

Session 2.1

Rural Electrification: Identification

Jean JAUIJAY EDF



Rural Electrification Workshop

March 1-3, 2006

Nairobi

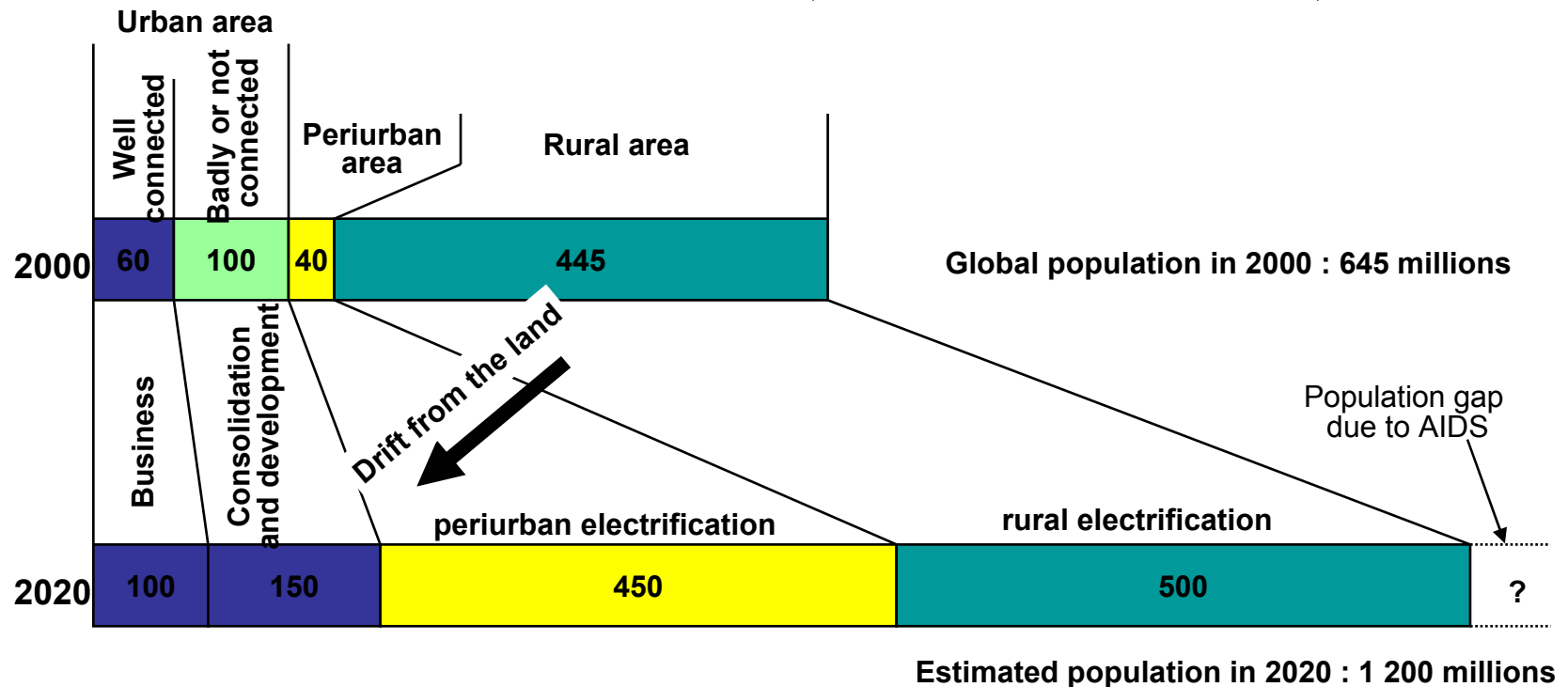
The challenge



The scene

Demography and needs of energy

(in millions of inhabitants)



- CONTENT

- 1. Constraints and facts
- 2. Lessons learned
- 3. The demand and proposal
- 4. The RE identification problematic
- 5. Identification process
- 6. Interest for stakeholders
- 7. Conclusion
- 8. Identification check-list

1. CONSTRAINTS AND FACTS

- Each electricity sector has its own specificities, technical and economic.
- Past experience of privatisation in sub-Saharan Africa is very mitigated.
- Lack of financial resources in infrastructure maintenance and development.
- Inadequacy of tariffs.
- Widespread fraud practices and poor payment from administration have lead to more than difficult situation for many utilities.
- Development of both grid and non grid electrification is low.

2. LESSONS LEARNED

- Government long term commitment to the objectives commonly agreed.
- Complementarily with public (grid) utility for rural areas (PPP)
- Quality, permanency and transparency of contract rules.
- Building confidence between state, private sector, financial institutions and clients.
- Fair balance of risks between state, private sector and financial agencies to be sought.
- Scarcity of both national & international private sector induce necessity for innovative approaches.



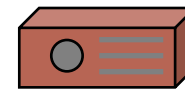
- 5-10 person families with a monthly income of €30-60 of which €2-10 is spent on energy

Domestic Demand

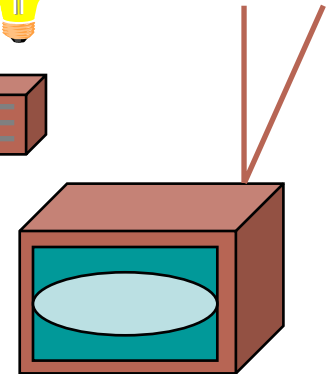
- lighting



- radio



- television

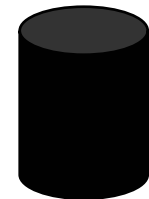


Total Substitution of:

- candles



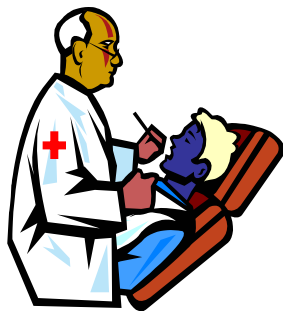
- kerosene



- (illegal connections)



- **SME (windmills, workshops, automated textile factories), businessmen**



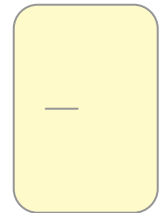
- **Institutions (health centres, schools, local administrations...)**

Professional Demand

- **lighting**



- **cold**



- **power (motor)**



- **public lighting**

- **etc**

Rural Electrification

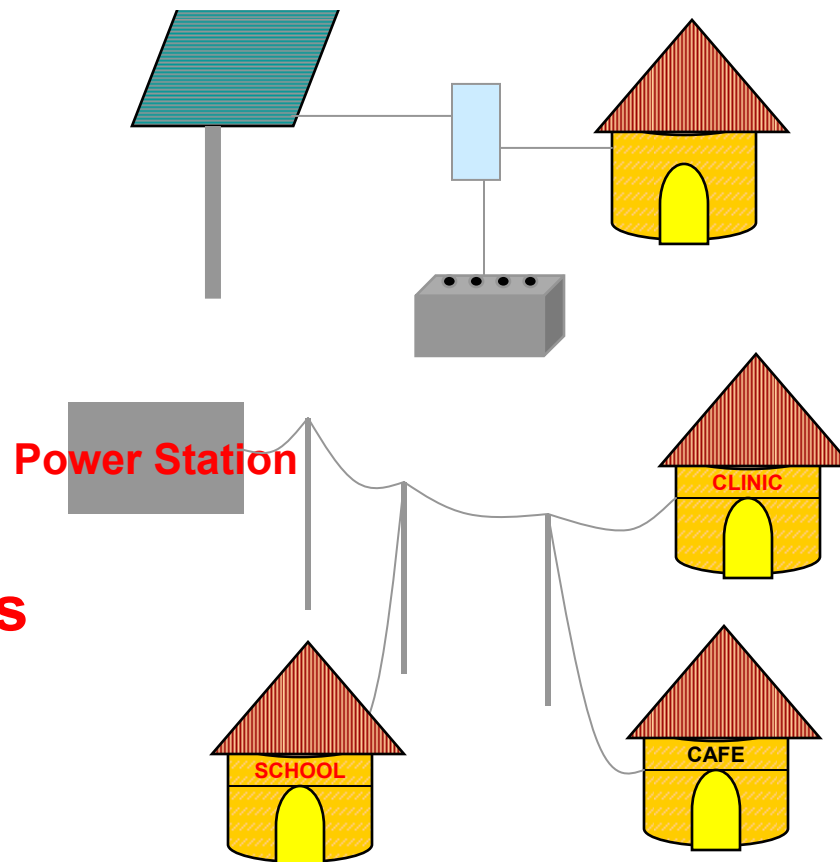
The Proposal

- Families

Individual Photovoltaic Kits

-Families and small businesses

Local Micro-Network

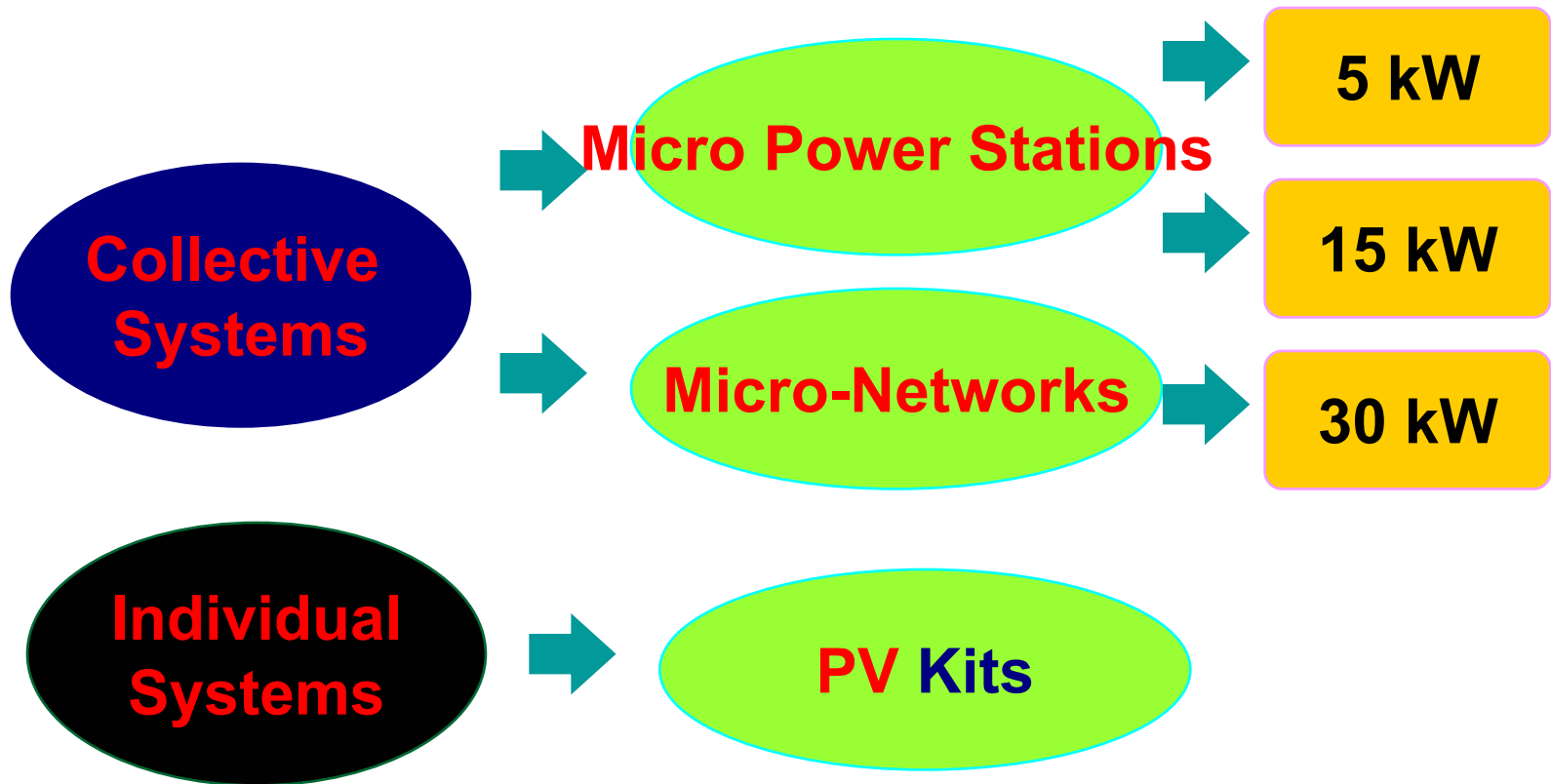


“Substitute expensive energies which are bad for the greenhouse effect for more economic and cleaner solutions”

The choice depends on housing density and balance between needs and resources

Rural Electrification

- Range of Systems



4. Rural electrification problematic

- Contribute to the MDG by enhancing quality life, local SME, environment.
- A field of intervention for innovative local entrepreneurs

Characteristics of rural areas :

- Enclosed or outlying,
- Public services, public roads, water and energy supply, waste, water treatment, refuse collection, non existent,

Regarding energy :

- Off grid : diversity of energy sources (wood, petrol, batteries)
- Low consumption but a high cost of distribution

Constraints

- Regulations (law on electricity, concession law), need for flexibility
- Stiff price policy,
- Low consumption with less than 100 kWh/month per household with an unsuitable price policy
- The cost of “standard quality” networks and connections
- High cost of customer management
- Obligation to deliver services on a long term basis (maintenance and equipments replacement)

Demand

- Both domestic, SME and public services demand
- In substitution of fossil fuel and for economic purposes, if economically viable

Thus :

The private both local and foreign sector through its :

- Capacity of implementing rigorous governance
- Operation and maintenance skills
- Training facilities and skills transfer
- Capacity to attract new financing sources (public, private, international)

must be sought to scale up electrification.

5. The RE Identification Process

In partnership with all people concerned with electrification:

- Propose a functional and effective model
 - technically innovative,
 - economically and financially dynamic (OBA),
 - with sustainable governance (project vehicle) and
 - balanced and sound contracts and
 - balanced allocation of risks
- Assure a quality public service in terms of coverage.

Some Indisputable Rules

- **Payment by the Beneficiary,**
(It is not a humanitarian programme)

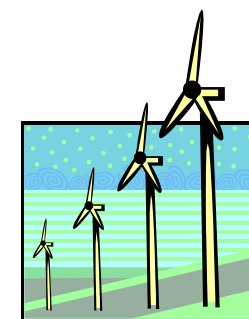


- **Subsidising the Initial Investment,**
*(As in developed countries for rural areas:
In France: FACE subsidies $\geq 70\%$)*



- **Local Companies Managed by Local People**
*(Confidence in the local population,
control by the Council of Administration)*

- **Priority in local energies and in
the control of energy demand.**



6. Interest for the stakeholders

Final user :

**Quality of energy for real lighting and television equipment,
Secured installation, controlled consumption (LBC meter limiter) well known
price policy, inner installation secured,
Official price policy eventually with services (prepayment, financing connexion
and installation), social price policy,**

Local associations :

**Possibility of social price policy for public equipment, cold...
Possibility of being sub-contractor for services.
Multi-sector approach, giving opportunities for more and better quality services
water, health, education**

Business in the area :

**Sub-contractor for works and installations,
Sub contractor operations.**

Local administration :

**Public lighting,
Economic development creating resources**

Specialised operator

7. CONCLUSIONS : The new ways

- Role of local operators
- The foreign operators paving the way via pilot scheme and transferring knowledge experience and operation
- Promotion of new actors : cooperatives, SME, NGO (Community based Organisation), local authorities...
- Associated funding : local contributions (adoption of Dr YUNUS banking initiative), international aids (private and public), decentralised cooperation north south NGO and local authorities
- Output based aid for network and connections investments

**LET US BE INNOVATIVE BY THINKING GLOBAL
& ACTING LOCAL**

8. Identification Check List

- Demand and offer analysis
- Tarification of services and payment affordability
- Analysis of possible technical options
- Analysis of possible organisational options
- Driving forces
- Local partnership
- Funding sources grant and loans
- Environmental, human and economic impacts (MDG)
- Financial balance (BP)

- To confirm : Economic
 - » Social
 - » Environmental soundness (sustainability)