



Alternative Energy Promotion Centre

Making Renewable Energy Mainstream Supply to Rural Areas



MICRO/MINI HYDRO POLICIES AND PLANS IN NEPAL



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Alternative Energy Promotion Centre

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Background of AEPC

- Alternative Energy Promotion Centre (AEPC) was established by Government of Nepal in 1996 under Ministry of Environment, Science and Technology
- The objective of AEPC is development and promotion of alternative / renewable energy technologies in Nepal
- Mandate of AEPC for hydro power is up to 1 MW



Historical Development-Mini/Micro Hydropower

The promotion of Micro/Mini Hydro started with the *ghatta* owners replacing traditional water wheels with the cross flow turbines and **Multipurpose Power Unit (MPPU)** on which generators were added on to produce electricity for lighting purposes.



Hydro Power Categorization in Nepal

S.N.	Category	Capacity
1	Pico Hydro	< 5 kW
2	Micro Hydro	5kW to 100 kW
3	Mini Hydro	> 100kW to 1 MW
4	Small Hydro	> 1 MW to 10 MW
5	Large Hydro	> 10 MW

Most of Mini/Micro hydro run on Isolated Mode



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Periodic Plans

- 5th five year Plan (1975-80)-Beginning of Governments commitment
- 6th Plan (1980-85)-Agriculture Development Bank (ADB) launched the Rural Electrification Project:
 - ❖ Waived licensing requirement for Micro Hydro
 - ❖ Deregulated Micro Hydro electricity price
 - ❖ Subsidy of 50-75% for add on electrification
 - ❖ Waived Income Tax for Micro Hydro projects



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Periodic Plans.....

- 7th Plan (1985-90)-Micro/Mini Hydro defined as a tool for agriculture development and cottage and small scale industries
- 8th Plan (1992-97)-Special priority to Energy Sector
 - **Hydropower Policy 1992 put in Place**
 - **Establishment of AEPC as Government Body**
 - **Rural Energy Development Program (REDP) initiated**



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Periodic Plans

- 9th Plan (1997-2002)- Emphasized the need of micro/mini hydro for economic development and environment protection with policy formulation directives and targets.
 - Energy Sector Assistance Program with the support from Danish Govt launched



Periodic Plans

- 10th Plan (2002-07)-Set targets alternative energy including rural electrification
 - Provide electricity services to 12% of the rural people (existing 7%)
 - Install MH capacity equivalent to 10 MW in 47 districts



Status of Micro Hydro Power in Nepal

- Total installed capacity is 9.8 MW (2 MW from pico and 7.8 MW from micro-hydro) in 59 Districts.
- Functional status is 80%
- Total No. of MH Schemes is 1,677
- Electricity supplied from RETs is 7.1% and from MH is 3.5%



Interim Plan for 3 years (2007-2010)

- Access to electricity to additional 4.5 % population by alternative energy (mainly mini/micro and SHS)
- Installation of mini/micro hydro power of 10 MW in 54 districts of Nepal
- Set up Energy and Environment Unit in all 75 districts to coordinate RET activities
- Promotion of Micro/mini hydro CDM projects

The Principle for Policies on Micro and Mini Hydro Promotion in Nepal



Capacity Building

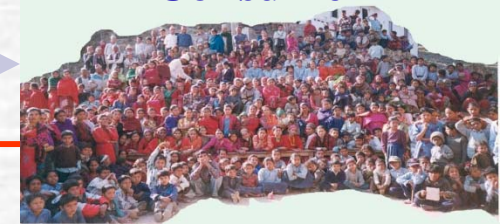
Mobilization, Capacity Building, Subsidy and Credit mobilization

Private Sector

Consumer

RET Supply

Demand & Investment





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Policies Trend for Micro/Mini hydro

- **Hydropower Development Policy 2001**
- **Renewable Energy Subsidy Policy 2000/2006**
- **Subsidy Delivery Mechanism 2000/2006**
- **Rural Energy Policy 2006**



Water Resources Act 1992

No license shall be required for the following use of water resources:

- ✓ Domestic use/drinking water
- ✓ Irrigation of one's own land
- ✓ **Water mill or water grinder**
- ✓ use of boat on personal basis



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Hydropower Development Policy, 1992/2001

- ✓ To generate electricity at low cost
- ✓ To extend reliable and qualitative electric service
- ✓ To tie-up electrification with the economic activities
- ✓ To render support to the development of rural economy Operating small and mini hydropower projects at the local level
- ✓ Make electric service available to as many people as possible



Favorable Policy for Mini/Micro Hydro (1992/2001)

- ✓ No license up to 1000 kW
- ✓ No royalty levied up to 1000 kW
- ✓ No income Tax up to 1000 kW



Highlights of Rural Energy Policy 2006

- ◆ Participation of local bodies (DDCs/VDCs) is mandatory
- ◆ Creation of Central, District and Village level Rural Energy Fund for subsidy mobilization
- ☞ Encourage community based energy development initiative
- ☞ Encourage social mobilisation for dissemination and development of rural energy
- ☞ Focus on energy poverty linkages
- ☞ Promote private sector for the supply of RETs



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Highlights of RE Subsidy Policy 2006

➤ Social Equity

- Targeted to low income households
- Payment mechanism transparent
- NRs 10,000 per HH and (Max NRs 85,000/kW)
- Transportation Subsidy maximum of NRs 3,000/HH

➤ Cost Effectiveness

- Market expansion
- Least cost solution



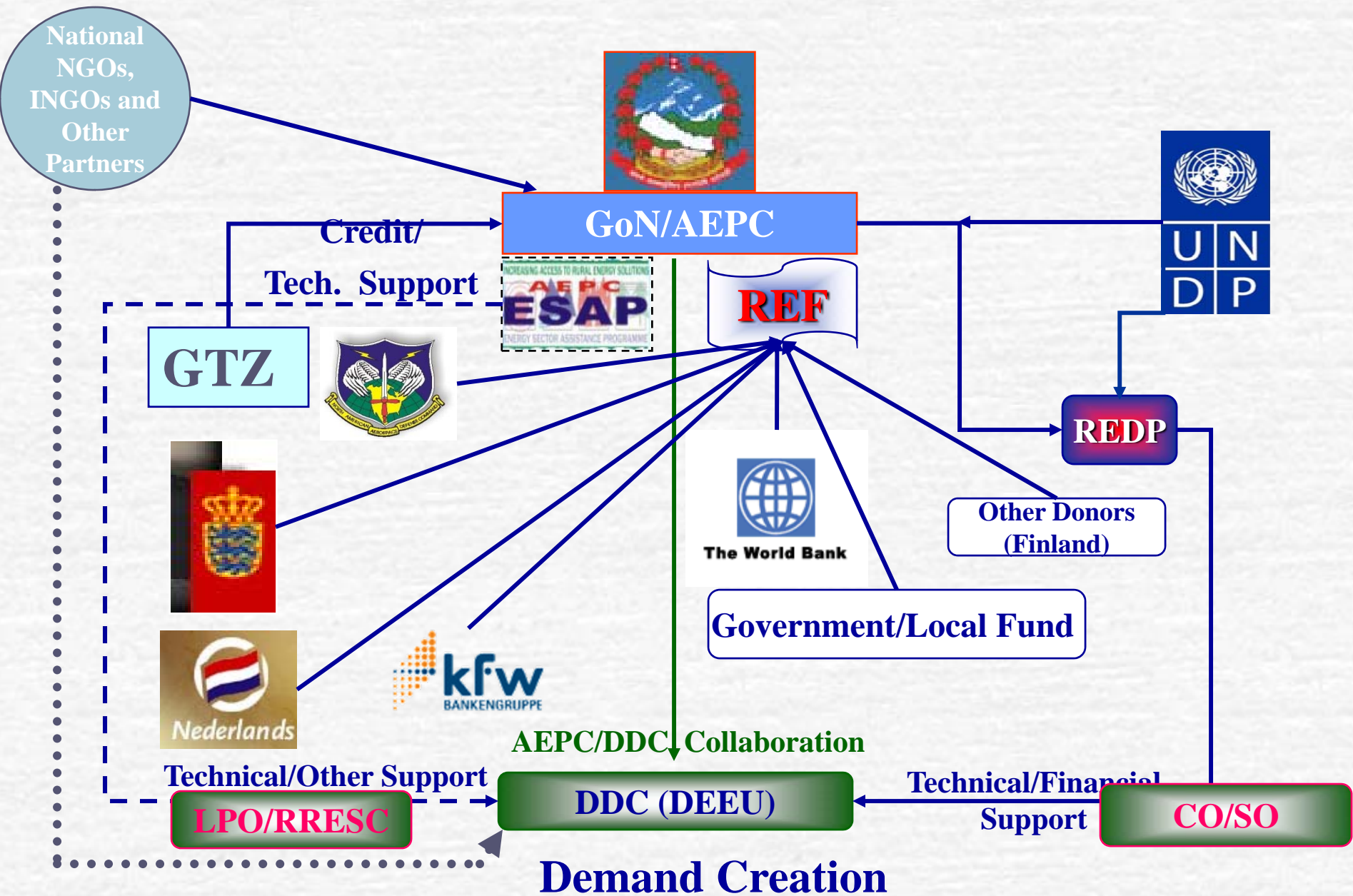
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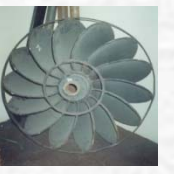
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Highlights of RE Subsidy Policy

- Commercial Market Structure Compatibility
 - Discourage dependence on excessive subsidy
 - Encourage financing institutions to invest in RETs
 - Establish mechanism to promote productive end uses

AEPC's Policy to Coordinate Donors





AEPC

Capacity building

Subsidy

REF

DEF

DDC (DEEU)

- Information Dissemination
- Planning
- Monitoring and Evaluation
- Resource Mobilization
- Conflict Management

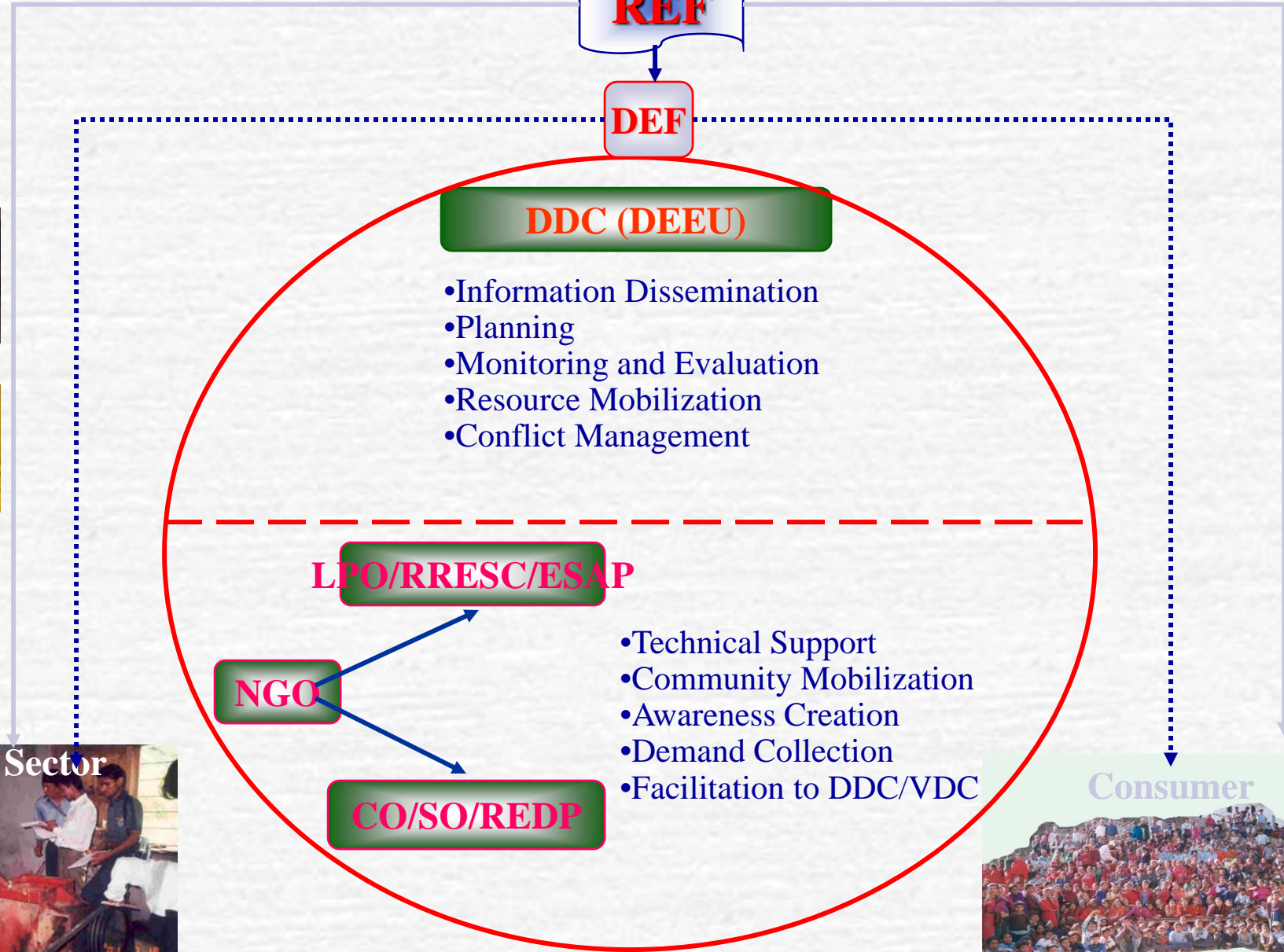
LPO/RRESC/ESAP

NGO

CO/SO/REDP

- Technical Support
- Community Mobilization
- Awareness Creation
- Demand Collection
- Facilitation to DDC/VDC

Consumer





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Future Prospects/Challenges

- Improving the sector capacity (up to 1 MW)
 - Capacity Building of the stakeholders-VDC, DDC, NGOs and Private Sector
- Grid Connection
 - Working out a Power Exchange Agreement (PEA) or PPA (wherever technically and financially viable) with the NEA under NPC flagship



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Purchase of Electricity Generating Plant

- “In case where the licensee is going to distribute electricity in an area where any person or corporate body is already distributing electricity by generating up to 1000 kW of hydroelectricity , if desires to sell the hydroelectricity plant, transmission/distribution line which is operated by him/her, the said licensee shall have to purchase such hydroelectricity plant, transmission/ distribution line on the price as fixed on mutual agreement.”



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Future Prospects/Challenges

- Promotion of Productive End uses
 - Multidisciplinary Approach, market and resource identification, Awareness, capacity building and skill enhancement
- Funding Gap- around 12-15 million Euro (for next five years)
- Credit Gap- around 10 million Euro
- CDM for long term resource mobilization

An aerial photograph of a village nestled in a valley. The village consists of numerous small, closely packed buildings with reddish-brown roofs. The surrounding landscape is a mix of green fields and brownish hillsides. In the background, there are large, rugged mountains with some greenery. The overall scene is a typical mountain valley in Nepal.

Thank You

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