



SMART VILLAGES
New thinking for off-grid communities worldwide



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SMART VILLAGES INITIATIVE: FINDINGS FROM WEST AFRICA

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STRUCTURE OF PRESENTATION

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

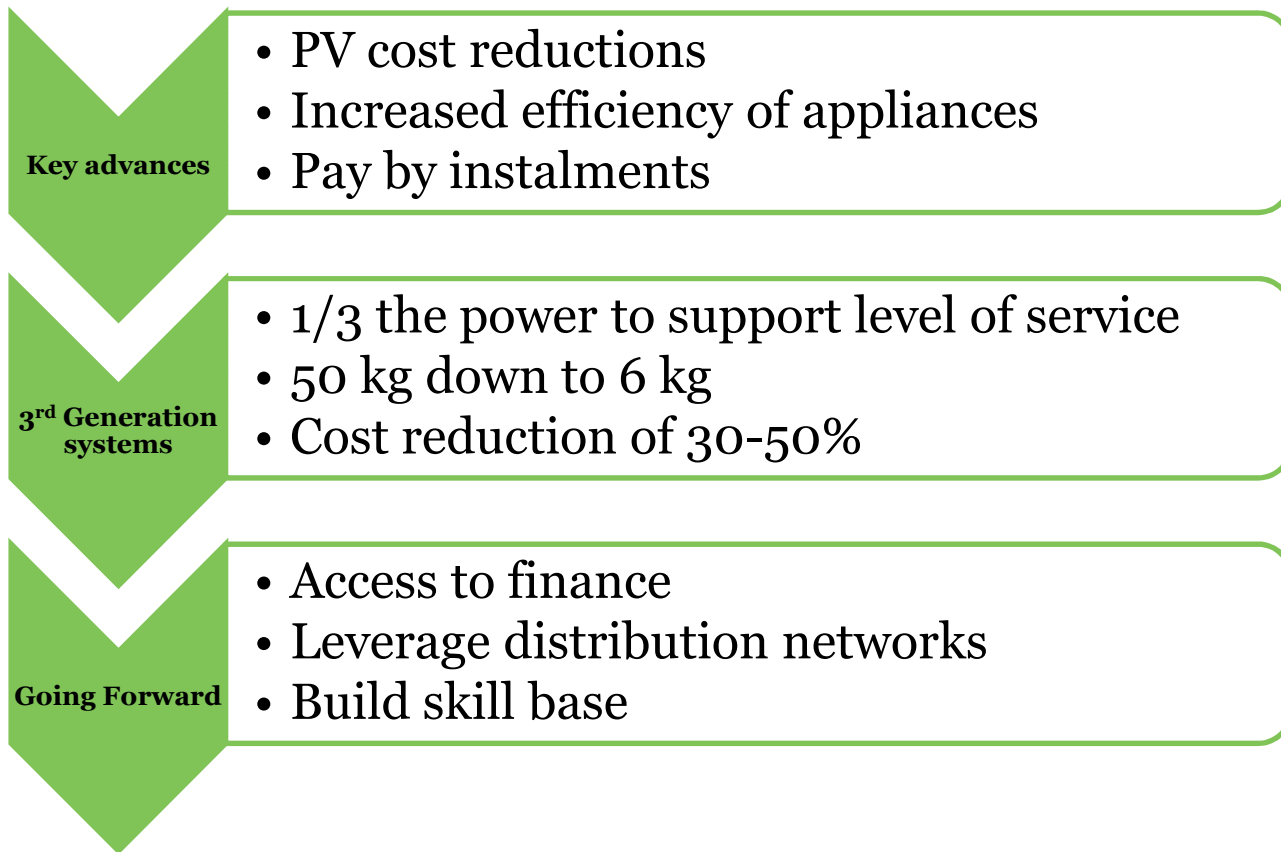
6. Involve women and youth

7. Build markets - Don't give things away





2. HOME-BASED SUPPLY: SOLAR HOME SYSTEMS AND PICO-SOLAR LIGHTS



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



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”



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

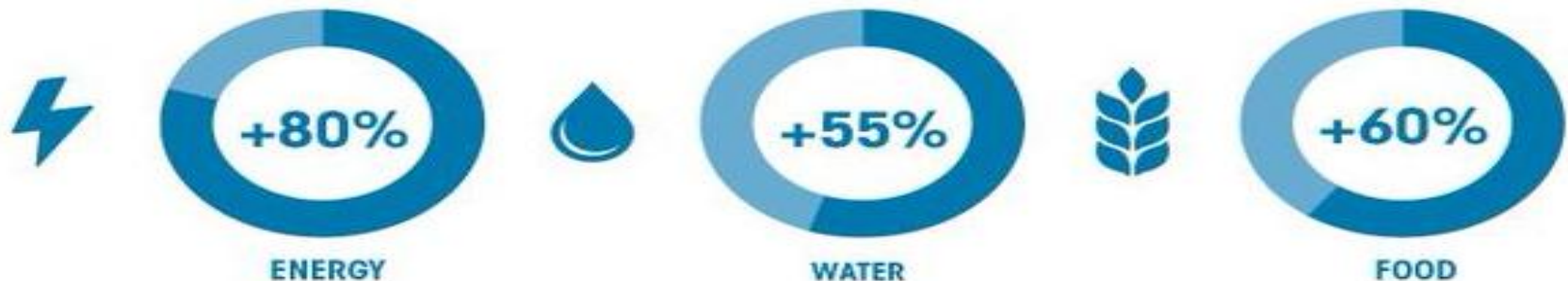




5. WATER-ENERGY-FOOD (WEF) NEXUS

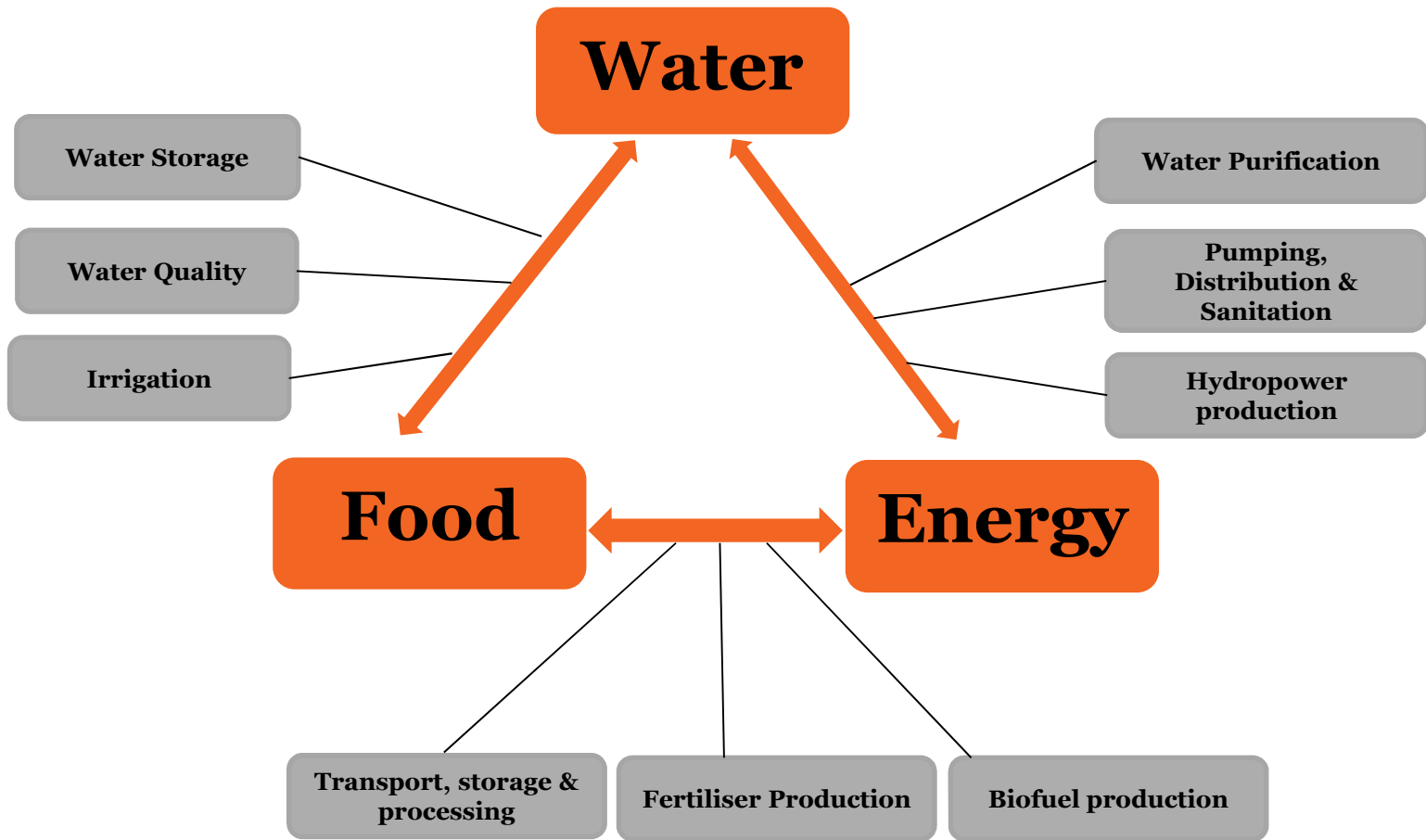
- Water, energy and food are essential for human well-being and to meet the goals of sustainable poverty reduction and development
- Sustainability of the natural resource base is under threat due to: economic growth, over-exploitation of natural resources and eco-systems, urbanisation, climate change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

Estimated increase in Energy, Water and Food Demand by 2050





LINKS BETWEEN WATER, ENERGY AND FOOD



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



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Thank you for your attention

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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