



# Renewable Energy Promotion for Rural Development in Nepal

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# Outline of this Presentation

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- Overview of CRT/N
- Rural Energy Scenario
- Rural Energy Technologies (RET)
- Renewable Energy Promotion (REP)
- REP in 10<sup>th</sup> National Plan (2002 - 2007)
- Factors Influencing REP for Rural Development
- Suggested Strategies
- Conclusions



# Overview of CRT/N

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## Establishment

- 1989 Initiated as a private sector organization
- 1998 After 10 years, resumed as a national NGO

## Objectives

Promote and disseminate appropriate technologies to respond to the basic needs of rural people and create opportunities to upgrade their socio-economic conditions and improve the livelihood of rural communities.



# Overview of CRT/N Cont..

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## Area of Operation

- Renewable Energy and Rural/Appropriate Technology Development
- Technology for Women and Micro Enterprise Development
- Local Water Harvesting System
- Environment and Natural Resource Management
- Rural Sanitation and Irrigation Management



# Overview of CRT/N Cont..

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## Current Programs

- Promotion of Renewable & Appropriate Rural Technologies
- Decentralized Energy Management Initiatives and Strengthening Networks
- National Improved Cooking Stove Program
- Women in Water and Energy Management
- National Improved Water Mill Program



# Rural Energy Scenario

## Overview

- Excessive dependency on biomass energy & low efficiency dominates Nepal's energy systems
- Workload for women due to depletion of forest  
a) collectors b) managers c) users
- Consumption of agricultural residues & animal waste diverted from farms to household energy purposes  
a) health hazards b) indoor air pollution
- Overlooked opinion & decision of women even though women work for 11-14 hours a day whereas men only 8-10 hours



# Rural Energy Scenario Conti..

## Energy Consumption in Rural Nepal

Description	Amount
Total Energy consumption	6,115 toe (tons of oil equivalent)
Energy consumption in rural areas	5,151 toe
Main fuel types to meet the rural energy	Fuelwood Agro-residue Animal Dung
Contribution of traditional fuel	97%
Contribution of only fuel wood	86%
Annual fuelwood consumption	13 million tons in rural Nepal for cooking alone



# Renewable Energy Technologies







# Renewable Energy Promotion (REP)

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- Promotion of Solar, ICS, Biogas, Micro hydro and other renewable technologies has created the positive impact on the life of people but there has been some difficulty for wide spread promotion to reach a critical mass.



# Renewable Energy Promotion (REP) Cont..

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## Present Status

- 215,000 ICS of which 104,000 ICS promoted within last two and half year
- 2,040 micro hydro's developed
- 1500 traditional water mills improved
- 1000 solar box and parabolic cookers promoted
- 31,445 solar home system were installed
- 135,000 biogas installed
- about 40% HHs has access to electricity services



# Renewable Energy Promotion (REP) Cont..

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## Issues and Constraints

- Inadequate awareness, understanding & difficulty in access to renewable energy by the rural community
- Inadequate credit, incentives & its delivery mechanisms
- Lack of adequate energy services & related investment in rural areas
- Lack of a long term integrated rural & renewable energy programs
- Gender issues not adequately addressed



# REP in 10<sup>th</sup> National Plan (2002- 2007)

## Objectives

- Developing and expanding alternative /renewable energy as a powerful tool for poverty reduction
- Meeting energy needs of the rural people through utilization of renewable energy technologies based on the local resources
- Increasing consumption of renewable energy and reducing dependency on imported energy



# REP in 10th National Plan (2002- 2007) Conti..

## Strategies

- Promotion of small and micro hydro-power, solar energy, wind energy and improved stoves in the rural areas.
- More priority to the programs carried out in an integrated manner ensuring the economic, social and environmental sustainability.
- Creating conducive environment to attract community and private sectors in the development and utilization of renewable energy.



# REP in 10th National Plan (2002- 2007) Conti..

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## Strategies Conti..

- Establishment of a separate Rural Energy Fund for the sustainable development of rural / renewable energy
- More emphasis to research and development and technology transfer and increase its accessibility to more people.



# REP in 10th National Plan (2002- 2007) Conti..

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## Quantitative Targets

Rural energy services to additional 12 % of rural population covering 1,000 VDCs from the following sources:

- Installation of 200,000 bio-gas plants in 65 districts (44 MW)
- Distribution of 52,000 domestic and institutional solar PV systems in 52 districts (3.5 MW)
- Promotion of 2,700 solar driers/cookers in 20 districts.



# REP in 10th National Plan (2002- 2007) Conti..

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## Quantitative Targets Conti..

- Installation of 100 solar drinking water and irrigation projects in 15 districts
- Production of 10 MW electricity through small hydroelectricity in 47 districts
- Installation of 4,000 improved water mills
- Production of 20 MW wind energy electricity in 20 districts
- Promotion of 250,000 ICS in the rural areas





# REP in 10th National Plan (2002- 2007) Conti..

## Major Initiatives

- Establishment of AEPC
- Renewable energy subsidy policy/delivery mechanism
- Completion of 20 years RE Perspective Plan
- Various programs launched with support from DANIDA supported ESAP and UNDP supported REDP as well as SNV, the Netherlands and EU
- NGOs and private sectors along with Ministry of Science and Technology playing active role in energy initiatives and program implementation



# Factors Influencing REP for Rural Development

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- Favorable and consistent policies/regulations
- Matching energy needs with locally available resources, right choice of technology and dissemination approach
- Active involvement of stakeholders
- Promoting local skills and knowledge, income generation, drudgery reduction and social and cultural dimensions



# Factors Influencing REP for Rural Development Conti..

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- Integrating renewable energy as development and vital inputs
- Emphasizing decentralized and community based energy systems
- Gradually phasing out subsidy to ensure sustainable promotion and reducing dependency syndrome
- Sensitization gender issues



# Suggested Strategies

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- Adoption of flexibility in renewable energy planning and management
- Prioritize on capacity enhancement
- Establish and expand renewable energy promotion centers
- Encourage participation and collaboration of private sector and NGOs and women's participation in decision making
- Integrate social, cultural and environmental aspects in REP



# Conclusions

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- Strong emphasis and commitment from all sectors to link REP and related technologies with development sectors
- Encourage various organizations and scientific community to play pro-active roles in technology research, skill enhancement, and strengthen program partnership and collaboration
- Strengthen national, regional and international networks and alliances



Thank you