

Development of an Electricity Strategy and Renewable Energy Law for The Gambia

Work being done under the UNIDO/GEF Project

“ Promoting Renewable Energy Based Mini-grids in rural areas in The Gambia”



Current situation

- Extensive solar PV for water pumping
- (>1MW)
- 150 kW wind turbine
 - Village electrification
- >99% of Electricity produced from HFO
- Wind & energy Resource Assessment 2006
- High electricity prices
 - 9MW / US15m
 - US \$0.30/kWh
 - 0% import duty on on PV equipment



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Green Industry

Biomass from Agro Waste





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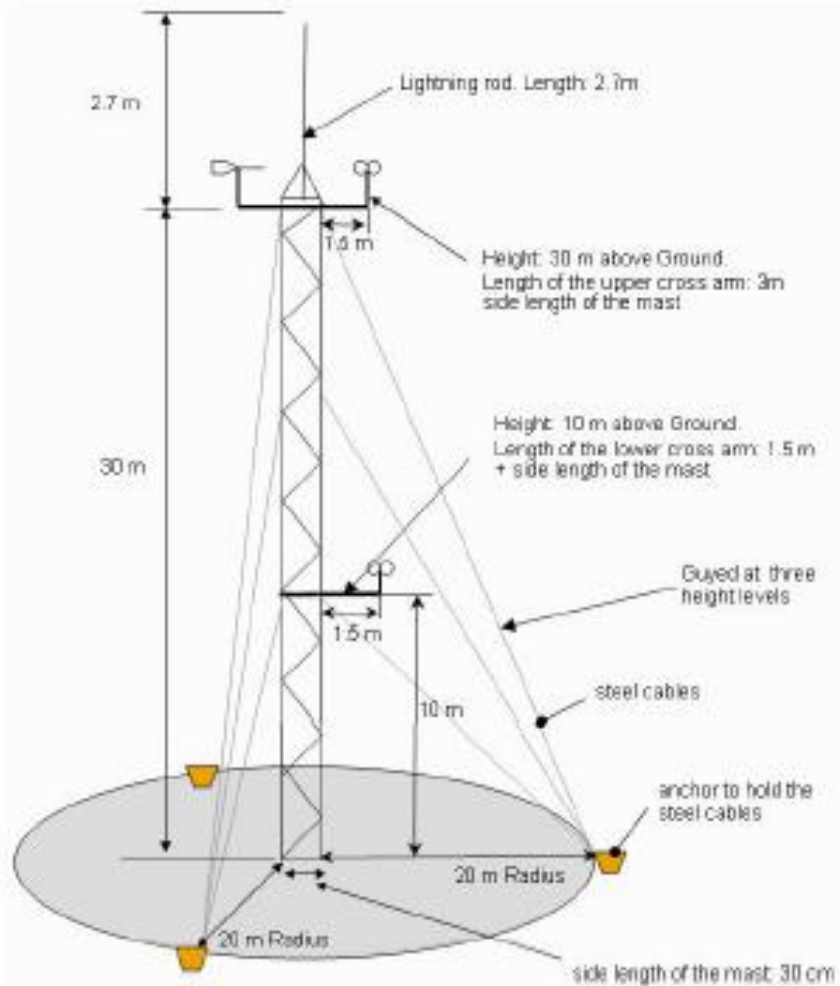
Green Industry

Rural Water Supply





Resource Assessment 2006





Batakunku Wind Energy

- 150kVA
- Electrification of a whole village
- Lower tariff
- Lessons learnt
 - Regulatory perspective
 - Light handed regulation
 - Need to streamlining
- Can it be replicated?





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UNIDO Project - Background

UNIDO/GEF in The Gambia

Objective : To develop and promote a market environment that will stimulate investments in renewable energy based mini grids for productive uses in rural areas in The Gambia.

Budget : 7.7 million US\$ (2 million – GEF and 5.7 from Government of the Gambia and private sector.)

Partners : Ministry of Energy, National Environment Agency, PURA, NAWEC etc.





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Project Outline

■ 5 key activities/components:

1. Demonstrate techno-economic viability of RE projects in rural areas
2. Strategy for scaling up investments in RE
3. **Strengthening the legal and regulatory framework for RE sector**
4. Strengthening institutional capacity
5. Project management and coordination



Demonstration Projects - viability

- Install 900kW Wind Park by 2012
 - 2 x 450kW (GEF/Private Sector)
- 450kW wind power for Ice Plant for a fish processing center in Tanji
- 60kW Solar diesel-hybrid for Rural Electrification
- Solar Wind for a skills training center



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Component 3 Objectives

KEY Steps / Activity.

- **Energy scenarios:** focusing on the development of generation capacity, the investment requirements to meet the foreseeable demand increase and exploring the possibility to significantly raise the share of renewable energy in the energy mix.
- **Electricity Strategy:** action investment plan for the next 20 years setting electrification plans, renewable and conventional energy generation, etc., and addressing the institutional, legal, technical and financial barriers for renewable energy development.
- **Feed-in tariffs and PPAs for renewable energy:** a Feed in Tariff model that will be used to, calculate the initial level of the incentive, and then update the values when local conditions change, on an annual basis, or as a result of other factors.
- **Renewable Energy Law (incl. FIT scheme):** draft of documents to provide a stable and credible legislative and regulatory framework for renewable energy developers.



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Wider Gambian context

- Wider issues of economic and energy development may affect the ultimate success:
 - **Access to electricity grids is limited**
 - **Access to finance is limited and expensive**
 - **Ability to pay for electricity, and potentially unrealistic expectations of low cost**
 - **High technical (23%) and non-technical grid losses**
 - **Small system**
- Unless these form a key part of the renewable energy strategy, it will affect the benefits of this project being realised.
- There are also advantages:
 - **Agricultural waste, solar and wind resource**
 - **Prospects of renewable energy enabling electrification, development and improved competitiveness are highly appreciated.**



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Phase II - Task 2: RE Feed-in tariff model, calculate tariffs and develop standard PPAs

- FIT two different approaches:
 - Based on modelling:
 1. Renewable energy technologies compete with other alternatives
 2. Environmental costs and other restrictions are internalised
 3. A share (quantity) of renewable energy in generation is a result
 4. Incentives to achieve those renewable energy levels (they are optimal from the social point of view) are established
 5. The total amount of renewable energy (MWs) to be introduced at the FIT are capped at the amount set by the modelling
 - Cost based approach:
 1. The feasibility of a certain renewable energy source is analysed through a financial model
 2. The model provides the incentive necessary (FIT) to make the project feasible
- The approach to follow will have to be defined at the inception phase.
- The model will be developed in EXCEL and training organised



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Phase II - Task 2: RE Feed-in tariff model, calculate tariffs and develop standard PPAs

■ PPAs and other documentation:

Contract conditions and licensing procedures may be barriers for renewable projects to access the grid, the consultant will provide recommendations on:

1. Public, clear, transparent and standardised procedures for awarding licenses
2. In accordance with accepted practice, laws and regulations in the country.
3. Connection agreement, including: Standardisation / simplification of administrative conditions for connecting to the grid metering and safety operation of the connection

■ PPAs:

1. The consultant will provide a “standard PPA” for renewable energy according to best practises making special emphasis in:
 - Clear pricing rules, price adjustment formula
 - Obligation for distribution grid operators to buy all renewable output
 - Clear dispatch rules for renewable energy
 - Additional clauses such as penalties, dispute resolution, etc., as required



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Phase II - Task 3: Draft Renewable Energy Law & FIT rules

- Main issues to be included in the Act:
 - Definition of the available renewable energy sources and their eligibility for FIT scheme and complementary incentive mechanisms.
 - To grant priority and obligatory purchase of renewable energy projects.
 - A system of guaranteed tariff as the mechanism to incentivise renewable projects and ensure a sustained penetration of renewable energy in the generation mix. The tariff assigned to renewable facilities will be based on the following issues:
 1. Tariffs will be defined by technology and size
 2. Tariffs will be set out as to ensure a reasonable return on investment of the projects.
 3. Tariffs will be continuously reviewed.
 - Lay down the roles and responsibilities of the other authorities and agencies in the development of renewable energy.



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Thank you for your attention.

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