INDIA PROJECT BASE

HYDEL : BHORUKA POWER

- To install and operate 2 x 1.75 MW grid connected mini hydel plants at Mandagere Near KR Pet town of Karnataka.
- BPCL is now entering the commissioning phase and plans to have the plants already in operation by June 2004.
- Total emission reduction over credit period (7 years) 82881 t of avoided CO2
- The project fits within the methodology category " **Type I. D** "Renewable Electricity Generation for a grid".
- M/s Bhoruka Power Corporation Limited (BPCL) has already commissioned a number of Hydel Power plants in Gulbarga district (Karnataka state) and is interested in future developments in partnership with the CDM.

SOLAR HOT WATER : TATA BP INDIA

- Tata BP solar India Ltd is a joint venture of the Tata Power Company Limited and BP Solar, one of the largest solar companies head quartered in USA. Tata BP Solar India Ltd was originally set up in 1989, in the view of promoting renewable energy in India as it has a huge sources of solar energy. In recent years in India, more than 550000 sq.m of collector area has been installed so far in the country for water heating.
- The Tata BP Solar India limited anticipates a CDM additionality of 15% annual growth rate on sales for industrial applications. The emission reduction form the project amounts to an estimated 98,580 tones of carbon dioxide for the next 10 years.
- This project falls within the category Type I.C. : Renewable Energy Projects – Thermal Energy for the User

ENERGY EFFICIENCY : GUBBI

- Project "Gubbi" is a small commercial pilot project being launched in Karnataka to optimise the Agricultural Distribution System to minimise line-losses, improve supply quality and improve pump-set energy efficiency. The project is being implemented under the Energy Service Company (ESCO) pattern.
- The following are the proposed modification envisaged for the system under the IGEEP programme. (i) Introduce group / individual metering; (ii) Selectively adopt less LT distribution system; (iii) Social intervention to encourage farmers to use Energy Efficient (EE) pumpsets and reduce consumption; (iv) Set up demonstration pumps to convince the farmer of lower consumption of electricity while guaranteeing the same quantity of water delivered; (v) Adopt better remote load management practices; (vi) Make a model distribution system.
- The total consumption is expected to reduce from 95 MU to 66 MU per annum with total investment of Rs. 47 Crores (US$ 9.6 Million) with payback period of 5 years including soft cost for design, engineering, energy audit, implementation, NGO intervention etc.
- About 36 Million units of electricity will be saved by the project and this will reduce about 0.1 million Tons of CO_2 equivalent GHG emissions per annum.
- This project falls within category Type II.A. : Supply side energy efficiency improvements – transmission and distribution and Type II.C. Demand-side energy efficiency programmes for specific technologies
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BIOMASS ENERGY : RURAL ELECTRIFICATION APPLICATIONS

- to provide modern energy services to rural unelectrified villages via an integrated approach to decentralized generation and distribution in rural areas. The proposed technologies are biomass gasifiers and biogas systems using woody feedstock (from sustainably managed forest and crop residues and waste). The proposed system will meet all the energy (electricity and heating) needs of the people residing in the villages selected.
- The electricity will be used locally for irrigation, drinking water, domestic lighting and village industries to enhance income and opportunities. The project will also involve setting up of a series of cow dung and leaf filter based biogas plants to cater to the cooking gas needs.
- The technology adopted is Biomass Energy – including gasifiers and biogas systems. System sizes can range from 40, 100, 200 and up to 500 kW of gas engine based biomass gasifier systems. Biogas community systems will be based on cow-dung and leaf litter as raw material.
- The project category is Type I.D "Renewable Electricity generation for a Grid".

MOROCCO PROJECT BASE

WIND : DESALINATION PLANT TAN TAN

- WindPark Project of 10 MW for desalination Plant in Tan-Tan region (Sidi El Garn and Sahb El Harcha).
- The purpose of the project is the production of drinking water via a desalination plant powered by wind energy. The drinking water produced will supply Tan Tan Province (villages that will be covered are Ouatia port, Chebeika village & Tan-Tan City). The total population that will have access to the water is about 100 000 persons (Tan Tan population and villages). The project will act as a pilot project illustrating the potential for desalination plants in Morocco.
- The 10MW wind farm would produce around 19 GWh yearly of electricity. When there is no wind power will be purchased from the national electrical grid. The electricity production needed to operate the desalination plant is between 15 & 20 GWh/year.
- The desalination plant will be constructed (including wind farm) in 2006 and will begin operating in june 2006.
- This project will save 14 554 tonnes CO2 / year (based on the emissions from thermal plants) and also 123 tonnes SO2, 85 tonnes NOx and 24 tonnes of chloride acid.
- The project category is I.A. : Renewable Energy Projects – Electricity Generation by the User

BIOMASS : HAMMAMS

- Energy Efficiency Improvement of Wood Fuel Burning for Hammams.
- An improved boiler is developed and sold, with a demonstration phase (GTZ) completed and a pilot phase starting with support of FFEM and AFD. The proposed project for CDM is the introduction of this efficient boiler to 4750 hammams.
- The improvements will involve the following components:
    - Furnace improvement;
    - Water circulation system improvement;
    - Improved steam management.
- Total wood-fuel savings would total 0.3264 million tonnes per year. The improved boilers reduce the firewood consumption by 50%. Given the net wood stock losses in Moroccan forests, this entire level of wood-fuel savings is counted as the appropriate basis by which to estimate carbon savings.
- CO2 savings for the 4750hammams amounts to 0,392 million tonnes over the 10-year life of the project.
- This project falls within the category Type II.B. : Energy Efficiency Improvement Projects – Supply Side Energy Efficiency Improvements – Generation

WIND: LAFARGE CEMENT FACTORY

- Wind Farm (10,2 MW) at Lafarge's Cement Plant at Tetouan, Morocco.
- Morocco's largest cement firm, LAFARGE-MAROC will construct a 10 MW wind farm to supply electricity to a new cement factory currently under construction near the city of

Tétouan in the Rif region. The wind farm will supply electricity that would have otherwise been purchased from the national grid.

- The total annual average electrical production amounts to 42,3 GWh/yr, equivalent to about 50% of the electric consumption of the new cement factory.
- For every GWh generated by the wind farm 808 tonnes of CO2/GWh will be avoided between 2005 and 2025. The wind farm will displace the emission of 718000 tonnes of CO2 over the lifetime of the plant.
- The project category is I.A. : Renewable Energy Projects – Electricity Generation by the User .

SOLAR HOT WATER : PROMASOL

- Solar Hot Water Heating for Collective Applications
- The sale of 200,000m2 of SHW systems for collective applications like hospitals, schools, hotels etc. over a 5 year period. This will lead to a savings of 1050 GWh that would have been otherwise provided by the national grid. The equivalent CO2 emission reduction amount to 527 tonnes CO2eq/year for every 1,000 m² SHW installed or about **790875 tonnes de CO2 (over the 5 years).**
- This project falls within the category Type I.C. : Renewable Energy Projects – Thermal Energy for the User