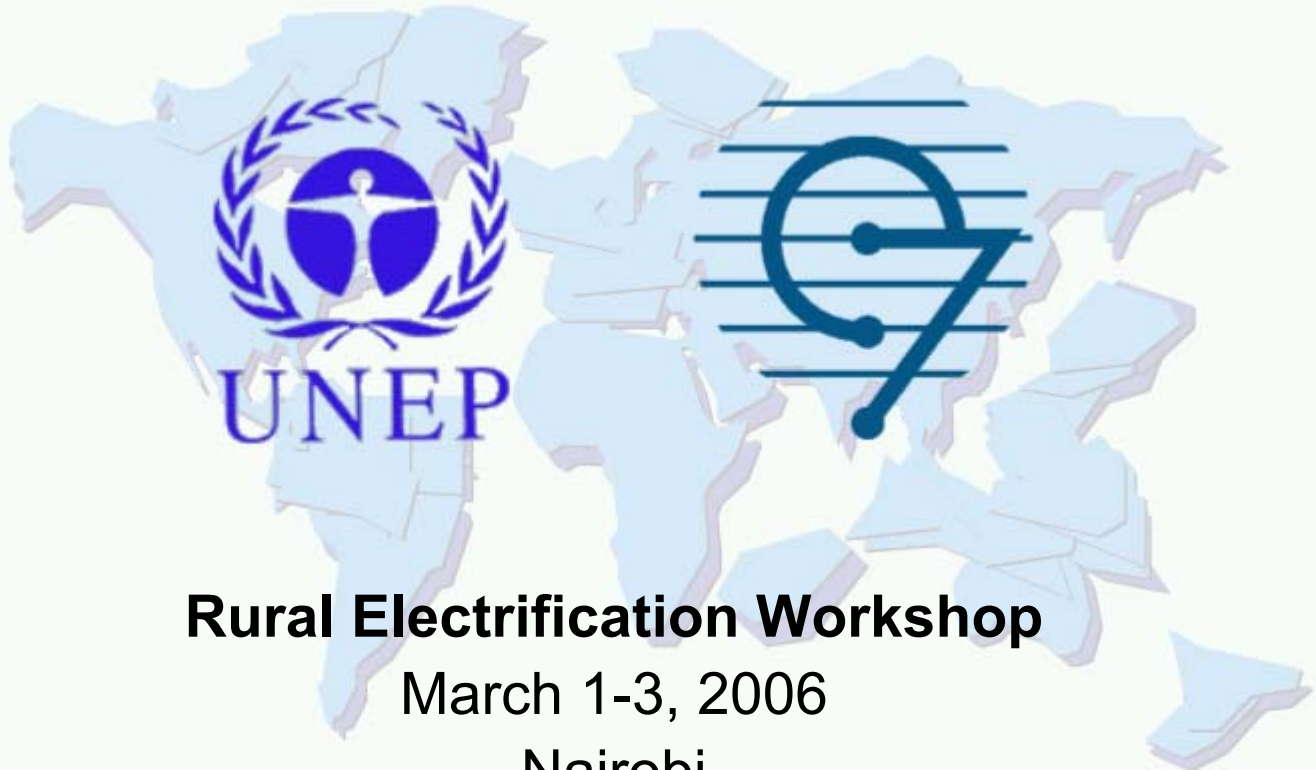


## Session 4.1

# Mpeketoni Electricity Project

Mr Danson Mwangi Kinyanjui & Mr Paul Mutinda Kituku



# Mpeketoni Electricity Project



- Community Based Electricity Project
- Independent of Subsidies
- High demand
- High tariffs
- Constrained by rising cost of production



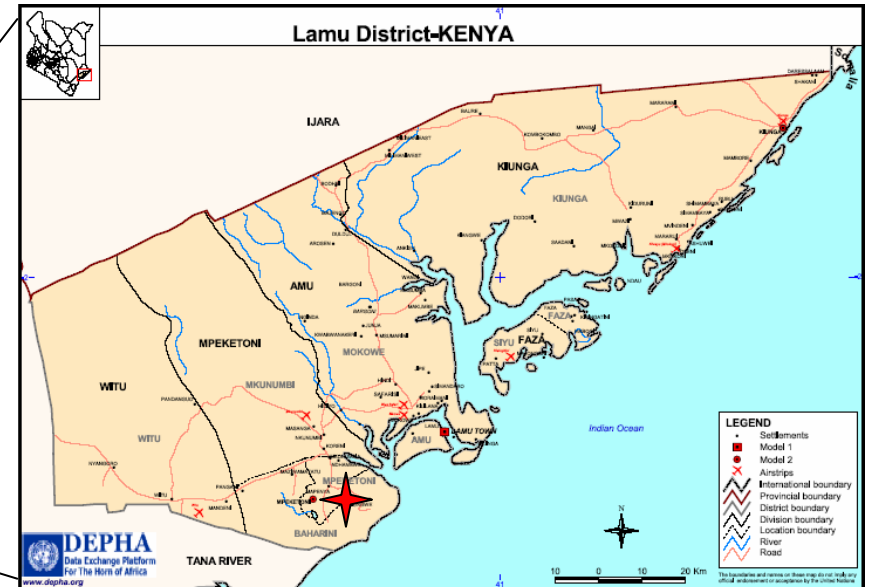
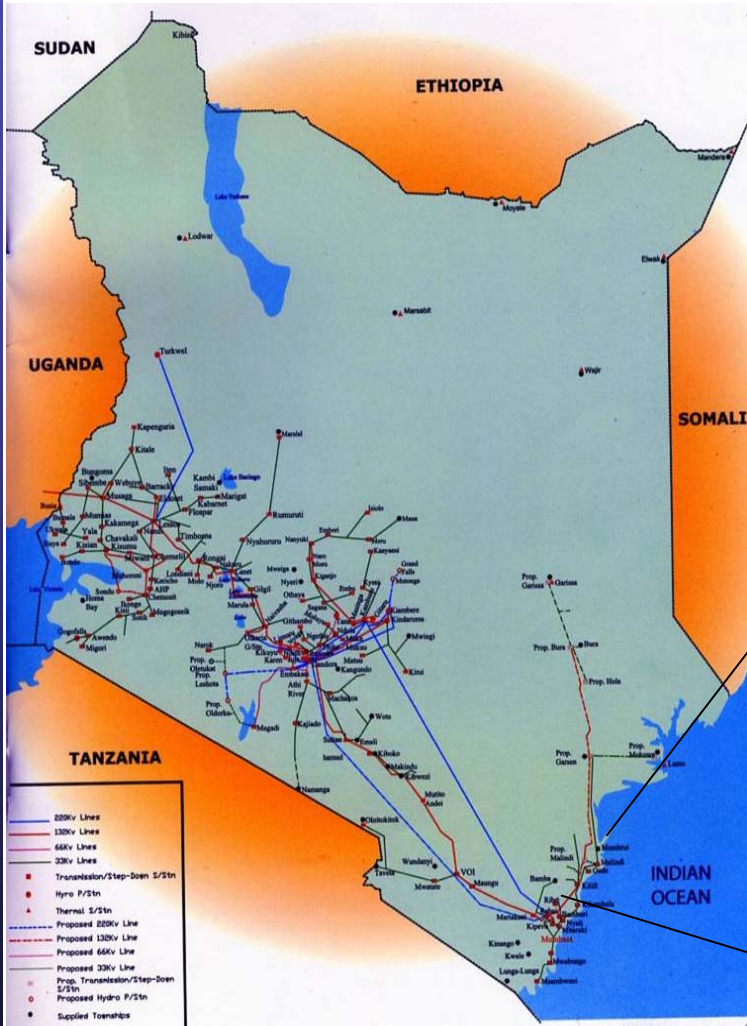
# Mpeketoni Overview



- Mpeketoni is part of a resettlement programme initiated in the 1970s in an area with high agricultural potential.
- It is located on the Northern coast of Kenya, 230km north of Malindi and 60km from Lamu island.
- The scheme covers about 38000 acres and has a population of about 31000
- Agriculture is the main source of income in the settlement scheme. Crops grown include cashewnuts, cotton, maize, bananas, bixa and simsim.
- In addition, a number of fruit and horticulture crops are grown for sale in Lamu and Mombasa markets.

# Mpeketoni - Location

- Coast of Kenya
- Lamu District



# Mpeketoni Electricity Project (MEP)

- Diesel-fired electricity generation and distribution system
- Isolated from national grid
- Established in 1993
  - Ksh534,000 (US\$7,500) is raised towards the project through the sale of 178 individual shares to the public
  - community also provides the land
  - GTZ contributes a generator house, office construction, generation and transmission equipment and starting capital
  - Land provided by Government



# MEP History



- 1994 - Project starts to generate electricity, the system comprises a 60KVA generator and a 4km network serving 75 single-phase connections and 15, 3-phase connections.
- 1996 - A 57kVA generator is added
- 1999 - Due to increased demand a 150kVA generator is added and carries the major load to date.
- 2004 - Project is handed over to the community.
- 2005 - Project has 220 single-phase connections and 20, 3-phase connections

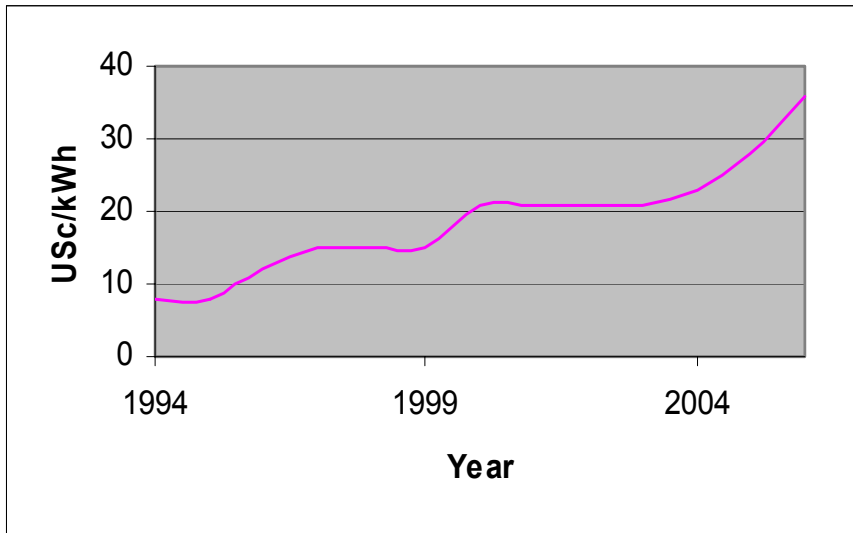
# MEP Consumers

- about 130 shops, over 90 households, 4 flourmills, and a number of garages, workshops and small-scale industries.
- several larger industries and key services such as a sub-district hospital, secondary school, and the Government offices.
- Connections made on the Mpeketoni grid reach about 4% of the families in the Lake Kenyatta settlement scheme



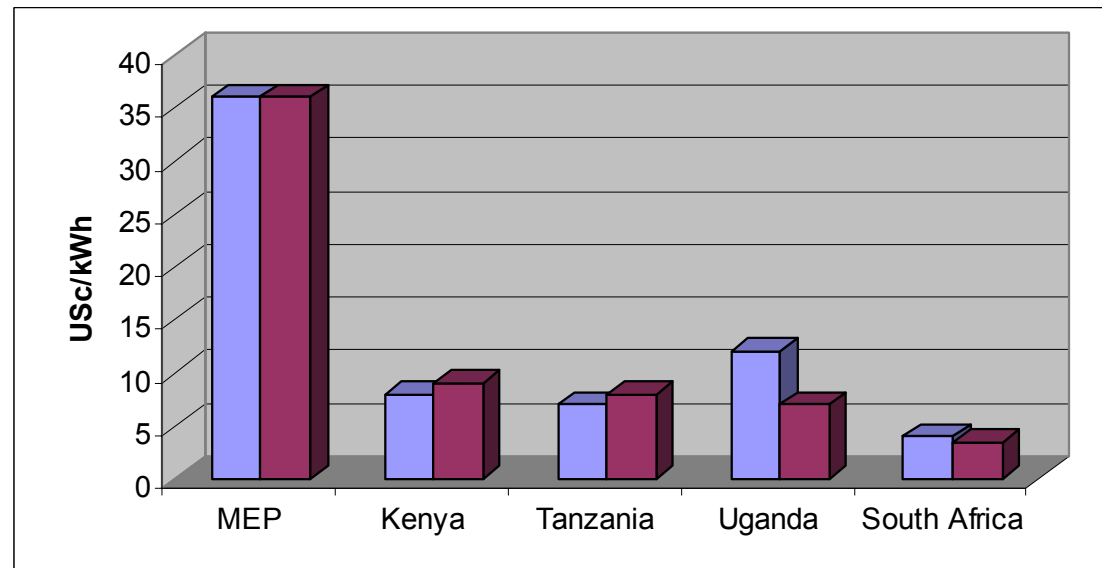
- Total demand can peak at roughly 200 kW (which is near the limit of the system's capacity) and totals about kWh 190,000 per year

# Tariffs



- Increase in electricity tariffs since 1994.

- MEP's tariffs in comparison to others in the region (USc)



# Constraints to Operation and Expansion

- The rising price of diesel fuel.
- High cost of maintenance of the system components
- Power quality and reliability
- High connection costs
- Rising power demand within and outside the township



# E7 and MEP



- E7 identified MEP in 2004 as a result of a scoping study to identify and develop an off-grid demonstration renewable energy project
- Potential for investment in wind energy to reduce generation costs and tariff
- Some of the activities undertaken include:
  - Wind data collection since December 2004
  - A feasibility study
    - examine opportunities for utilizing the local wind resource to providing extra capacity to the existing system and drawn down the cost of generation.
    - Upgrading of existing grid to increase security of supply and improve quality of supply (eg soft start panels on grain mills)
    - Reduce costs for connection utilizing low cost electrification techniques

# Next Steps



- MEP to receive 2 x300kVA generators from Government of Kenya Ministry of Energy - discussions, logistics and EIA facilitated by e7
- E7 to review feasibility and agree programme for upgrading of distribution network
- International tender underway for purchase and installation of wind turbines.
- Financial structure to be finalised