

UNCTAD Expert Meeting on Green and Renewable Technologies as Solutions for Rural Development

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Energy Poverty and Rural Development

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Outline of Presentation

- **The correlation of energy poverty and rural poverty**
- **The AFREPREN Study on Renewables and Energy for Rural Development**
- **Why? Which? Renewables are ideal for sustainable energy in rural areas**
- **Positive experiences of rural energy provision from Eritrea and other good practices**

The linkage b/n rural poverty and energy poverty

The poverty problem

- The most pressing world problem followed by environmental Degradation;
- It is often underestimated how a hopeless situation can drive people to desperation. The poor are often trapped in their deprivation;
- Desperate people cannot be prevented from migration leading to urban congestion and dramatic refugee problems;
- The majority of the extremely poor people (with incomes < US\$ 1/day) are living in rural areas;
- In many developing countries the urban population is growing much faster than the rural population and consequently the number of urban poor increases very rapidly;
- The poor faces the clusters of disadvantage:- poverty, isolation, powerlessness, vulnerability and physical weakness

The linkage b/n rural poverty and energy poverty cont'd

- The HDI, of UNDP (2004), and the EDI of IEA (2004), offer an excellent picture of the relationship between energy services and overall development. The correlation b/n HDI and EDI is above 0.9
- High HDI and EDI, reflect higher electrification rates and lower use of biomass (Middle East, Latin America)
- North African countries and South Africa performed better by the EDI measure and SSA excluding RSA is the worst performer in both
- The rural poor spend higher fraction of their income for energy, often up to 25%;
- MDGs are intended to solve the problems of the poor but most countries are failing to achieve the intended results
- It was unfortunate that energy was not explicitly among the MDGs but it became obvious later that the other MDGs cannot be achieved without energy provision.
- The rural poor have to be perceived as actors in development, not as objects of welfare

Popular Quotes about Energy Access and the Poor

- Close to 50% of the world's population is poor (> US\$ 2.00 per day)
- Bulk of poor rely on traditional biomass (estimated global total = 2.4 billion)
- About 1.6 billion of the poor without electricity & clean/modern energy
- Etc.

Why? Which? Renewables are ideal for sustainable energy in rural areas

The key policy drivers for further deployment of renewable energy technologies for sustainability in rural areas include:

- Enhancing access to energy
- Mitigating climate change
- Fostering economic development and job creation
- Increasing security of energy supply
- Decreasing environmental impacts of energy supply
- Enhancing cultural sustainability
- Decreasing health impacts associated with energy production and use.

Renewable energy technologies have a potential in realisation to each of the above drivers that conventional energies do not have.

The sources of RETs are any of the biomass, hydro, wind, solar, geothermal, and ocean thermal/tidal.

What are the barriers in LDCs for promoting RETs?

- Lack of knowledge of renewable energy resources and technologies
- Lack of market research
- High initial cost of RETs systems
- Undeveloped financing mechanism
- Installation, maintenance and repair problems
- Lack of training and capacity building especially at local level
- Gender & decision making at household level, and
- Quality control.

Background to the AFREPREN study

Renewables and Energy for Rural Development

5 Hypotheses were considered in the study: findings are mostly positive with some country particularities

1. Rural energy policies and programmes are failing because they are: -
 - uneconomic and unsustainable
 - not implemented with commitment
 - not targeted at income generating activities.
2. Existing government's and utilities' institutional framework, poor linkages and co-ordination between stakeholders not conducive to rural energy initiatives.
3. Decentralised, private sector energy production and distribution have a better rate of success than centralised public sector initiatives in delivering modern energy to rural areas.

AFREPREN Study continued

- Income generating activities have greater impact than domestic use in promoting the delivery of modern energy to rural areas.
- Of all existing and potentially possible components for the promotion of RETs geared to income generating activities in rural areas, some are far more critical than others and therefore need priority attention and action.

Power sector reform studies have indicated

- Market-oriented reforms have had **neutral or adverse impacts** on the poor
- Power sector reforms need an **explicit pro-poor dimension** otherwise electrification of the poor is forgotten. This requires ring fencing the interest of the poor

Summary of Major Achievements in the power of Eritrea

- Power generation capacity increased from <30 MW in 1991 to over 130 MW now
- Transmission lines from <150 km to over 350 km now
- Distribution lines from 800 km to over 1600 km now
- Rehabilitation of power distribution system initiated
- Per capita consumption from 16 kWh to over 60 now
- Over 200 villages out of 2600 in total electrified or in the process, approaching 8% RE?
- RE conducted through cost sharing principle, the Govrt, covering MV extension and communities pay for the LV and all other costs
- Electricity Proclamation and Proclamation to corporatize the EEC enacted

RETs Development Initiatives

- 25 stations in place to assess wind and solar resources
- Over MW solar aggregate capacity of solar systems installed for powering schools, health facilities, water pumps, remote offices, SHS, etc,
- Pilot 3x250 kW wind park commissioned and 8 decentralized wind & diesel hybrid, wind battery charger and water pumps installed
- Good prospects for geothermal energy
- Hydropower potential believed not substantial but not studied
- Over 100,000 improved stoves installed
- Many biogas plants, 1 cotton briquette firm functional
- Renewable Energy Centre established with the help of the State of Lower Saxony to promote RETs