Presentation

on

Increasing Prioritization of Expanding Access to Clean and Modern Cooking Solution in National Energy Access Planning: A Case of Nepal

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14 June 2023
Presentation Outline

- Brief Introduction of Nepal
- Current Energy Situation
- Cooking Fuels Used in HHs
- Various Models of Clean Cooking Technologies
- Government Plan-Targets
- Government Policies
- Opportunities
- Key Challenges
- Lesson Learned
- Collaboration
Brief Introduction of Nepal

• Nepal is a small landlocked country located between China in north and India in East, West and South with the highest mountain - Mount Everest (8,848 m), birth place of Gautam Buddha (Lumbini).

• Total area of the country is 147,516 sqkm and total population is 29.1 million (6.6 million households).

• The total GDP of Nepal is around US$36 Billion and per capita income is US$1,399.

• Country has federal system with 7 provinces and 77 districts (three tiers of Government – Federal, Provincial and Local).

• About 95% of population have access to electricity (Hydropower and other RE).
Current Energy Situation

• Nepal has huge potential of hydropower and other renewable energy sources – solar energy, wind energy and biomass energy.

### Power : Potential / Progress

- Total potential of hydropower: 83,000 MW
  - Economical Potential: 42,000 MW/2,449 MW
- Total potential of Solar PV: 2,100 MW (taking 2% of area)/120 MW
- Total potential of Wind Energy: 3,000 MW (considering 10% of feasible area)/153kW

### Clean Cooking Technologies: Potential/Progress

- Total Potential of Biogas: 1.9 million (Nos.)/439,547
- Total Potential of Improved Cook Stoves: 3 million (Nos.)/1.5 million
- Total Potential Electric Cook Stove: 3 million (Nos)/40,874 Nos

• Almost 50% of the HHs in Nepal are expected using the clean cooking technologies incl. LPG
Current Energy Situation…..

Energy Consumption by Fuel Type 2021

- Fuelwood, 60.4%
- Petroleum Products, 14.3%
- Coal, 9.3%
- LPG, 3.5%
- Electricity, 4.2%
- Renewables, 2.4%
- Agricultural Residue, 3.0%
- Animal waste, 2.9%

Source: WECS, 2022
Cooking Fuels used in Households, 2011 and 2021

<table>
<thead>
<tr>
<th>Fuel</th>
<th>2011 Percentage</th>
<th>2021 Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood</td>
<td>64.40%</td>
<td>50.97%</td>
</tr>
<tr>
<td>Cow dung</td>
<td>10.45%</td>
<td>2.90%</td>
</tr>
<tr>
<td>Kerosene</td>
<td>1.03%</td>
<td>0.05%</td>
</tr>
<tr>
<td>LPG</td>
<td>21.17%</td>
<td>44.28%</td>
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<tr>
<td>Biogas</td>
<td>2.44%</td>
<td>1.20%</td>
</tr>
<tr>
<td>Electricity</td>
<td>0.08%</td>
<td>0.50%</td>
</tr>
<tr>
<td>Other</td>
<td>0.42%</td>
<td>0.10%</td>
</tr>
</tbody>
</table>

Source: CBS Nepal, 2012

Source: CBS Nepal, 2022
Various Models of Clean Cooking Technologies in Nepal
Government Plan – Targets

- Generation of Electricity: 15,000 MW (by 2030)
- Per Capita Electricity Consumption: 1,500 kWh (by 2030)
- Electrification: 100% (by 2024)
- High Voltage Electrical Transmission Lines: 400kV/765 kV
- Electric Cook Stove: 500,000 Nos (2023-2028)
- Electrical Cook Stove to every HHs (by 2030)
- Household Biogas: 100,000 Nos (2023-2028)
- Improved Cook Stoves – Rocket (Tier 3): 490,000 Nos (2023-2028)

- All Provincial Governments have their targets and plans for promoting e-cooking stoves, and other clean energy technologies (such as biogas)
Government Policies

• Providing the direct financial support in terms of the subsidy, tax exemption
• Encouraging the private sector for manufacturing, supply and installation of the clean cooking technologies
• Development of environment friendly technologies
• Reducing the GHG emission through the promotion of clean cooking technologies
• Research and development for increasing the efficiency and reducing the upfront cost of the technologies
• Transfer the technology to the rural areas
• Financing the clean cooking technologies through use of carbon fund
• Increasing awareness to create demand and continuous use of the technologies
Opportunities

- Reduction of indoor air pollution and GHG emission
- Use of locally available clean energy resources and technologies
- Reduction of imported petroleum products for cooking (LPG, kerosene etc.)
- Improvement in health, education and quality of life of people
- Reduction of the workload of women and school going girls
- Green employment generation in the country
- Reduction of the trade imbalance (*Nepal imports the huge amount of petroleum products every year from India, and imported around US$ 3 billion last year 2021/22*)
- Promoting the gender equality and social inclusion (GESI)
- Access to international funding such as GCF, clean cooking fund, challenge fund, innovative fund etc.
Key Challenges for Achieving 100% Clean Cooking Solutions

- The major challenge is to provide the 100% households with clean cooking solution in Nepal by 2030:
  - Designing of the robust clean cooking technologies that can meet the needs of the household
  - Limited local manufacturing capacity and testing, lack of standardization
  - Reliability and sufficient electricity supply in the grid areas for electrical cook stoves
  - Availability, affordability and reliability of the clean cooking technologies
  - Mobilization of the financial resources (internal and external)
  - Access to easy financing such as through micro finance
  - Providing the low cost repair and maintenance services in rural areas
  - Increasing adaptation of the clean cooking technologies
Lesson Learned

• Designing various models of the technologies meeting the needs of the households
• Available, reliable and affordable clean cooking technologies are important factors for successful dissemination of the technologies
• Demand driven approach is key factor for adoption of the technologies
• Standardization, testing, quality assurance and field based monitoring are essential for sustainable operation of the technologies
• Access to finance *(both grant and credit)* should be linked with technical backstopping including minimizing failure of the technologies/models
• Distribution, and repair & maintenance service centre should be in place
• There should be an integrated approach of the disseminating the technologies linking with health, education, income generation and rural development
• Long-term policy and plan in place
Collaboration with CCA and MECS

- Alternative Energy Promotion Centre (AEPC) is collaborating with various development partners, international organizations (primarily with GCF, CCA and MECS) and National Organizations (Practical Action, WWF, CRT/N, BSP-N) for clean cooking solution to 100% HHs in Nepal.

  - Country Action Plan for Transforming the Cookstoves and Fuels Market in Nepal
  - Standardization of clean cooking technologies (such as e-cooking)
  - Market assessment of electric cooking technologies
  - Sharing of information on technologies, modalities and policy measures
  - Resource mobilization on clean cooking technologies
  - Alliance for the wider dissemination of the clean cooking solutions
Thank You So Much
For
Your Kind Attention

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