, especially in the agricultural sector (ex.: Bonergie adding value to papaya); this also cuts across all the other regions
- **Latin America:** Most have access...but remote communities (e.g., Amazon, Haiti) are still left behind. Government leadership crucial but market-driven solutions also possible
- **Cross-cutting issue:** Resilience – clearly reflected in island contexts, such as the Caribbean, but also in Ecuador (earthquake), parts of East and West Africa (drought), etc.

SOME KEY CONCLUSIONS AND RECOMMENDATIONS

- Decentralised approach can viable alternative to grid connection, not just an interim measure
- Decentralised approach can bring unique benefits (resilience)
- Supportive policy & regulatory frameworks and political commitment
- An integrated approach
- Community engagement & leadership
- Complementary interventions
- Taking gender into account

SOME KEY CONCLUSIONS AND RECOMMENDATIONS (2)

- Access to finance & support to entrepreneurs
- Increasing awareness
- Sharing experiences domestically and internationally
- Capacity building
- Moving from charity to markets
- Acknowledge that market-based solutions won't work for certain “most-remote” communities



Thank you for your attention

www.e4sv.org | info@e4sv.org | [@e4SmartVillages](https://www.instagram.com/e4SmartVillages)