

Role of Regulators in Promoting Minil/Micro hydro

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Nepal

- Area of 147,181 sq. km
- 26 million population
- Rich in water resources
- Per capita energy consumption 14 GJ
- Energy consumption 78% from fuel wood

Region	Land area coverage%	Suitable for cultivation %	Accommodation%
Mountain	35	2	7
Hills	42	10	46
Terai	23	40	47
Total	100	52	100

Micro-hydro

Resources and Uses

Resources:

- 6000 rivers;
- Survey, Installation and manufacturing companies;
- Technical manpower for manufacturing, survey and installation;

Uses:

- Rural electrification
- Agro-processing
- Both

Nepal's Energy Crisis

- Electricity Crisis on the Grid
- Fuel Crisis for transportation, industry, and agriculture
- Energy crisis in rural areas – cooking, lighting, motive power.

WE HAVE SOLUTIONS FOR ALL OF THEM – THERE IS LACK OF COHERENT POLICIES WHICH STAND IN THE WAY

Organisations involved in the Promotion of Mini / Micro hydro

- Government Organisations
- Alternative Energy Promotion Centre (AEPC)
 - Energy Sector Assistance Programme (ESAP)
 - Rural Energy Development Programme (REDP)
- Financing Institutions
- Private installation, manufacturing companies and survey firms
- I/NGOs
- Donor Organisations
- Micro Hydropower Development Association
- Micro-hydro Users Owners
- Others

Role of AEPC

- The Overall objective of AEPC is to popularize and promote the use of Renewable Energy Technology (RET) and Energy Efficiency
 - to raise living standards of the Nepalese people,
 - To reduce the negative environmental impacts, and
 - to develop commercially viable alternative energy technologies in the country

AEPC

Six Broad Objectives:

- Preparation of short, medium, and long term policies and plans
- Implementation of programs for development of RETs and Energy efficiency
- Standardization, quality assurance, and monitoring
- Providing technical Service and support to rural people
- Facilitating financial assistance
- Strengthening of partners' (i.e. civil society, local agencies and private sector) capacity

Promotion approach of AEPC

- The programme is demand based
- Involvement of Community, Cooperatives and Private Sectors
- Private sector responsible for survey, manufacturing, supply, installation and after sale services of the MHP systems
- Technical support in terms of training, information, guidelines, quality assurance and subsidy and tax exemption through AEPC

Role of ESAP

- ESAP established in 1999 with the support from DANIDA, GoN, NORAD
 - Establishing local support structures
 - Area Centres (Regional Centres)
 - Reinforcing national framework
 - Consulting companies
 - Installation/manufacturing companies
 - National policies
 - Quality assurance, standards, guidelines
 - Supporting new MH and rehab
 - Structured project cycle
 - 2 MW (20,000 households)

- Phase II (2007 to 2012) , multi donor
- Continuation of Phase I programme
- Upper limit up to 1000 kW
- Electrification target 15 -20 MW (150,000 households)
- Interconnection and possibility of grid connection
- Enhanced role of public sector (NGOs and local community), private sector (survey/design/installation) and government (subsidy, monitoring and policy support)

Rural Energy Fund

Rural Energy Fund (REF) has been established by the GON and the donors (Danida & NORAD) to channel jointly financed subsidies for Micro Hydro, Solar Energy, Biomass Energy Technologies as per the Subsidy Policy and Delivery Mechanisms, approved by the GON in September and November 2006.

Role of REDP

Established in 1996 with the support from UNDP and GoN. World Bank joined later.

Programme is based on decentralised management of development efforts with emphasis on community organisation

It has covered 40 districts in promoting RETs

Role of Private Sectors

Survey and Design, Manufacturing and Installation

A. Survey and Design

- Cost effective and financially viable
- At least 11 months power for ESAP and 12 months for REDP project
- Civil and electro-mechanical components based on the standard guidelines.

Private sectors

B. Manufacturing and Installations

- Agreement with Community
- Site verification
- Supply of equipments and installation
- Power Output Testing
- Power Output Verification
- One year guarantee

MH Association

- NMHDA is an Umbrella organisation of survey, installation and manufacturing companies
- Micro-hydro Users Association is the organisation of micro-hydro users
- Other NGOs at local level

Financing Institutions

- Collateral security of loan
- Insurance/debt Insurance
- Deprived sector lending
- Administration and management
- Inspection, follow-up and recovery cost
- Load factor
- Tariff payment and collection

Contd.

- Some banks have developed and introduced *New Credit Manual* to all its branches with an objective of assessing good clients for quality lending.
- The manual asks for details of clients on his/her creditworthiness.
- Screening enquiry (client selection)
- Credit Application, Business Plan (as per loan size)
- Review of Application & Business Plan (Credit Appraisal)
- Security and Collateral (evaluation and documentation)
- Credit Approval
- Selection of service providing companies
- Credit Disbursement (in installments)
- Monitoring and Follow up
- Collection/Recovery

Donors

- DANIDA
- NORAD
- WORLD BANK
- UNDP
- SNV
- GTZ

MH Users/owners

- Committee formation and meeting as needed
- Successful operation
- Appropriate tariff setting
- End use application
- Ownership of the scheme
- Participatory implementation

Major Organisations

- **The Government of Nepal (GoN):**
- Renewable energy policies and institutional development
- Standard Quality Assurance (QA) Guideline
- Monitoring activities
- Support R and D activities
- Facilitate financial support
- **External Development Partners**
- Technical assistance
- Financial assistance

- **Private Sector**
- Service delivery
- Promotion and marketing of products
- Innovation of technologies and applications
- Providing loans and insurance
- **MH Users**
- Promotion
- Ownership and management of facilities.
- Participatory implementation
- Monitoring

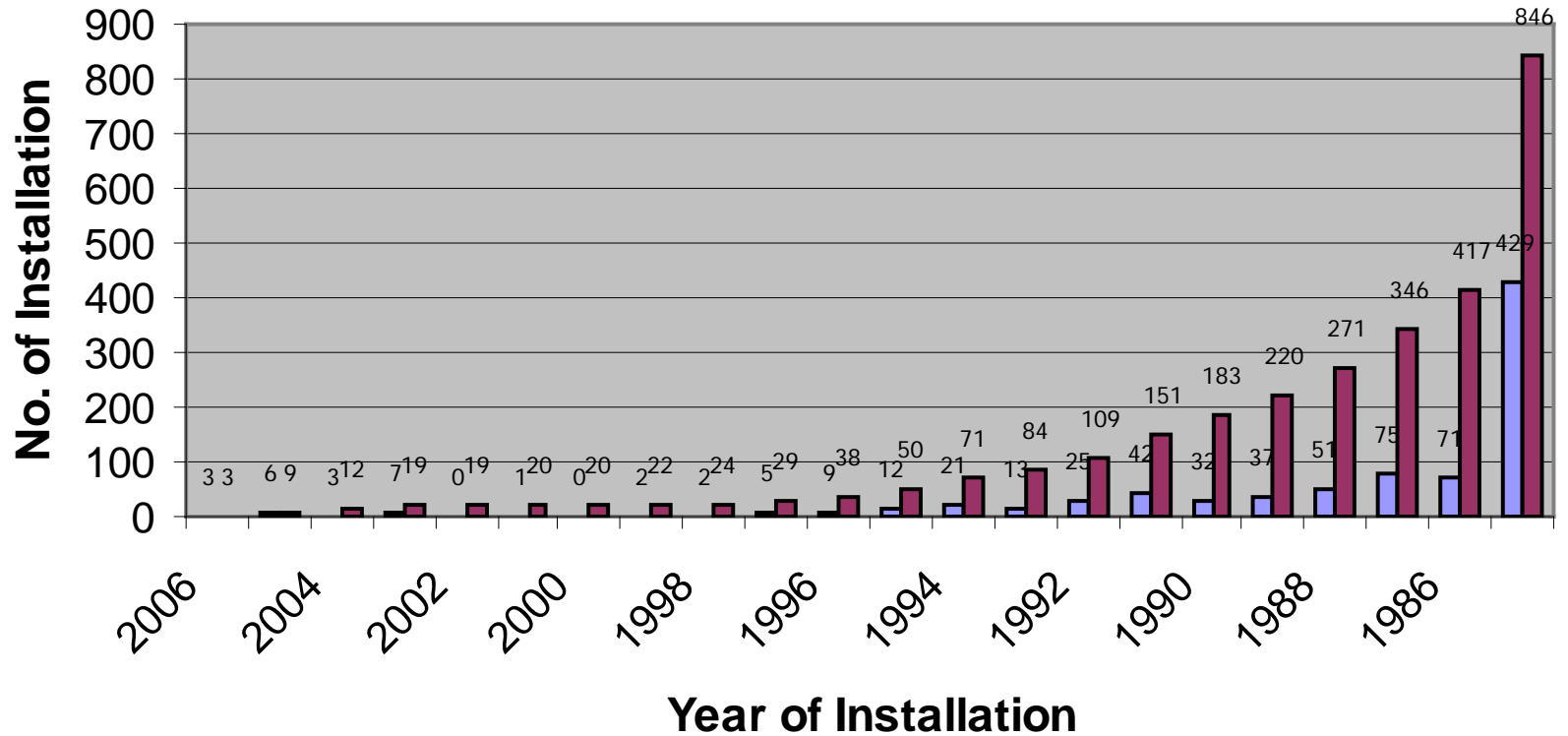
Other Organisations

- **German Development Service (DED):**
 - Assisting District Energy and Environment Units in planning, monitoring and promotion strategy at local level
- **German Technical Cooperation (GTZ) and CIM/GTZ:**
 - Technical Support, Support on CDM and RET financing
- **USAID SARI/E**
 - Regional centre of Excellency on Micro Hydro Technology.
- **RVWRMP/GoN+FINNIDA**
 - MHP and integrated Community Development

Pre-qualified Companies

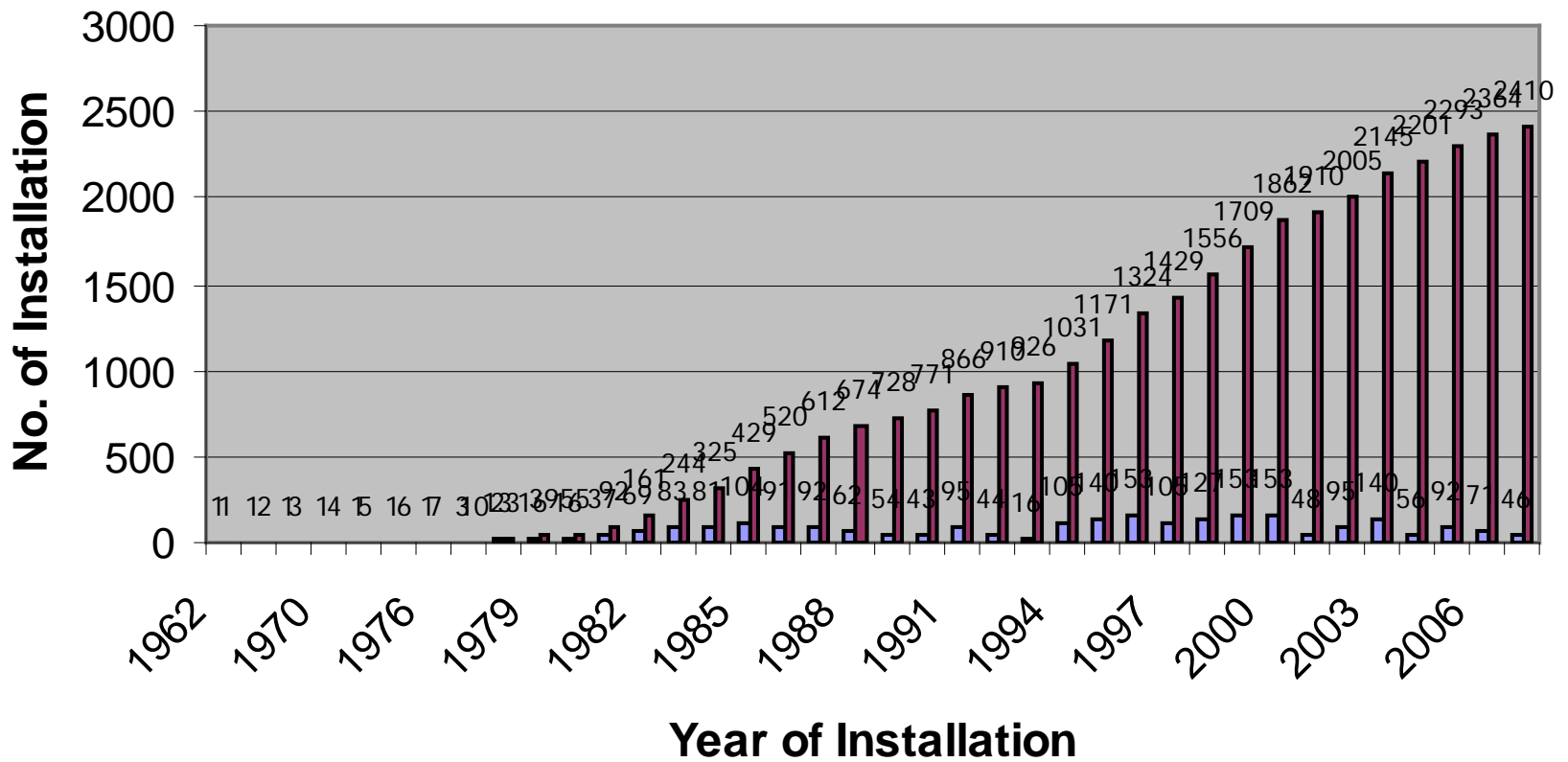
Installation	Up to 1 MW	Up to 100 kw	Up to 5 kw
Companies	6	23	8
Survey/design	500 kW - 1 MW	Up to 100 kw	Up to 40 kw
Consulting firms	8	16	21

Growth trend of turbine mill



■ No. of Installation ■ Cumulative

Year wise MH Installation



■ No. of installation
 ■ Cumulative

Capacity Building

AEPC is conducting several training to the concerned to enhance their capability. These include:

- **Micro-hydro management training for micro-hydro managers**
- **Training on end use diversification for IWM owners**
- **Micro-hydro operators training for micro-hydro operators**
- **Advance operator's training**
- **District level Orientation cum interaction programme**
- **Orientation training to GOs and NGOs**
- **Trainers training for service centre technicians.**

Likewise several studies such as micro-hydro users survey, cost analysis of micro-hydro, development of micro-hydro manuals and catalogue etc are being carried out.

Conclusions and Recommendations

- There are several organisations involved in the promotion of MH
- Integrated development approach;
- End use application and energy hybridization wherever applicable;
- Power supply to national grid after connection;
- Development activities on end use devices should be given the same order of priority as rural electrification;
- Energy development should be based on proper assessment of resources to meet the energy needs of rural people.
- Development and promotion of micro-hydro should be made an integral part of overall rural development.
- Continuous but applied R & D should be carried out for the development of micro-hydro.
- Private sector need to be encouraged to play an important role in the development and dissemination of the technology.

Issues to be Addressed

- Capacity Building
- Soft Loan to buy equipment/Tools
- VAT, Import Duty and Export
- Connection to the Grid
- Integration with Poverty Alleviation Activities
- Slow Decision making

Way Forward

- Integration of MH with the other development activities
- Huge potential to scale up with climate funding (CDM)
- Promote the Mini-grid/local grid
- A comprehensive policy for the sector
- Capacity Building of private sector
- Promote Innovative financing mechanism, micro credit
- A successful South-south cooperation
- Establishing Centre of Excellence for micro hydro
- Decentralization maintaining delivery efficiency

Thank you



Role of Organisation in promoting
MH