



# Alternative Energy Promotion Centre

*Making Renewable Energy Mainstream Supply to Rural Areas*



## Biogas Support Program of Nepal: Current Situation and Experiences/Lesson Learnt



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## Presentation Outline

- Introduction
- Major Stakeholders in BSP
- Trend of biogas Installation
- Contribution of biogas in residential sector
- Approaches and Strategies of BSP
- Financial and Policy Incentives
- BSP and CDM
- Impact
- Opportunities
- Main Challenges
- Lessons learnt



## Introduction - BSP

- Promotion of household biogas plant
- First biogas plant was introduced in 1955
- The BSP started in July 1992 with funding from the DGIS of the Netherlands government through SNV/N.
- GoN and the KfW also started funding the BSP from the Phase–III, which started in March 1997.
- The BSP, Phase–IV (July 2003-June 2009) is being implemented
- Fixed dome plants of size 4, 6, 8 and 10 cu<sup>3</sup> capacities has been adopted in Nepal



## Introduction - AEPC

- Government organisation under Ministry of Environment, Science and Technology (MOEST) having autonomous status
- **Major programs:**
  - BSP: biogas (KfW & SNV/DGIS)
  - ESAP: Micro-hydro, SHS, ICS (Denmark & Norway)
  - REDP: Micro-hydro, decentralized energy planning (UNDP, WB)
  - REP: Institutional solar system (EU)
  - IWMP: Improved Water Mills (SNV/DGIS)



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## Stakeholders in Biogas Support Program in Nepal

(1)

- **AEPC**
  - National executing agency for RE programmes and projects including BSP;
  - Mandate for policy and plan formulation, resource mobilisation, monitoring and coordination;
  - Subsidy and financial assistance.
- **Biogas Sector Partnership Nepal (BSP/N)**
  - BSP implementation (capacity building, promotions, data base management, quality control etc)



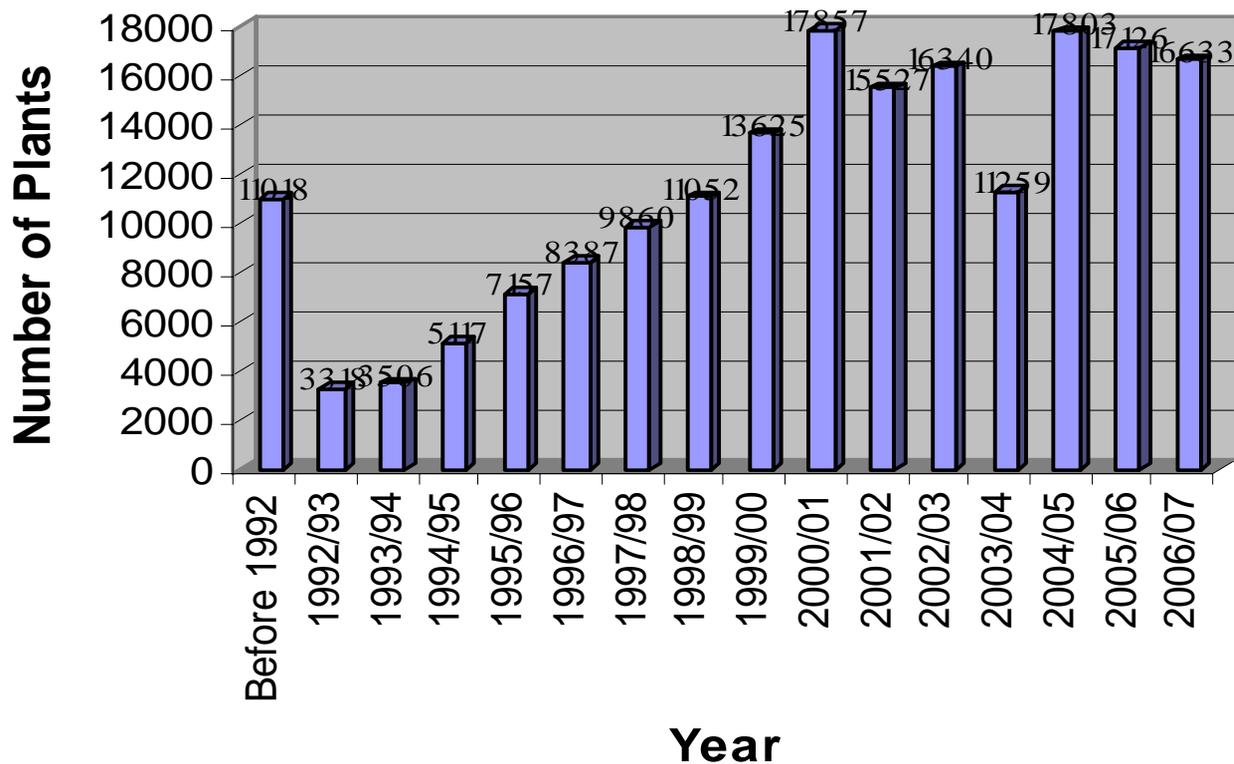
## Stakeholders in BSP in Nepal (2)

- **Nepal Biogas Promotion Group (NBPG)**
  - Advocacy and lobbying in favor of BCs
- **Biogas Companies (BCs)**
  - Plant installation and market creation,
- **Financial Institutions and Local Cooperatives**
  - Credit support to users
- **KfW and SNV/DGIS**
  - Financial and advisory assistance



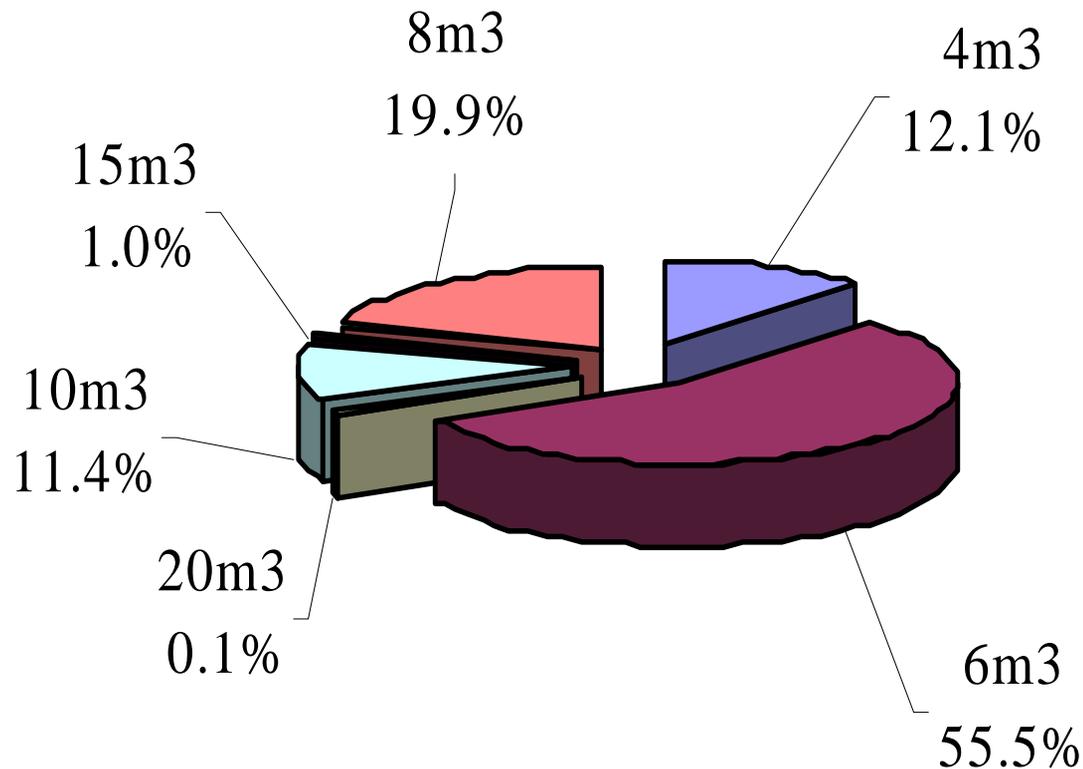
## Trend of Biogas Installation

**Yearwise Biogas Installation**





## Biogas System by Size in Nepal





## Contribution of biogas in consumption of energy in residential sector

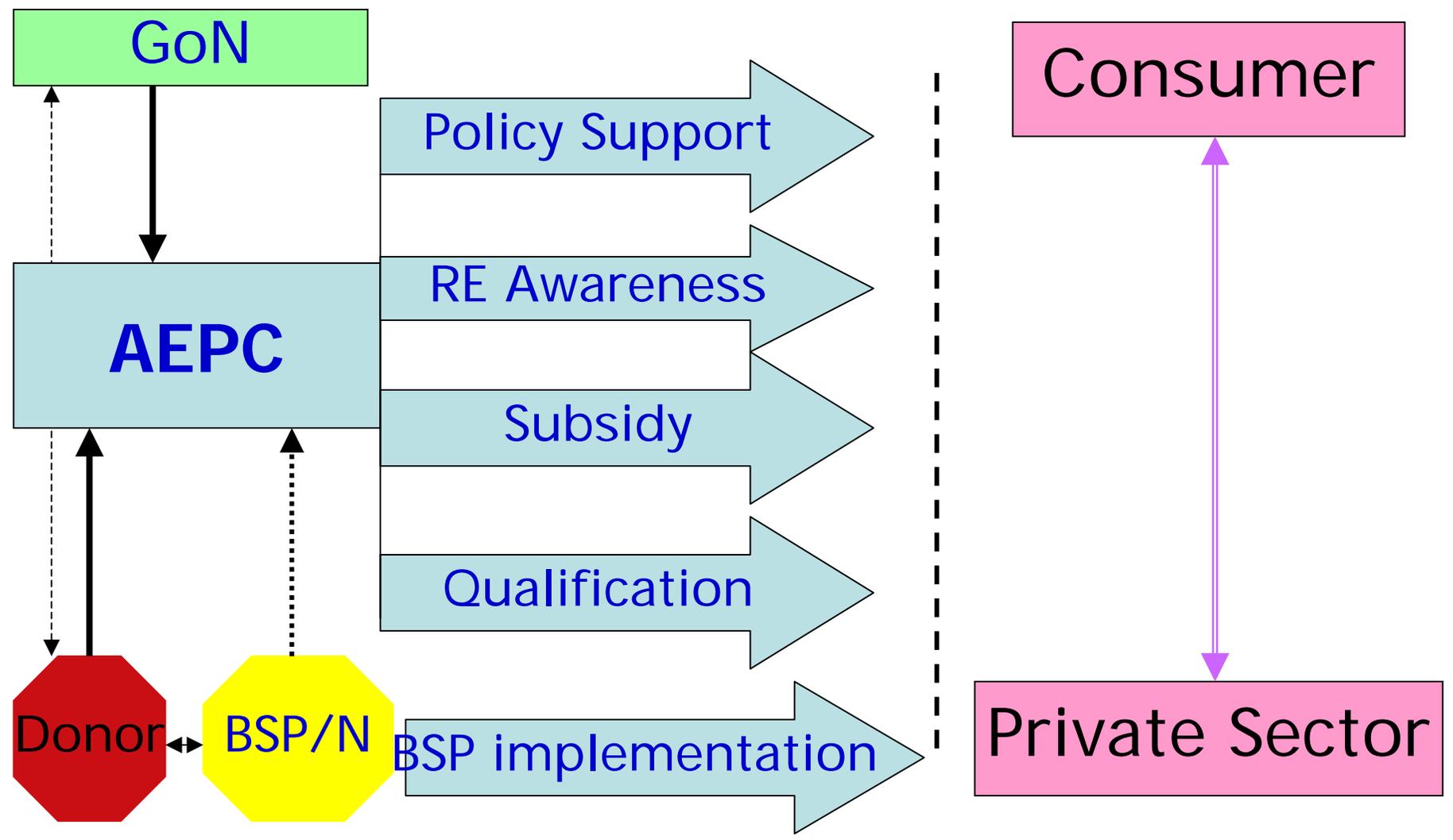
<b>Fuel type</b>	<b>2001/ 02</b>	<b>2002 /03</b>	<b>2003 /04</b>	<b>2004 /05</b>	<b>2005/ 06</b>
Biogas (in 000 GJ)	1392	1620	1731	1903	2078
All (Traditional, commercial, renewable) (in 000GJ)	314,655	320,269	326,321	331,567	338,696
% contribution of biogas	0.44	0.51	0.53	0.57	0.61



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## Private Sector, the Main Player in BSP





## Approach and Strategy of BSP

- Sector Programme Support with a long-term perspective
- Demand-driven (private sector as prime movers)
- Emphasis on quality of goods and services delivered
- Adoption of self regulatory quality assurance system



## Financial Incentive to Private Sector (1)

- Secured market through subsidy provision
  - Financial subsidy is utilized as a major intervention to stimulate the market
- Provision of bonus and penalty system
- Provision of promotion fee for BCs
- Additional support for awareness creation
- Additional support to the poor through Grameen Bank Model (being piloted)
- Additional support for low penetration and remote districts
- Exemption of import tax and VAT for Gas Valve



## Financial Incentive (2)

- Secured CDM resources for gradual financial self-reliance
- Secured GPOBA funding for two more years (beyond 2009) and the programme is likely to be continued by existing donors



## Policy Incentive “Interim Plan (2007/08-2010/11)”

- Financial Subsidy
- Massive promotion of biogas mainly as cooking fuel and slurry for agriculture production,
- Installation of 100,000 biogas plants- 70 districts
  - 99,950 households plants
  - 50 community and institutional plants
- Increase access to low income HHs by providing additional financial support,
- Priority for appropriate & small size plants, R & D.



## BSP and CDM

- Eco-securities, of the Netherlands was hired in Dec 2002 a consultant, which together with its local partner Winrock International prepare the document
- 2 biogas projects got registered with a total of 19,396 plants on 27 Dec 2005
- ERPA signed with CDCF/WB on 3 May 2006 at the rate of US\$ 7
- AEPC received first payment



## BSP and CDM

- CDM EB further improved the methodology, and its 34<sup>th</sup> meeting approved it for recommendation to COP13
- The COP 13 decided to request the CDM EB to approve the methodology with some additional improvement in its first meeting in 2008. Thus the methodology will be approved
- Actions are already underway in collaboration with KfW to develop additional CDM projects in biogas and to carbon trade.



## Impact

- A household saves 3 hrs 40 minutes per day
- Annual saving of Rs, 25,499 (US\$400) per HHs
- The use of fuel wood has reduced by 162kg/months/hh - nearly 2 tons/year/hh.
- 96.2 plants are operational
- Greenhouse gas emission reduction
- Reduce indoor air pollution
- Organic fertilizer reduce use of chemical fertilizer
- 70% toilet attached biogas-improve sanitation in the rural HH



## Opportunities

- The importance and popularity of bio-digester increases with price hike of imported fuels such as kerosene, LPG.
- Only 10 percent biogas plants of total potential is built.
- Positive impact on health, agriculture, socio-economic condition etc of the rural HHs
- Revenue from carbon trading/CDM



## Main Challenges

- Reaching everyone, everywhere, (especially poor and high hill)
- Subsidy is constant (decreasing??) but cost is increasing
- Subsidy on other cooking fossil fuel (kerosene, LPG)
- Linking BSP with local government
- Shortage of working capital for BCs
- Lack of adequate access of credit
- Gobargas rather than biogas



## Lesson Learnt

- Assessed the needs and capabilities of the end users and carried out R & D → finalized the biogas design and the working modality
- Private sector key player plus regular monitoring & QC system → Success of the program
- Educational program → attached toilet to biogas plant  
→ improved sanitation
- Additional subsidy to small size plant plus credit mechanism → increase accessibility to the poor



## Lesson Learnt

- Uniform and transparent administration of subsidies  
→ important factor in convincing the farmers to purchase the biogas plant
- Carbon financing is the sustainable source for biogas promotion



## Conclusion

- Massive scaling up of biogas installation and increase access to poor :
  - pro poor subsidy and credit.
- Involvement of district energy and environment unit under each DDC for promotion and coordination as well as linking with local government,
- Capacity building of private sectors and NGOs to develop them as a Local Capacity Builder
- CDM revenue, sustainable source for the sector



## Abbreviations

- AEPC- Alternative Energy Promotion Centre
- BCs- Biogas Companies
- BCC-Biogas Coordination Committee
- BSP- Biogas Support Programme
- BSP/N- Biogas Sector Partnership Nepal
- CDCF- community Development Carbon Fund
- CST- Coordination Support Team
- DDC- District Development Committee
- ESAP- Energy Sector Assistance Program
- GoN- Government of Nepal
- GPOBA Global Partnership on Output Based Aid
- HHs – Households
- IWMP: Improved Water Mills Program
- MOEST- Ministry of Environment, Science and Technology
- NBPG- Nepal Biogas Promotion Group
- NPC- National Planning Commission
- RET- Renewable Energy Technologies
- REDP- Rural Energy Development Program
- REP- Renewable Energy Project
- RBCC-Regional Biogas Coordination Committee
- RESS- Renewable Energy Sector Support
- WC- Working Capital



**Thank You for  
Your  
Kind Attention.**