
Non-technical success factors for solar technology in developing countries

25 years of experiences



Foto: Sunlabob

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Solar technology in developing
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We are in the "urban millennium"

Population

- 2009: 50% of the world's population lives in cities
- 2030: urban population will grow from 3.5 billion to 4.7 billion

Economy

- ~50% of global GDP is produced in 600 cities
- By 2025, 40% of global GDP growth will be generated by middleweight cities in emerging markets

Environment

Cities stand for

- Two-thirds of the world's energy
- 60% its drinking water
- Up to 70% of its CO₂ emissions

Solar technology in developing cooperation



- Cities cover 1% of the the global surface
- more than 2 billion people in developing countries do not have access to modern energy supplies
- energy consumption in these countries will increase considerably
=> need of energy systems based on renewable energy sources
- 25 years of implementation experiences

Challenges

Smart Cities

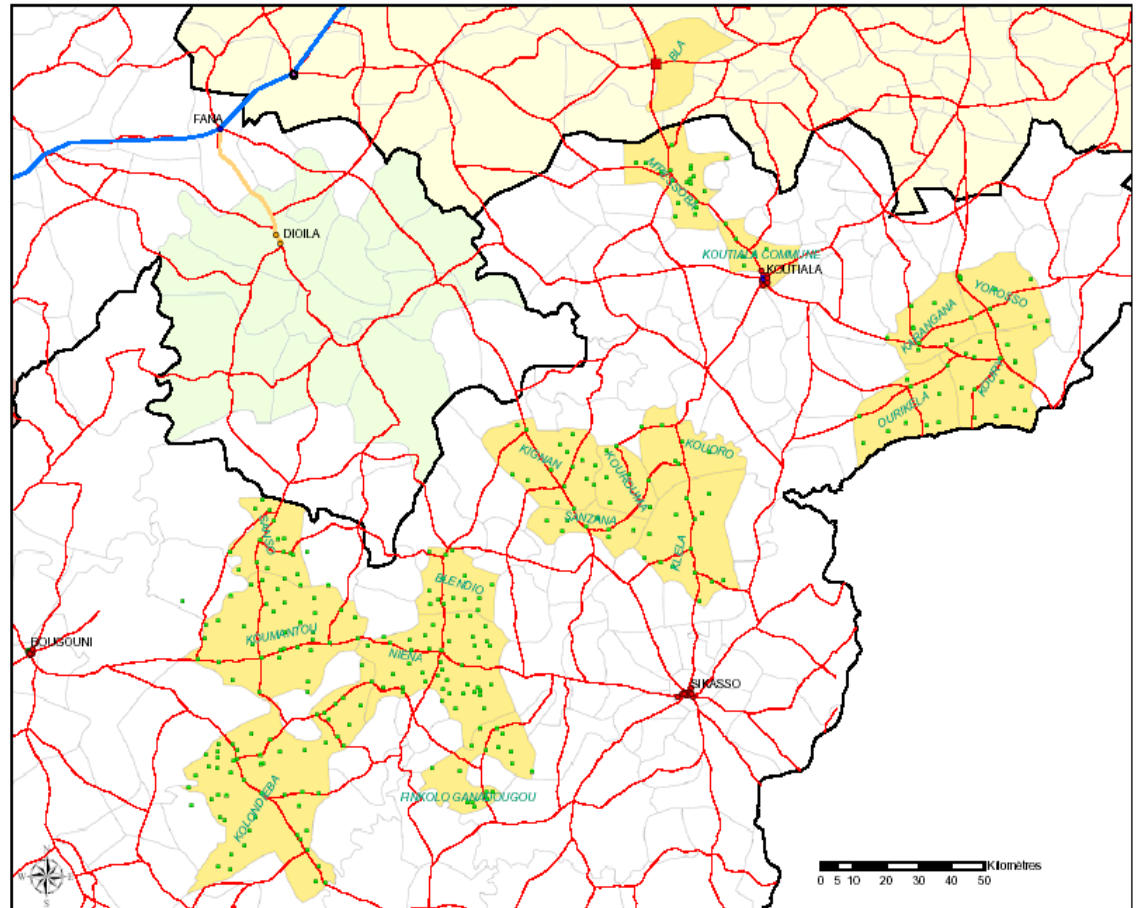
- Technology driven future vision
- Optimization of infrastructure use
=> increase of efficiency
- Few exciting „smart applications“
 - **No focus on what users want, need and like**
- Missing market conditions
 - Flexibility in generation and transmission costs, market models
 - **Business models**
- Sector integrating perspective needed

Solar Technology in DC

- Change from technology driven to climate protection driven approach
- Implementation of infrastructure
=> increase of efficiency
- Few exciting champions
 - **What users want, need and like to pay for**
- Difficult market conditions
 - Mutual leverage of investment costs between private and public stakeholders
 - Decentralised infrastructure
 - **Business models**

RESCO Yeleen Kura (Mali)

- 34 employees, 15 branch offices
- 3000 customers in 2011(54.000 persons reached), until 2021 6000 customers aimed
- SHS and PV-Diesel-Minigrids
- AMADER concession areas (yellow)
- Financial and implementation partners EDF and FRES







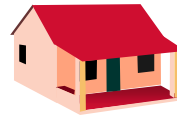


Typical scheme for sales, implementation and services on site



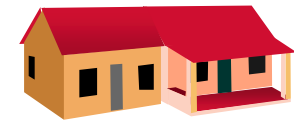
Personal Energy Store/ NGO/ Village Technician

- Marketing
- Installation
- User training
- Maintenance, regular services



Energy Store/ accredited NGO/ Village Technician

- Financials
- Complaint management
- Recruiting for Village Technician
- Regular technical training
- Logistics of systems and spare parts for end user



Operator / RESCO

- Recruitment of Management staff
- Regular trainings
- Financial and technical controlling
- Purchase of systems and components

Studies and experiences from more than two decades



- The main problem of any solar technology project in developing countries is rentability as one pillar of sustainability
- Another challenge is technical reliability (5 years or longer!)
- Another real threat to projects is the recruitment and the continuous employment of qualified staff
- General business: prevent or handle user damages
- Rather minor problem is theft
- User with expectations of a professional service

Non-technical success factors

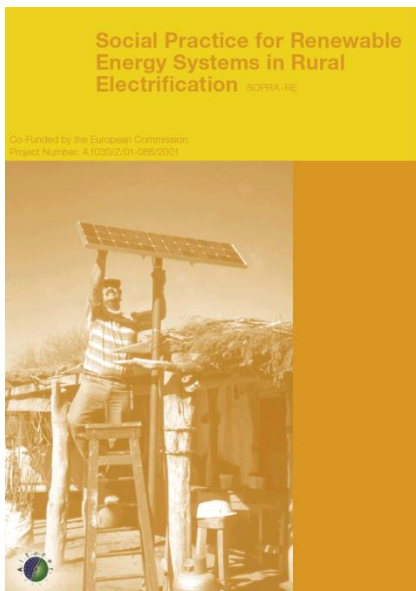


- Training and communication
- Profitable energy service – tailored to rural demand and resources
- Clear management structures
- Cost coverage of
 - Investment cost (multiple)
 - Infrastructures and organisation
 - Operation and maintenance, operation resources and fuels
 - Human resources
 - Financing costs
- A very robust business model

Outlook



- Better understand the reasons for champions
- Present successful business models and their „secrets“
- Studies to
 - Service and operation models
 - Social best practice in rural electrification
- Go for a
Best practice in business models for solar technology in developing cooperation





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