

UTILISATION OF SUSTAINABLE ENERGY SYSTEMS FOR PRODUCTIVE PURPOSES IN RURAL AREAS: THE CASE OF BENIN REPUBLIC (WEST AFRICA).

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Republic of Benin

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Introduction

- ❖ Benin is ranked 163rd country in the Human Development Report 2006.
- ❖ Till 2002 modern energy provision to rural areas targeted domestic use.
- ❖ The WSSD held in 2002 at Johannesburg, has risen the awareness.
- ❖ The Ministry of Energy which is in charge the management of that sector in Benin, is now considering focusing on productive purposes.

Energy situation in Benin

- **Total energy consumption:**
2162 ktoe (2004)
- **Per capita Energy Consumption:**
0,301 toe/hbt (2004)
- **Energy Intensity :**
0.05 GJ/\$ US (2004)
- **National electrification rate:** 23.4%
(2004)
- **Rural electrification rate:** 2%
- **Energy sources:**
Biomass, gas, imported oil, electricity



Biomass, Solar, Wind and Hydraulic potential

Solar	Annual sunshine of about 2500 hours Average irradiation of 5.4 Wh/m ² /day
Wind	Average wind speed is 5 to 6 m/s at height of 50m.
Hydraulic	310 MW for 85 rural localities
Biomass	5 266 149 tons of agricultural residues

Rural energy systems experiences in Benin from 1993 to 2006

Type of equipment	Installed power capacity	Number of village
Diesel group	2450 KVA	40
PV systems	17600 Wc	32
Multifunctional Platform (pilot projects)	144hp	10
Micro hydro systems	3.5 MW	10
Modern use of biomass	-	All the central region of benin

Impacts of Rural Energy Projects executed

- **Improvement of living conditions**
 - Lighting in houses and rural institutions;
 - Drinking water pumping for domestic use;
- **Incapacity of developing opportunities for income generation.**

Future Perspectives

Type of option	Expected capacity (MW)	Impacts
Hydroelectric systems	354	Water pumping, food processing and conservation, lighting for rural institutions (school, health centre...), development of income generating activities.
Agro industrial plant for bio fuels, and oil production	Na	Bio ethanol for cooking, provides fuel to motor, vegetable oil for domestic needs and other production as tooth paste, medicine products.
Construction of biomass based plant	> 105	Water pumping, food processing and conservation, lighting for rural institutions (school, health centre...), development of income generating activities.

Constraints to sustainable energy systems use

Markets constraints

- ✓ Lack of competitiveness of renewable energy systems compared conventional energy;
- ✓ Lack of funding mechanisms;
- ✓ The low demand.

Technical constraints

- ✓ Lack of a plan of maintenance of the energy systems;
- ✓ The insufficient number of skilful people in the field of renewable energy systems;
- ✓ The insufficient place of research and development program;

Political, Institutional and Regulatory constraints

- ✓ Poor coordination among the government structures;
- ✓ Little attention is being paid to renewable energy technologies;
- ✓ Lack of fiscal measures to stimulate local production;
- ✓ Lack of consultation between actors
- ✓ The lack of synergies between the various actors in the field of renewable energy.

Conclusion

- Since the launching of energy supply for rural areas in Benin, a number of energy provision projects have been executed.
- Proof that the sustainable energy systems can have a positive impact on poverty reduction.

SOME RURAL LIFE PICTURES



Thank you very much for your attention.

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Visit the website:

www.beninhuzu.com

www.yayiboni.com

