SMART VILLAGES INITIATIVE: FINDINGS FROM WEST AFRICA

Presenter: Dr John Holmes
1. Cross-cutting issues
2. Home-based supply
3. Mini-grids
4. Clean cooking
5. Water-Energy-Food Nexus
6. Sustainable Development Goals
1. CROSS-CUTTING ISSUES

1. Improve access to affordable finance:
   - build/share track records of income streams
   - risk mitigation: credit guarantees
   - reduce transaction costs

2. Establish supportive policy framework
   - High level political commitment
   - National energy access plan
   - Renewable energy targets
   - Integrated approach to rural development

3. Provide support to entrepreneurs:
   - business incubation & advice services
   - cut red tape / give breathing space

4. Build capacity:
   - technical/business/institutional/finance

5. Create awareness

6. Involve women and youth

7. Build markets - Don’t give things away
2. HOME-BASED SUPPLY: SOLAR HOME SYSTEMS AND PICO-SOLAR LIGHTS

Key advances
- PV cost reductions
- Increased efficiency of appliances
- Pay by instalments

3rd Generation systems
- 1/3 the power to support level of service
- 50 kg down to 6 kg
- Cost reduction of 30-50%

Going Forward
- Access to finance
- Leverage distribution networks
- Build skill base
2. HOME-BASED SUPPLY: LOOKING AHEAD

- Tackle problem of poor quality and counterfeit products
- Technical developments:
  - Better batteries
  - Recycling
  - Plug and play
  - Control systems
  - New PV technologies
  - Appliance efficiency
- DC nano-grids
3. MINI-GRIDS

More limited progress – costs greater than revenues – how can we balance the books?

- Technical developments reduce equipment costs
- Economies of scale: replication
- Anchor loads absorb costs
- Reduce set-up overheads
- Reduce financing costs
- Capital cost subsidy

- Get the tariffs right: constraints of affordability & equality
- Stimulate productive enterprise to increase incomes
- Increase load factors: improved control systems & productive enterprises
- Increase level of connections
- Operating cost subsidy

---
e4sv.org
3. MINI-GRIDS: COMMUNITY ENGAGEMENT

- Villagers should be the main drivers
- Build on local knowledge and customs
- Work with trusted individual and organisations: local champions
- Ensure that the poor have a voice & stake, not just the powerful

“projects are 70% social / 30% technical”

e4sv.org
4. COOKING: KEY DRIVERS

- Health risks
- Environmental impacts
- Social benefits
4. COOKING: KEY FINDINGS

1. Address user needs and cultures
2. Financing schemes (& subsidies) to ensure viability of all stages of value chain
3. Enhance product quality
4. Technical and business support
5. WATER-ENERGY-FOOD (WEF) NEXUS

- Water, energy and food are essential for human well-being and to meet the goals of sustainable poverty reduction and development.
- Sustainability of the natural resource base is under threat due to: economic growth, over-exploitation of natural resources and eco-systems, urbanisation, climate change and rising population.

Estimated increase in Energy, Water and Food Demand by 2050:

- Energy: +80%
- Water: +55%
- Food: +60%
5. KEY FINDINGS ON THE WATER-ENERGY-FOOD NEXUS

- Complex/diverse interactions but silo approach and lack of coordination → integrated/cross-ministry policies and initiatives based on better understanding of synergies and competing interests
- Take a participatory and market-based approach building on existing practices and respecting local cultures
- Create a conducive environment for the private sector and ensure access to affordable finance
- Build capacity including in the policy community and through providing advice to smallholder farmers
- Pay particular attention to smallholder farmers in poor areas: harder to improve livelihoods
- Address gender issues: women play a key role
6. SUSTAINABLE DEVELOPMENT GOALS

- Goal 7: level of ambition
- Other goals: integrated approach
- Goal 17: strengthen means of implementation:
  - Better coordination
  - Sharing of information
  - University collaborations
  - Evaluating development outcomes
Thank you for your attention
CASE STUDY 1: BONERGIE IN SENEGAL

- Social enterprise working with customers along all stages of the value chain
- Establishing 16 papaya processing centres across Senegal: links to national and international sales channels
- Established cooperative for 200 farmers
- Solar water pumps for irrigation to increase yields
- Diversification of products: dried, juice, puree, latex
- Repayment of loans over three years
CASE STUDY 2: ECO-VILLAGES IN SENEGAL

- Eco-villages in 6 regions each adapted to local conditions
- Community involved in project design
- Cooperatives to purchase capital goods:
  - Drip irrigation to minimise water use
  - Community refrigerator to reduce post-harvest losses
  - Solar powered grain mill to reduce women’s labour
- Four key steps:
  - Establish partnerships with stakeholders
  - Test the business plan before scale-up
  - Involve the local community
  - Ensure good governance