

4th Meeting of Network of Experts on Domestic Biogas

Private Sector Development in the Framework of National Domestic Biogas Programmes

**November 29-30, 2007
Phnom Penh, Cambodia**



A Brief Overview of Activities and Outcome of Discussions

May, 2008

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Abbreviations

ABP	:	Asia Biogas Programme
AEPC	:	Alternative Energy Promotion Centre (Nepal)
ASS	:	After-Sale-Services
BC	:	Biogas Company
BPP	:	Biogas Pilot Programme (Lao PDR)
BSP-N	:	Biogas Sector Partnership (Nepal)
CDM	:	Clean Development Mechanism
CITT	:	Centre for Innovations and Technology Transfer (Rwanda)
DAHP	:	Department of Animal Health and Production (Cambodia)
DEP	:	Decentralised Energy Programme
DTW	:	Development Technology Workshop (Cambodia)
EREPDC	:	Ethiopian Rural Energy Promotion and Development Centre
ESMAP	:	Energy Sector Management Assistance Programme (World Bank)
GERES	:	Groupe Energies Renouvelables, Environnement et Solidarités
GPOBA	:	Global Partnership on Output Based Aid
IDCOL	:	Infrastructure Development Company Ltd. (Bangladesh)
KIST	:	Kigali Institute of Science and Technology (Rwanda)
MARD	:	Ministry of Agriculture and Rural Development (Vietnam)
MFI	:	Micro Finance Institutions
NBP	:	National Biodigester Programme (Cambodia)
NBPG	:	Nepal Biogas Promotion Group (Nepal)
PDD	:	Project Design Document
PBPO	:	Provincial Biodigester Programme Office (Cambodia)
SME	:	Small and Medium Entrepreneurs
VAT	:	Value-Added Tax
VER	:	Verified Emission Reduction

1. Introduction

SNV Netherlands Development Organisation has been supporting for the promotion and extension of biogas technology in Nepal since 1992, in since 2003 also in Vietnam, Lao PDR, Bangladesh, Cambodia, and African countries including Rwanda, Senegal, Ethiopia and Tanzania. Under the framework of Asia Biogas Program (ABP), SNV has been supporting Vietnam, Cambodia, Bangladesh and Lao PDR to further disseminate biogas technology at the grassroots level. To broker knowledge between these and other countries, SNV has instituted a network of experts working in the field of domestic biogas technology. The first, second and third meetings of the network members were held in Hanoi, Vietnam; Bangkok, Thailand; and Dhaka, Bangladesh respectively in April 2006, September 2006 and March 2007. The fourth meeting of network of experts was organised in Phnom Penh, Cambodia, during the period November 29-30, 2007.

This brief report summarises the purpose, schedule, presentations and outcome of discussions related to the Fourth Meeting of Network of Experts on Domestic Biogas.

2. Objective of the Meeting

The overall objective of the meeting was to present and discuss possibilities for the development of the private sector in national programmes on domestic biogas. Which strategies could be effectively formulated and implemented, both from the side of the government for the enabling of the business environment as well as from the side of the private sector?

3. Key Agenda

The tentative schedule and key agenda of the 4th Meeting was agreed upon during the third meeting of experts in Dhaka in March 2007. Though the meeting was scheduled to be held in Kathmandu, Nepal, it could not be materialised due to the uncertain political situation in the country. Later, the venue was therefore changed to Phnom Penh, Cambodia. The Biogas Practice Leader prepared the detailed schedule of the meeting and circulated it among the potential participants. He also circulated the draft guidelines for the preparation of the presentations on core theme – **‘Private Sector Development in the Framework of National Domestic Biogas Programmes’**.

4. Schedule

The meeting was conducted for two days. The following table shows the schedule of activities during the meeting.

Meeting Schedule

Day-1: November 29, 2007	
7:30-18:30	Field visit to various communities in Takeo Province to experience the Cambodian Country-side, farming families and learn about the biodigester dissemination practices of the National Biodigester Programme (NBP).
Day-2: November 30, 2007	
08:00-08:30	Opening, welcome and introductory remarks
08:30-11:00	Presentations and discussions
11:00-13:00	Group discussion on specific issues related to private sector mobilisation

13:00-14:00	Lunch
14:00-15:30	Group presentations and discussions
15:30-17:00	Other related issues to the Network, evaluation and closure of meeting

5. Participants

Participants from China, India, Nepal, Vietnam, Bangladesh, Cambodia, Laos, Rwanda, Ethiopia and The Netherlands took part in the meeting. The following table shows the details of the participants.

List of Participants

SN	Name	Organisation	Country of residence	E-mail
1	Ms. Tran Hai Anh	MARD/BPD	Vietnam	anhth@biogas.org.vn
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8	Mr. Jan Lam	SNV	Cambodia	jlam@snvworld.org
9	Mr. Prakash C. Ghimire	SNV	Cambodia	pghimire@snvworld.org
10	Dr. Sar Chetra	MAFF/DAHP	Cambodia	Chetrass@yahoo.com
11	Mrs. Lam Saoleng	NBP	Cambodia	saoleng@nbp.org.kh
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6. Process and Outcome

6.1 Day-1: Field Visit

The activities of the first day of the meeting started with the field visit to biogas households in different locations in Chheu Teal Village in Prey Kabas district in Takeo Province coordinated by National Biodigester Programme (NBP), Cambodia. Participants were divided into two groups and the agenda of the field visit was discussed prior to the departure of the participants to the respective sites. The participants were provided with an explanatory note on the field visit programme prepared by NBP. The staff members of NBP and respective Provincial Biodigester Programme Offices (PBPO) facilitated the visit to the selected biogas households.

The participants visited biogas plants (modified Deenbandhu model) at various stages of construction and operation – operational, construction completed but feeding not done and under-construction. In the households with biogas plant under-construction, the participants collected information on various aspects of the installation from the PBPO Supervisors, masons and the owners. The participants observed the physical status and functioning of operational biogas plants and collected related information from the owners, also on the management of bio-slurry and application on rice fields.



An introductory meeting was organised in PBPO office where, the PBPO director presented the activities being undertaken under the framework of the biogas programme. The participants received a clear picture of the functioning of the PBPO including its progress, roles and responsibilities as well as the problems and prospects.

Following the visits to biogas households and lunch, the participants attended an interaction meeting with the representatives from the main stakeholders of biogas programme at the province including PBPO authorities, masons, PRASAC (micro-finance institute), CEDAC (NGO working for promotion and extension), biogas plant owners and the extension workers. This interactive meeting was very instrumental for the participants in learning about the activities being undertaken by various stakeholders as well as the coordination mechanisms. The following was noted from the discussions:

On the management of masons:

- Proper selection of masons from the early stage is the main key.
- Make sure the demand is high enough for the supply side. Masons need to have plants to build, otherwise; they will find other construction work to do and never come back to build plants.
- Active masons gather with 4-8 helpers to establish a small entrepreneur.

On promotion and marketing:

- It took time (about one year) to promote the biogas technology down to the grassroots level.
- It took a lot of effort and struggle to get every plant built, particularly time consuming, i.e. it took between 3 to 6 times visits to persuade prospective customers and about 2-4 weeks to get their decision making.
- It is necessary to have other stakeholder involvement in the promotion such as the district agriculture officials, local authorities, local NGOs and Village Livestock Agent.
- Special loan for biodigester is very helpful and attractive to boost the production.
- Satisfactory owner (sufficient gas and well performing plant) is the one of the best promoters for this technology.



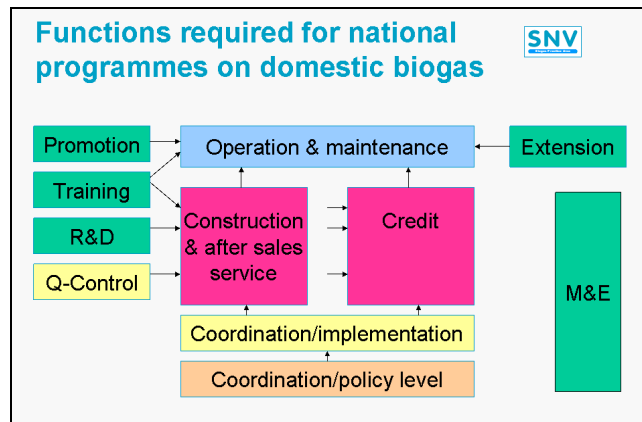
The field visit has been instrumental in enhancing the knowledge of the participants on various aspects of biogas technology dissemination. Observations of the biogas plants, under-construction and operational, as well as discussions with the masons and owners of the biogas plants; have been beneficial for the participants in getting acquainted with the technology dissemination practices in Cambodia. The introductory meeting in PBPO and the interactive discussions with various actors helped the participants to learn the multi-stakeholder approach being practiced in NBP, Cambodia.

6.2 Day-2: Workshop on Mobilisation of Private Sector Institutions in Biogas Programme

6.2.1. Opening and Introduction

The meeting started with the welcome of participants, opening remarks and agenda introduction from Mr. Wim van Nes, Biogas Practice Leader of SNV. He then introduced the theme of the meeting, '**Private Sector Development in the Framework of National Domestic Biogas Programmes**'. He explained how the multiple stakeholders (private sector, government, civil society) work together on the basis of proper role divisions, suitable institutional arrangements and good governance in the framework of

national programmes and stressed the importance of private sector involvement in various functions for national biogas programmes as shown in the diagram given below.



He then highlighted the (potential) roles of private sector in the crucial functions of construction and after sales service of biogas plants and provision of credit to biogas users (the activities in the central part of the diagram). According to him, the private sector needs to become a strong player for the development of the biogas sector towards sustainability and commercialisation. He summarised the following problems being experienced:

- Lack of enabling environment for the private sectors to operate.
- Higher cost of market development, especially in rural areas where the critical mass usually exists.
- Higher investment costs of biogas plant and lack of resources for product development.
- Unhealthy competitions between companies in delivering services.
- Absence of standardisation/certification mechanisms for the product and services, or ineffective enforcement of quality standards; damaging the future market prospects.

He pointed out the need of effective mobilisation of the private sector in countries where the government has failed to enable and stimulate or simply just not allowed the private sector to enter into markets. Based upon the experience from various countries on the status of private sector involvement in biogas programme, he raised the following prime questions for further consideration:

- How best to develop the private sector in the national programmes on domestic biogas?
- Which strategies could be effectively formulated and implemented, both from the side of the government for the enabling of the business environment as well as from the side of the private sector?

6.2.2. *Presentations on private sector development*

The introduction was followed by the presentations from Cambodia and Nepal on the various issues of private sector mobilisation as described hereafter:

a. Promoting Entrepreneurship and Empowering Supply Chain Management

Mr. S. Yohanes Iwan Baskoro from GERES-Cambodia presented a paper on **‘Promoting Entrepreneurship and Empowering Supply Chain Management’** related to the Improved Cook Stove Programme in Cambodia. He focused his presentation in three major areas: Entrepreneurship, Education to Users and Supply Chain Management.

According to Mr. Baskoro, the objective of GERES is to support improved cook stove entrepreneurs as innovators who may drive change in the economy by serving new markets or creating new ways in doing things, such as:

- Reforming the pattern of production.
- Exploiting an invention for producing new commodity or producing old one in a new way.
- Opening up a new source of supply of materials.
- Opening up new outlets for products.
- Reorganizing the industry.

As per him, the main objective of users’ education is to communicate the technology to empower target groups (individuals, family, groups) to:

- Make decisions to adopt the innovation.
- Modify behaviours by applying the innovation (technology).
- Change social conditions through benefits enjoyed from the technology.

Mr. Baskoro then highlighted the traditional as well as improved supply chain management and the role and supports of GERES in doing so as given in the following two figures:

Picture-1: Conventional Supply Chain Management

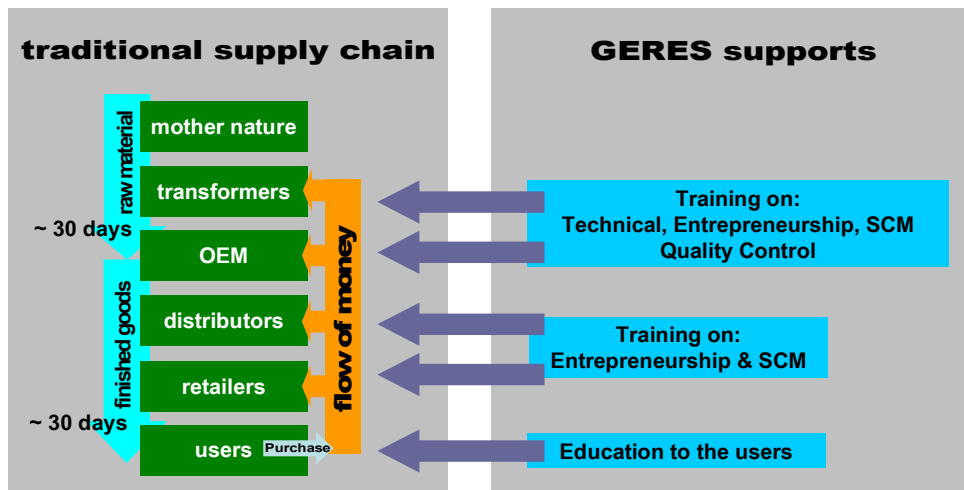
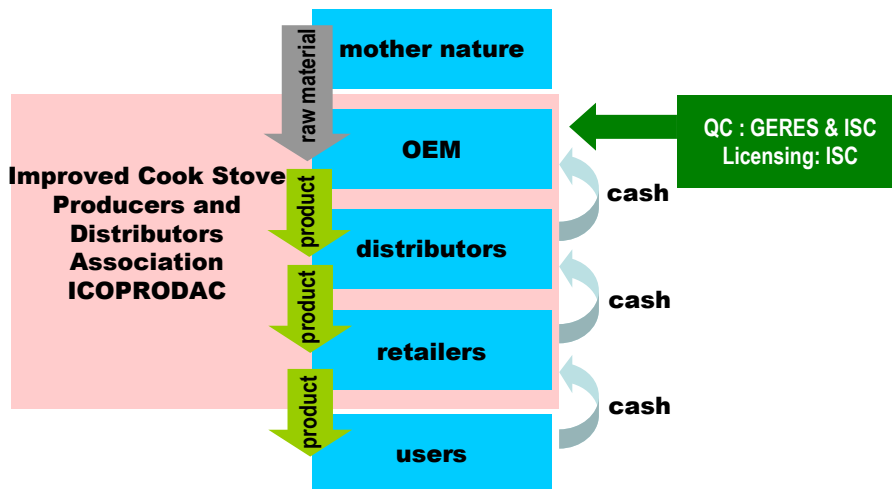


Figure-2: Changed (Improved) Supply Chain Management



Dr. Getachew Eshete from SNV/Ethiopia, Mr. Saroj Rai from BSP Nepal and Mr. Ramesh Gautam from SNV Nepal raised questions on effectiveness and efficiency of the process, provisions for entry of new members in the association and change in total time durations in supply chain management after the introduction of the new system respectively. Mr. Baskoro told that the new system saves 22% as per the standard tests carried out in each 180 days and the production of stoves have jumped from 400 to 14000 per month after the introduction of new system of supply chain management. Pointing out the increase in numbers of association, from 14 to 24, he told that entry to new members is not difficult. Likewise, the number of days spent in the chain management process was told to be decreased from 64 to 34, according to Mr. Baskoro.

In a query of Mr. Jan Lam from SNV Cambodia on the main problems and constraints in mobilizing the SME, Mr. Baskoro reported that the SMEs are not always confident of their product and they doubt if the product could be sold in the present market. Building confidence of SMEs in quality of product and ensuring market for those product have been major challenges.

b. SME and Private Sector Development in Rural Cambodia

Mr. Tony Knowles, Director of SME Cambodia presented paper on **SME and Private Sector Development in Rural Cambodia**. He commenced his presentation with short introduction of Small and Medium Enterprise (SME) Cambodia; SME Renewable Energy Ltd. and SME's association with E+Co, US based non-profit energy investment company. He introduced the rice husk gasifier installed in a rice mill with capacity 2 ton rice/hour in Battambang Province, Cambodia in which a Fine Biomass Gasifier (FBG) supplies "producer gas" to the existing diesel power plant and replaces 75% of diesel fuel previously consumed. He then highlighted the following key factors that determine rate and quality of rural economic growth in a country like Cambodia:

- Rule of law - Security for social/business stability.
- Efficiently operating government and public services for beneficial use of public resources/taxes for all.
- Coherent and equitable government policies for improved health, education and economic welfare.
- Unselfish political leadership that provides role model ethical direction and vision for citizens.
- Education services and levels for the equitable distribution of productivity and income.

He also shared his views on the key factors that determine pattern of rural economic growth in the country as follows:

- Efficient markets and marketing systems to ensure increase in competitively priced goods and services.
- Demographic profile of population that determine demand for and type of public services.
- Efficient financial services, markets and systems (banks, credit unions, business credit) to increase private savings/wealth and private investment.
- Progressive trade and investment policies for business and economic expansion.
- Agriculture training, knowledge and skills levels to enhance agriculture production & quality.
- Non-Agriculture skills levels (Business operation and management) to increase farm and non-farm incomes.
- Physical Infrastructure: Transportation, Water, Communications and Electricity Systems to lower transport and marketing costs as well as agriculture production costs and increase rural business returns.
- Size and location of population that determines market and services development opportunities and options possible.

He then highlighted the specific obstacles to private sector development in rural areas of Cambodia as given below:

- Low levels of trust amongst individuals, families and business owners that is: limiting level of cooperation and collaboration between entrepreneurs and enterprises; inhibiting establishment of standards and uniform procedures and practices and retarding and delaying the development of private sector business institutions.
- Lack of confidence and trust in government officials and government institutions. Individuals and enterprise owners adopt an attitude of avoidance and suspicion of government officials who are often seen as predators not partners in achieving their business development goals.
- Lack of experience and awareness of both Cambodia internally and its relationship with neighbours and the world which is inhibiting their ability to recognize and access information, technology and market opportunities.
- Lack of awareness and understanding of how market economies operate (wholesale, retail, import/export, letters of credit, banking and financial transfers etc.) limiting ability to visualise how to set and realize market goals either individually or in partnership with other Cambodian or international firms.
- Limited access to credit in forms useful to rural business limiting borrowing to short term (1-2 year) periods with relatively high interest rates.

- The Ochn'á business culture (putting money in political parties) that marries political allies and elite business owners through non-transparent, non-market based payments resulting in creation and perpetuation of a “feudal” type business structure and mentality within the Cambodian private sector that initiates marked distinction separating Phnom Penh based and rural based businesses. This “culture” is encouraging misallocation of public resources and reduces private sector competitiveness.
- Low levels of financial literacy amongst all levels of rural enterprise hence they have partial understanding of interest rate calculations and investment comparisons.
- Business management style and approach that does not evaluate business investment with respect to return on investment encouraging people to manage business using simple family business practices with minimal records, few legal ownership documents or agreements, non-tax paying, no depreciation calculations.
- Limited capacity of enterprise operators to evaluate and implement long term business investment strategies and hence, investment and borrowing decisions are often made by simply following the actions of respected neighbour or relative rather than detailed calculation of financial benefits and costs.
- Inconsistent, incomplete and contradictory investments from various development organizations attempting Private Sector development resulting in unconnected and discontinuous initiatives scattered throughout the country.
- Low incentive and motivation for government officials to improve the efficiency, profitability of rural businesses. Levels of effort by government departments is uneven shifting to newly funded projects as older project funding is complete.
- Attitude and practices of professional consulting firms to simply “follow the money” and adjust their labels and methodologies to match shifting donor themes. In the last decade they have focussed and then moved on from “micro credit to micro-enterprise, to SMEs, to Porter’s Cluster theory, to business development services, to value chain approaches etc.” Few donor projects are using their resources to effectively assist and stimulate the private sector. Instead the funds are channelled through and absorbed by government officials and high cost TA contractors. Long term capacity building of private sector institutions is not supported and therefore does not develop.

Initiating the discussion on the paper, Mr. Robert van den Heuvel from SNV/Vietnam asked Mr. Knowles to share his views on tackling the so many problems existing in the country to mobilize the private sector. Mr. Knowles expressed that decentralization of resources to the grassroots institutions and working directly with the private sector to identify their capacity building and service delivery needs could be better solution to overcome majority of the constraints.

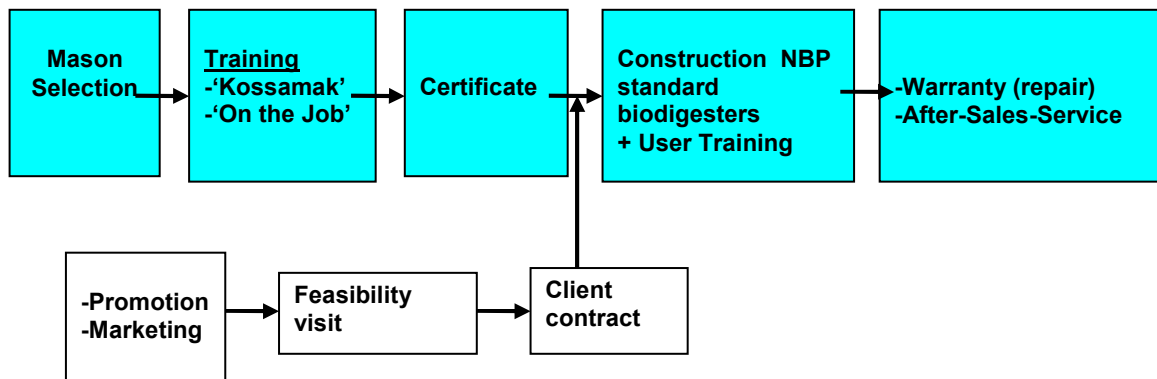
Mr. Uttam P. Jha from SNV/Nepal raised the issues of building the level of confidence of small and medium enterprises. He also feared that establishment of associations in ad hoc manner may not be the right solution. Mr. Knowles view was to let these enterprises decide what they need and opt to do, rather than imposing the ideas from top. The best way to strengthen these enterprises according to him is to give them required resources (financial as well as technical) and celebrate their success rather than formally registering them and doing nothing to build their capacity to deliver.

Sharing his views, Mr. Anil Dhussa from Ministry of New and Renewable Energy, India pointed out the need of lot of efforts from private sector to promote and extend biogas technology by creating market and exploiting the critical masses. He emphasised the need of joint venture efforts with government to capacitate the private sector. In his view, the efforts from government could begin with carrying out a feasibility study to determine potential for biogas units and allocate resources necessary for capacity building.

c. Outcomes of Private Sector Development Study carried out under the framework of NBP

Mr. Jan Lam from SNV/Cambodia presenting his paper **on the outcomes of private sector development study carried out under the frameworks of NBP, Cambodia** highlighted the outcomes of a study conducted in April/May 2007 with the objective to determine the ideal but realistic profile of biodigester construction companies who will be active in future in the Cambodian biodigester sector and what actions and/or support is needed establish such companies in the coming two year time period (till end 2009).

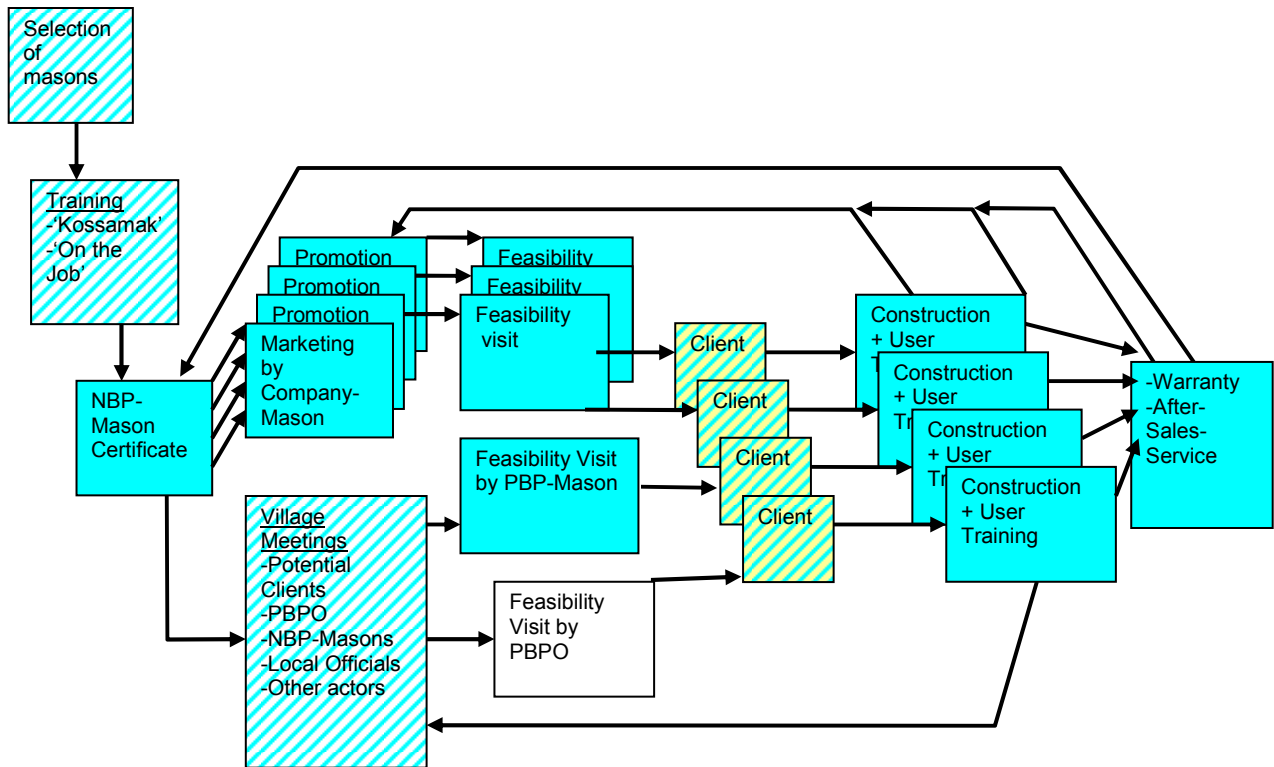
Presenting the existing situation of the involvement of private sector in NBP, Mr. Jan Lam told that the masons are used as contract labourers without responsibility for marketing and client contracting. They are not required to keep an administration of the plants they have constructed although they have to visit them twice a year for a 2 year period under the guarantee conditions. Construction contracts are signed by the farmer, mason and PBPO as indicated in the following flow-diagramme:



He then presented the anticipated scenario of the private sector mobilisation after 2 years as given on the next page.

Presenting the major findings of the study as related to mobilisation of private sectors, especially the existing masons, Mr. Jan Lam pointed out the following issues:

- Absence of registered small construction companies, there are no 'example companies'.
- Absence of rural vocational training, need to continue with Preak Kossomak Institute.
- Lack of capacity among rural construction technicians.



- No special requirements for registration needed when operating on district/province level only. Yearly flat rate tax fee needs to be paid, approx. \$25.
- There are hardly any official quality/safety standards for the construction sector.
- Masons with initiative are willing to develop into companies if they are convinced of the long-term perspective.
- Seed capital is required for new companies to invest in transport, administration, etc.
- The present technical training is not sufficient to cover the needs.

The following risks were envisaged to mobilise the existing masons to establish a company:

- Construction labour demand from the urban centres.
- Reluctance from PBPOs to accept new role with less hands-on responsibilities on the marketing, construction and A-S-S side.
- Moving from contract labour to registered company can lead to higher (over-head) costs and therefore more expensive plants.

Based upon the findings of the study, the following recommendations were suggested:

- Improved mason selection process.
- Besides the 'regular' biodigester training, a NBP Contractor Training needs to be developed.
- NBP has to develop a Code of Conduct for masons and contractors.

- Biodigester contractors have to be involved in NBP policies regarding promotion, quality management, etc. Therefore contractors need a union to speak on their behalf.
- Newly established companies should have access to seed capital (motorbike with trailer, tools, etc.). NBP should intermediate for this.
- The cost estimation model needs reviewing to include the companies cost for marketing, transport administration and other over-head costs.
- NBP must make it possible that companies distinguish themselves from other masons by their appearance. NBP should adjust promotion activities to suit the companies.
- Biodigester Construction Companies have to be registered in the province/district where they are active.

At the end, the under-mentioned immediate action plan was suggested:

- NBP will seek the services of a long-term consultant to follow-up on the recommendations and to start with (pilot) biodigester construction companies in selected districts/provinces;
- New companies will receive management and other support over a longer period of time;
- Financing from WB-ESMAP, request is pending or from own means (reduced set-up).

Mr. Raoul Snelder from SNV/Benin wanted to know if there are existing companies working not in biogas sector but in construction industry. He also expressed his view that the companies could not limit their areas of operation only to biogas sector however, for their sustainability they should work in other sectors too.

Mr. Saroj Rai from BSP Nepal shared his view that the establishment of a company and successfully sustaining it is not an easy task. He expressed his fear that the would-be companies established under the initiation of NBP may become over dependent on the project.

Mr. Jam Lam responded that there are hardly any small construction companies existing in the programme areas in Cambodia. Rather than fuelling resources to establish and operationalise biogas companies, NBP is willing to create an enabling/protective environment until these companies are capable to operate by their own. According to him, NBP will play the role of incubator to ensure the survival of these companies.

Mr. Ehsanul Haque shared the success history from Bangladesh in mobilising local non-governmental organisations in delivering services related to renewable energy technologies.

d. Enabling Private Sector Development in the Biogas Support Programme (BSP) in Nepal

Mr. Ram Prasad Dhital, Renewable Energy Sector Support Coordinator in Alternative Energy Promotion Centre (AEPCC), Nepal, presented paper on '**Enabling Private Sector Development in the Biogas Support Programme (BSP) in Nepal**'. According to him, the following are the major stakeholders in biogas sector development in Nepal:

- AEPC : Government organisation under Ministry of Environment, Science and Technology (MOEST) having autonomous status; a national executing agency for various RE programmes and projects mandated for policy and plan formulation, resource mobilisation and coordination as well as subsidy and financial assistance.
- Biogas Sector Partnership Nepal (BSP/N): Programme Implementation including capacity building, promotions, data base management, quality control etc.
- Biogas Companies (BCs): Plant installation and market creation.
- Nepal Biogas Promotion Group (NBPG) - Advocacy and lobbying in favour of BCs.
- Financial Institutions and Local Cooperatives: Credit support to users.
- KfW and SNV/DGIS: Financial and advisory assistance.
- Users and Potential farmers- Investing in biogas installation, operation and maintenance.

He then highlighted the important role of private sector organisations in disseminating biogas technology in Nepal. The private sector (NBPG) has been represented in all major decision making bodies within the framework of biogas programme in Nepal as described below:

- NBPG in Biogas Coordination Committee (BCC): BCC's role is to ensure overall coordination, guidance and monitoring of programme.
- NBPG in Coordination Support Team (CST): CST's role is to support BCC in issues related to programme implementation.
- NBPG in Company Qualification: AEPC qualifies BCs based on criteria set by BCC; BSP/N makes agreement with the qualified BCs for construction of biogas plants.
- NBPG in Quotation Finalisation.
- BCs in Credit Mobilisation: facilitates and coordinates with banks, MFIs etc. to ease credit flow to beneficiaries.

Mr. Dhital emphasised that the apex body of the private sector companies, NBPG, has been considered as a strong and important partner in dissemination of biogas technology in Nepal. AEPC has been implementing capacity building activities such as awareness building, training of mason, supervisor and managers, as well as training for organisation development and management through AEPC. Similarly, NBPG and Regional Biogas Coordination Committee (RBCC) are supported by AEPC for office management and promotional activities. Moreover, BSP-N is gradually transferring programme activities to NBPG based on its capacity to handle.

According to Mr. Dhital, despite the effective role of private sector in the biogas programme in Nepal, the following major challenges still exist:

- Penetrating into poorer section of the society.
- Service delivery to rural isolated communities far from transportation network.
- Decreasing subsidy vs. increasing cost of installation.
- Linking BSP with local government.
- Shortage of working capital for BCs. Poor working capital is a major problem faced by BCs, and this has led them into a vicious cycle of poor profitability, resource crunch, management deficiencies and limitations in capacity, and to further poor profitability. The ultimate results of the working capital problem are poor management, unhealthy competition, unmet quantitative targets.

He then described the following financial as well as policy incentive (as per Proposed Interim Plan - 2007/08-20010/11) being provided to the private sector:

- Secured market through subsidy provision: Financial subsidy is utilized as a major intervention to stimulate the market.
- Standard criteria for performance evaluation and grading.
- Provision of bonus and penalty system.
- All payment to BCs through the bank account.
- 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.
- 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.
- 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 households by providing additional financial support,
- Priority for R & D on appropriate & small size plants.
- Initiation of advance subsidy: The advance subsidy payment against bank guarantee at a rate of Rs. 2,000/ plant is given for plants constructed by individual companies in the previous fiscal year. However, companies should increase their plant production by 20% compared to previous year. Company who can not submit bank guarantee gets credit through NBPG at the time of purchase of appliances.

Mr. Dhital also highlighted the following responses from private sector on incentives based upon the Biogas Users' Survey 2006/07 and other studies:

- Although, only 7 BCs (out of 25 BCs) were able to exceed the production by 20%, their profitability has been increased accordingly.
- 50% Companies stated that their capacity has increased.
- Subsidy payment system has been improved but yet it is not enough. It should be made timely and frequency to produce construction reports should be increased.
- Subsidy should be continued and even be increased based on market price.
- Minimum plant construction quota should not be the prerequisite.

Concluding his presentation, Mr. Dhital told that the pro-poor subsidy and credit system has been instrumental in massive scaling up of biogas installation and increase access to poor which in turn has created an enabling environment for private sector companies to foster.

Mr. Wim van Nes highlighted the tremendous growth of biogas companies in Nepal with in 15 years of programme implementation. He expressed full satisfaction on the growth of companies, as the number has been increased from one semi-government company in 1992 to 65 well established companies in 2007.

Dr. Getachew Eshete from SNV/Ethiopia raised a question on the sustainability of the programme. He raised the issue of lobbying for additional subsidy despite the fact that Biogas programme in Nepal is more than 15 years old. Mr. Ram Dhital pointed out the need of subsidy to penetrate into the poorer section of the society, the people in the lower level of the pyramid. According to him, in the initial phase of dissemination of any technology, they are the people in the upper part of the pyramid who adopt it and enjoy the benefit. The people in the lower part of the pyramid, due to their marred ability to afford the new technology, often get excluded in the initial years. Subsidy is seen as vehicle to play a vital role in stimulating interest of the people in this regard.

Dr. Fokhrul Islam from SNV/Bangladesh raised a query - why Nepal is importing chemical fertilisers from abroad despite the significant number of biogas plants producing bioslurry inside the country? He asked if there are any incentives to encourage biogas companies to popularise the use of bioslurry in farms to replace the chemical fertilisers. Mr. Dhital agreed that biogas companies at the initial phases of programme implementation were much concerned about the production and effective utilisation biogas than bioslurry. He told that the fifth phase of the programme in Nepal is decided to be named as 'Biogas and Bio-slurry Support Programme' instead of the present 'Biogas Support Programme'.

e. Success and Failures of Private Sector in the Biogas Support Programme in Nepal

Mr. Keshab Dutta Dawadi, Programme Manager of Nepal Biogas Promotion Group (NBPG) delivered a presentation on various aspects of private sector involvement in Nepal's biogas programme. He started his presentation with the history of dissemination of biogas technology in Nepal and evolution of private sectors including biogas companies. The following two diagrams (next page) show the growth of biogas plant construction companies and biogas appliances manufacturing companies in Nepal.

Mr. Dawadi then talked about the evolution of Nepal Biogas Promotion Group (NBPG), an umbrella organisation of biogas companies, its vision, mission and current activities. He highlighted the following roles and responsibilities of NBPG and the private biogas companies:

Responsibilities of NBPG

- Advocacy of biogas programme (policies, rules and regulations) at the meso level and promotion of biogas technology at the micro level.
- Conduction of skill enhancement training packages for masons/supervisors.

Diagram: Growth of Biogas Plant Construction Companies in Nepal

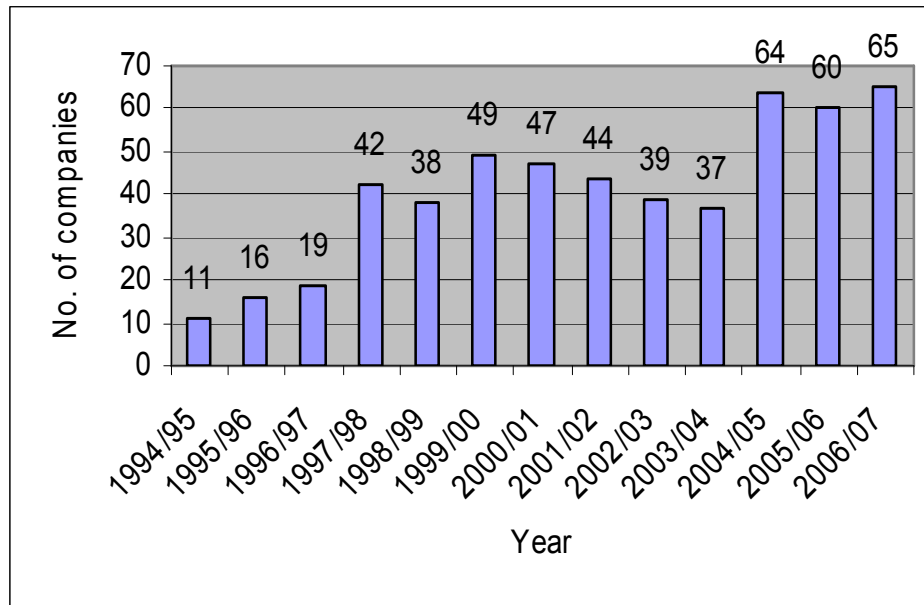
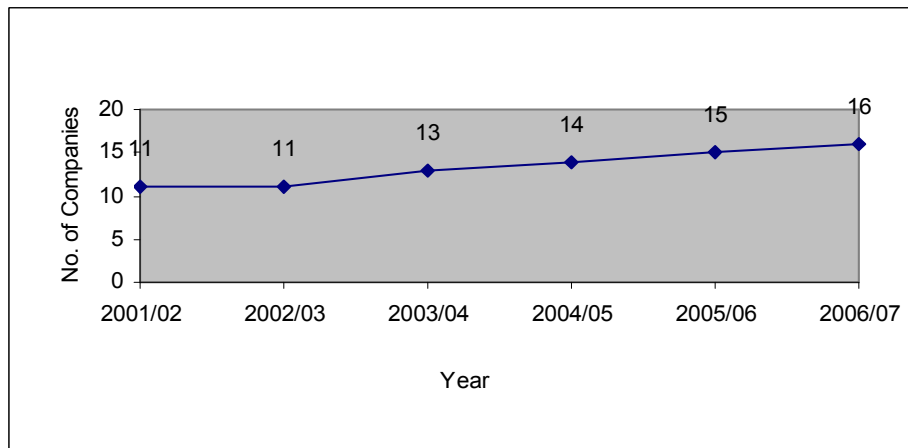


Diagram: Growth of Biogas Appliances Manufacturing Companies



- Provide business promotion services to biogas companies.
- Promote interests of biogas companies and self-regulate them through the code of conduct.
- Arrange and supply biogas plant materials (kits), especially to biogas companies that have low business volume.
- Coordinates with development partners at micro and meso levels together with BSP/N and biogas companies.

Responsibilities of Biogas Companies

- Disseminate information on biogas programme, its benefits, the subsidy, credit and other related issues to users.
- Promote market and construct quality biogas plants.

- Handover the Users' Manual and other information materials from BSP/N and train the users on operation and maintenance of the plants constructed.
- Provide training to the users on proper composting and use of slurry.
- Visit biogas households regularly to deliver effective after-sales service during guarantee period, and beyond guarantee period on demand.
- Facilitate and coordinate with banks, MFIs etc. to ease credit flow to beneficiaries.

Describing the achievements of private sector in Nepal's biogas programme Mr. Dawadi highlighted the following success story:

- Recognition from government and other sectors as major stakeholder and key actor in biogas technology dissemination.
- Successful in installing more than 180,000 biogas plants out of which more than 90% are believed to be operational.
- Successful in creating employment for 3,000 people across the country.
- Major actor to construct plants and working through out the country with wider network in 67 districts out of 75; having 180 branches all over Nepal.
- NBPG is emerging as private sector organisation having its own vision and mission to contribute biogas programme in Nepal.
- Even in insurgency companies worked very hard; built the plants and protected the sector from decline.
- Able to train 5,866 masons/supervisors (4,790 masons and 1,076 supervisors) to develop the sector.
- NBPG has created its regional networks and introduced code of conduct for quality assurance from private sector's side.
- Contribution in production and supply of biogas appliances through appliances manufacturers.
- Successfully lobbying for favourable/supportive government policy.
- Trust and congenial working relationship with the users.
- NBPG is in the verge of becoming a strong association of private sector companies.

Mr. Dawadi also described the following problems and constraints that have hindered the effective mobilisation of private sector in biogas programmes in Nepal:

- Lack of clear strategic direction including business plans with in the companies.
- Companies are mainly competing in existing market and have not been able to create the new markets.
- Weak quality control mechanisms within companies.
- Over dependency on one product.
- Over dependency on BSP.
- Limited number of professional staffs in companies and NBPG. Temporary nature of staffs and higher staff turn-over.
- Ineffective enforcement of code of conduct.
- Subsidy oriented biogas construction trend limiting the commercialization possibilities.
- Unfavourable political and security situation.
- Increasing cost of construction materials verses decreasing subsidy rate.
- Banks and even MFIs have scaled down their areas of operation due to security and uncertainty of loan recovery.

- Market in accessible areas and with relatively better off households is getting saturated.
- Limited income sources of NBPG.

According to Mr. Dawadi, the following initiatives are important for effective functioning of private sector in biogas programme in Nepal:

- Build capacity of companies on modern business management practices.
- Promote quality management system based on ISO for well functioning companies.
- Encourage companies in market research and diversify the products with the inclusion of other RE technologies.
- Enforce code of conduct more effectively by integrating it in quality assurance system.
- Orient companies more on plant construction in conflict and low penetrated areas giving incentives.
- Integrate inflation adjustment measures in subsidy policy.
- Develop biogas to provide multi-fold benefits to poor integrating slurry trade, milk production, agri-business, etc.
- Develop NBPG as service oriented organisation generating more incomes from services delivered.

Mr. Ehsanul Haque from IDCOL Bangladesh expressed his satisfaction on the increasing number of biogas companies despite the deteriorating security situation in Nepal. Mr. Raoul Snelder from SNV/Benin asked question on the increasing number of companies verses quality assurances. Mr. Jan Lam from SNV/Cambodia wanted to know if there is any compulsion to become a member of NBPG to operate in the sector and have access to government subsidy. He also wanted to know about the internal mechanisms within the companies on quality control. In reply, Mr. Dawadi told that there is no compulsion for the biogas companies to be a member of NBPG, however, joining NBPG entitles them to receive incentives and benefits. He told that the companies are abided by the code of conduct and they have to comply with it.

Mr. Dereje Yilma from EREPDC Ethiopia asked the reason for the decrease in number of biogas companies in FY 2003/04. He also wanted to know if there are any other government and semi-government organisations that provide similar training as NBPG is doing. Mr. Dawadi told that the main reason for the decline of the number of company was the unwillingness of some companies to abide by the strict quality control mechanism formulated in that year. Some companies also stopped their activities due to the worsening security condition in the country. On answer to the second query, Mr. Dawadi told that some engineering colleges were conducting such training in the past; however, because of anticipated ownership of the activity, NBPG has been entrusted to carry out biogas related training programmes at present.

6.2.3 Group Discussion and Presentation

a. Preparation of Group Discussion

Mr. Andrew Williamson and Mr. Bastiaan Teune initiated the session with the highlighting of objective of the groups discussions. The purpose of group discussion, according to them, was to build on the presentations and exploit the experiences and expertise of the participants to find out the way ahead in mobilising the private sector more effectively in the sector. They requested the participants to come up

with key points that are important and relevant for moving forward to develop private sector rather than coming into conclusions and consensus. They put forward the following three core questions for further discussions.

- i. Why/how private sector will be involved in dissemination of biogas technology?
- ii. What is the road map for the future – biogas sector vision 2015?
- iii. What enabling environment is needed for effective mobilisation of private sector?

Ms. Helena Korhonen from Triodos Bank, The Netherlands, wanted to know whether financing will be the part of discussions.

Mr. Saroj Rai had the query in the third question. According to him the term enabling environment is quite vague and ambiguous. He wanted to know if the pro-poor policies and equity issues are the parts of third question.

Mr. Getachew suggested integrating other sectors such as Water Supply and Sanitation with biogas for the sustainability of the involvement of private sector.

Mr. Robert van den Heuvel told that the issue of proper transition from government-ownership to private-sector ownership is key in the context of Vietnam. For Vietnam, according to him, the key question is how to shift the ownership of biogas programme from provincial offices to private sector.

Mr. Anil Dhussa wanted to know if the issue of technology, such as making technology friendly/conducive to private sector is also a part of discussion. He asked whether we need to have something to be done to the product/technology to make it private sector friendly. According to him, there may be some alternative raw materials for biogas production that can be interesting to the private sector.

Mr. Ehsanul Haque wanted to know if any of the three questions cover the issues of research and development. He asked if it is a part of Vision 2015 – the second question.

Mr. Wim van Nes suggested focusing the group discussion on private sector development not to the implementation of biogas programme.

The participants were then divided into three groups - each to discuss one issue as mentioned above.

b. Outcome of Discussions

Mr. Andrew Williamson facilitated the session on presentation of summary of group discussions. He asked the presenters to be specific on the major findings of the discussions. The following section provides the outcome of the discussions.

Group-1: Opportunity of Private Sector in Biogas Programmes

Mr. Robert van den Heuvel presented the outcome of the discussions of the first group. His presentation was focussed on the core question - why should the private sector engage in the biogas sector?

Chances for Private sectors to engage in a transaction process supported by:

- Ministry & Departments
- Provinces
- Donors
- Biogas Programmes

Entrepreneurship

- Choice: constructors (not appliances, trainers, banks)
- Wants to make money
- Social entrepreneurship?
- 3 types: individuals, groups of masons, companies
- A sector is emerging → first movers will benefit

The start

- Entry point in an interesting sector (RE, biogas, several issues)
- Information gathering: Livestock information, Energy sector, Sector regulations (> 10 pigs, environment regulations), Tax & incentives

Technology & innovation

- Develop the business case with innovation
- Prefab & plastic options:
 - Improvement
 - Higher volume & turnover
 - Faster cash flow, Reduced costs
 - More profit, Economics of scale

Diversification

- Upwards in the chain: material, bricks
- Down wards: appliances
- Prefab, plastic
- Medium/large scale

From product to packages

- After sales service
- Maintenance (good quality means less maintenance)
- Training & promotion
- Micro credit
- Toilet, water pipes
- Total renovation of farm, kitchen and sanitary

CER/VER

- The market will be bigger and sustainable
- If constructor can guarantee suitable quality for CER/VER requirements he/she is in business
- Maybe extra incentive for constructor

Agenda

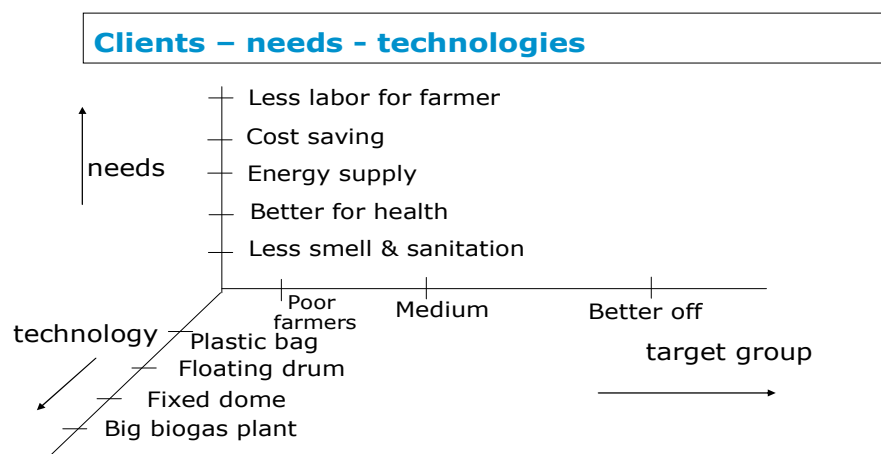
- Update about sub sector strategy

A bigger role for constructors - higher added value from additional activities:

- R&D of the design

- Promotion
- Maintenance (stove)
- Training (use)
- Financing (loan)

In conclusion he presented the relationship between clients, needs and technologies as shown in the following diagram.



Questions and Clarifications

Mr. Saroj Rai told that a lot of efforts have to be paid to develop a mason/mason's team to become entrepreneur. According to Mr. Rai, the main motivating factor for private sector could be the rapid realisation of the importance of energy and environmental sector which is attracting a lot of private as well as public funding from governments and donors. Mr. Bastiaan Teune raised a question on the benefit for a mason in the long run if he/she wants to shift from an individual entity to a company. Robert told that the interest of masons to establish a company depends upon the break even value. They will calculate the cost and benefits before the transition. Likewise Getachew expressed his views on the need of categorisation of entrepreneurs based upon the extent and nature of services they provide. According to him, smaller companies may be interested to initiate biogas activities than the larger ones. However, Mr. Robert van den Heuvel expressed that bigger companies will be better as they will be quick and receptive in anticipating quality control system etc. Mr. Uttam Jha remarked that potential to create self-employment will be more motivating for small entrepreneurs than other factors.

Group-2: Biogas Sector Vision 2015

Mr. Willem Boers presented the outcome of discussion on the possible road-map for the future – the biogas vision 2015. The following was the summary of the presentation:

- Consensus/Agreement on the role of private sector
- Pre-conditions: Increase profitability

- Contribution by users
 - Carbon revenue
 - Subsidy
 - Increase volume
 - Diversification
 - R&D promotion
 - Integration
 - Tax exemption/reduction and other incentive
 - Benefit of fertilizer
- Anticipated Change:
 - Tickling to activate private sector
 - Increase maturity of existing private sector
 - Quality
 - Micro – finance
 - Promotion
 - Business Development
 - Minimize dependence on National Biogas Program.
 - Capacity development
 - Lean umbrella
 - Other issues:
 - Technology should be applicable in 2015 and meet the demand of the users
 - Fully main stream: i.e. after-sale service around corner
 - More demand-driven
 - More promotion
 - Innovative use/approaches
 - Micro-finance for user and private enterprises.

Questions and Clarifications

Mr. Jan Lam raised a question on the difficulty in balancing the three contradicting scenario in 2015 as presented viz. increased farmers participation, pro-poor approach needed because of the market saturation, and reduction in subsidy. Mr. Sundar Bajgain stressed the need of channelling of carbon revenue to the private sector to support them financially as well as make the sector more attractive to them. He also told that easy access to micro-credit could help in subsidy reduction. Mr. Uttam Jha expressed that the arrangement of subsidy should be the function of local governments. He also told that participation fee from the users is crucial for the ownership of the product. Mr. Getachew wanted to know about the role of donors, who are providing programme cost as well as management expenses at present, in 2015. His query was related to the anticipated modality of management of fund by the private sector in 2015. In conclusion, carbon financing, reasonable subsidy, micro-finance and users contribution was agreed to be instrumental in balancing the issues of increased cost, pro-poor approach and requirement for subsidy.

Group-3: Enabling Environment for the private sector

Mr. Saroj Rai presented the outcome of the group discussions on what sort of enabling environment is needed for effective mobilisation of private sector. The outcomes of the presentation have been given below:

Pre-requisites

- Market Oriented mind set and approach from day 1.
- Clear and consistent government policies (including energy and environment policy), regulations, laws, etc. those are private sector friendly.

Enabling Conditions

- Market potential and market development efforts with
 - Information dissemination, awareness building, successful demonstration, etc;
 - Availability of finance (both self finance from users side and appropriate and widely available credit to users and biogas companies), carbon credit, etc;
 - Financial incentives (subsidy, tax incentives, etc.).
- Apex body for coordination, facilitation, supervision, etc:
 - With right mandate and representation, including from private sector;
 - To ensure quality and healthy competition among the private biogas companies.
- Optimised involvement of the government agencies, NGOs and private sector with a system of necessary checks and balances for an effective and sustainable Public-Private Partnership (PPP).
- Professionally organised/run association of private companies for protection of the companies, advocacy/lobbying and self-regulation for creation of a level-playing field.
- Capacity Building of companies and other players in the sector:
 - With technical and managerial/ entrepreneurial training, etc. that leads to BUSINESS LITERACY FOR SUSTAINABILITY.
- “Carrot-and-stick” approach as part of the regulatory framework at the implementation level:
 - Strong and comprehensive quality assurance mechanism, including pre-qualification of companies, monitoring of plants in the field, etc. (this should be more for promotion rather than control of biogas companies).
- Creating linkages and collaboration with other development or business organisations for improved benefits and synergy.
- Good governance and transparency.
- Appropriate element and strategy for equity.

Questions and Clarifications

Mr. Andrew Williamson underlined the difficulty in balancing three variables – the level playing field vs. control or regulatory mechanisms vs. the market forces. According to Mr. Van den Heuvel, any market has its own quality standards, norms and values and hence, it should be left to the market forces to decide the future course of actions. According to him, it is fair that the companies themselves have to stimulate the market for their survival and growth. Mr. Saroj Rai pointed out the two schools of thoughts – those who believe in market-stimulated free environment and those supporting controlled market with

regulatory mechanisms. The first may serve the interests of bigger companies endangering the existence and growth of smaller companies. Giving examples from Nepal, he stressed that some kind of regulatory interventions are needed to penetrate the poorer and/or marginalised section of the society, and to ensure the growth of small/weaker private sector.

Mr. Wim van Nes welcomed further discussions on the issue of regulatory mechanisms as they are becoming important in the present context. He emphasised that the contexts in Vietnam, China, India and Nepal are different and so are the nature and extent of regulatory frameworks. Mr. Saroj Rai pointed out the relation between subsidy and regulatory mechanism – the quality control system. He told that biogas products are different from other manufacturing products and hence some sort of regulatory system could not be ruled out. According to Mr. Rai, in absence of regulations, there are many problems emerging in the surface and such problems determine the quantum of the control mechanisms needed. He told that the experience has shown the weaker section of the society advocating for more regulations where as the stronger ones favouring free market. According to him, there are many companies which do not favour control mechanism at all because they are big and can manipulate the situation to their favour.

Mr. Anil Dhussa highlighted the scenario in Biogas Programme in Nepal – the subsidy was Rs. 7,000 (USD 100) in 1992 which is about the same in 2007. However, the cost of installation has doubled. This indicates the reduction in subsidy to a great extent. He gave the example of IT sector in India which has grown without any concrete intervention from the government – only with the interest, dedication and investment from individuals. The growth became evident because of the absence of government's regulatory mechanisms. However, when talking about SMEs which have to be evolved from grassroots to serve the grassroots, the scenario should totally different from other business. When we are talking about mason who has no stake in business, to become an entrepreneur, certain issues should be considered. If biogas plants fail he will turn to another business. We can seek the involvement of a real business persons but the quantum of money involved in this business is too little to motivate them. We therefore should have a minimum level of regulations to make the technology penetrating in the poorer section of the society.

Dr. Ehsanul Haque viewed that the subsidy will continue for sometimes to come as the developed countries are trying to correct their past 'wrong-doings' in the developing countries. He cited the example of the carbon financing. He emphasised on the need of reducing dependency on fossil fuels. Dr. Fokhrul Islam expressed his dissatisfaction on the words control and regulations as these sound more imposing- no matter the magnitude is less or small. He favoured the word 'guidelines' and told that guidelines/standards are necessary to check 'use' and 'abuse' of any technology. Mr Uttam Jha underlined that need of the controlling mechanism to be in the form of guiding and/or capacitating the private sector to comply with quality standards. Ms. Helena Korhonen pointed out both the positive as well as negative aspects of the subsidy. She cautioned that the subsidy might be hindering the innovations. She pointed out the need to redirect the subsidy into another form of assistance. She favoured a sector without outside imposing or interference.

7. Summary of Group Discussion and Presentations

Summarising the presentation, Mr. Andrew Williamson emphasised that the private sector will be instrumental in biogas related activities but there should be some kinds of preconditions to be fulfilled by them. He emphasised the need to balance the contradicting issues such as, lack of clarity on sustainability vs. involvement of private sector; regulations vs. free market; regulations vs. local products; responsibility vs. regulations; with a sole aim to reach the needy section of the society the poor and marginal people.

8. Follow-up of Action Plan and Other Issues

The group discussion and presentation was followed by the reviewing of action plan agreed in the previous meetings of experts. Mr. Wim van Nes moderated the discussions on the following issues:

8.1 *Next meeting*

Wim proposed the next meeting to be held in Kathmandu, Nepal in April if the security situation in the country remains favourable. He told that the core theme for the meeting will be decided later. This meeting will comprise of participations from Asia only as the African team will have their meeting in Africa. However, in the first half of October, another meeting will be held in Bangkok with a theme 'Credit and Biogas' focussing on credit to end users in which participants from Asia and Africa will take part. It will be good opportunity to review the experience from Cambodia where the credit system has just initiated.

8.2 *Results of Testing of Appliances*

As per the decision to assess the efficiencies of biogas appliances, biogas stoves and lamps in particular, tests were carried out in three well established laboratories in the Netherlands, China and India. These laboratories used their own approach and methodology of testing which were different from one another and this has resulted in differences in outcome of the tests too. Mr. Wim van Nes will be providing the detailed test results in the later dates. However, one striking fact is that most of the stoves need some sort of improvements especially in reducing carbon mono-oxide emissions. Wim reported that this could be the potential subject for the next meeting in Kathmandu, Nepal.

8.3 *Issue of Carbon Trading*

Wim informed that two of the participants in this meeting, Mr. Saroj Rai and Mr. Ram P. Dhital are taking part in the forthcoming UNFCCC conference on climate change being organised in Bali, Indonesia. He asked both of them to share the outcome of discussions and other up-dates on CDM with the network members once they are back from the conference. As VER has become a topic of interest especially for

NBP Cambodia and Gold standards could be feasible for Vietnam and Nepal, he asked the participants from Nepal if they are going to prepare a PDD in the near future.

Mr. Saroj Rai told that approval of proposed CDM methodology for biogas will be one of the agenda of our interest in the Bali conference. According to him, a new methodology has been proposed to replace the previously approved one which was formulated by BSP Nepal. He emphasised that the issue of sustainable (renewable) sources of firewood vs. unsustainable source as well as monitoring mechanism for compliance of the methodology are expected to be the major points for discussion. According to Mr. Rai, the proposed methodology encompasses that avoided deforestation will not be entitled to CDM revenue; however, reforestation/afforestation will be part of it. He expressed his satisfaction that whatever will be the decision, the PDD formulated earlier will not need major rectifications rather than some points of clarifications. Mr. Rai told that PDD to qualify Gold standards VER will be prepared in the future. He also told that if the present PDD prepared for CDM is not approved, it will be modified to suit the need of gold standards. He also promised to prepare a short report on their participation in the conference to circulate among the network members.

Mr. Ram P. Dhital promised that the Nepalese delegation will work closely with the delegations from other biogas-countries and try to motivate them in lobbying for CDM for biogas projects.

9. Evaluation

A formal evaluation of the two-days meeting of the members of the Network of Experts on Domestic Biogas was carried out at the end. The participants were provided with a semi-structured questionnaire to evaluate the effectiveness of the training. The following table summarises the outcome of the evaluation:

Issues	Very poor	Poor	Fair	Good	Very good
Hotel Arrangements	2.9%	11.8%	29.4%	44.1%	11.8%
Field visit arrangements	-	-	8.8%	58.8%	32.4%
<i>Presentations:</i>					
Iwan Baskoro	-	-	17.6%	64.7%	17.6%
Tony Knowles	-	-	2.9%	32.4%	64.7%
Jan Lam	-	-	23.5%	58.8%	17.7%
Ram Dhital	-	-	20.6%	50.0%	29.4%
Keshav Dawadi	-	-	26.5%	61.8%	11.8%
Overall presentations	-	-	8.8%	67.6%	23.5%
Group discussions, presentations and plenary discussions	-	-	14.7%	44.1%	41.2%
Overall rating of the meeting	Useless -	Not useful -	Moderate 5.9%	Useful 44.1%	Very useful 50.0%

10. Closing

The meeting came to an end with the vote of thanks from Mr. Wim van Nes. He expressed deep appreciation for the time and efforts paid by NBP team in Cambodia to host this meeting. He thanked all the participants for their active participation, excellent ideas and cooperation and expressed his desire to see all of the participants in the next meeting.

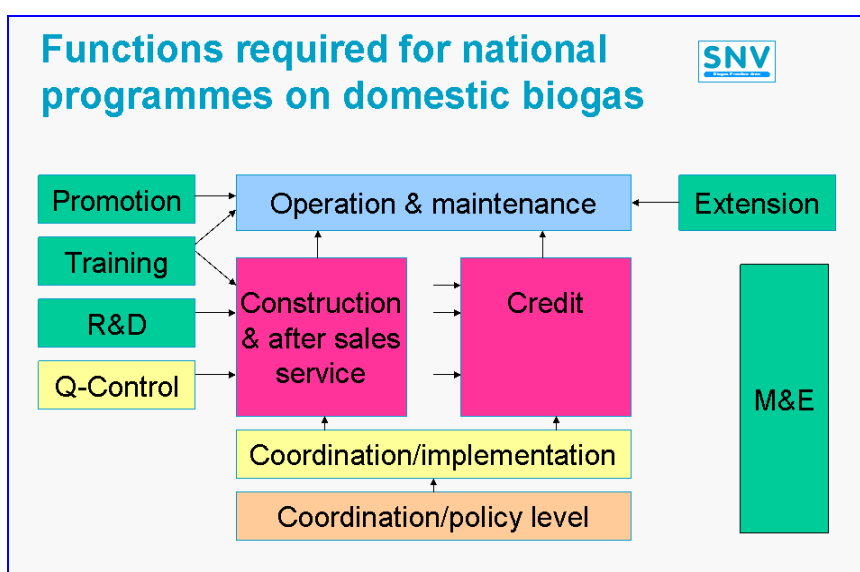


Annex 1

Brief background and guidelines for the preparation of presentations on private sector development in the framework of national domestic biogas programmes

Introduction

In the framework of national programmes on domestic biogas, multiple stakeholders (private sector, government, civil society) work together on the basis of proper role divisions, suitable institutional arrangements and good governance. Construction and after sales service of biogas plants and provision of credit to biogas users (see the diagram below) are crucial functions to be taken up by the private sector¹.



For the development of the biogas sector towards sustainability and commercialisation, the private sector needs to become a strong player. Though many would agree with this statement, the reality in many countries is quite different. In some countries, the government failed to enable and stimulate or simply just not allowed the private sector to enter into markets. The costs for market development in the rural areas – the main sales area for domestic biogas - are high, definitely compared to the urban areas. Investment costs of biogas plant are quite high for the potential customer, and product development is generally not taken up due to lack of resources. In more accessible and potential rural areas, companies sometimes undertake unhealthy competition. In other cases, basic quality standards are not adhered to, damaging the future market prospects.

This all raises the question on how best to develop the private sector in the national programmes on domestic biogas? Which strategies could be effectively formulated and implemented, both from the side of the government for the enabling of the business environment as well as from the

¹ The private sector can play a role in other functions as well, like training and R&D.

side of the private sector? These issues will be the focus of the 3rd meeting of experts on domestic biogas to be held on 29 and 30 November 2007, in Cambodia.

Guidelines for the presentations

The following are the guidelines to be used for the preparation of the presentations:

- Limit your presentation to maximum 15 minutes, to allow at least 5 minutes for question & answer;
- We all know that private sector development is not an easy and straight-forward process. Please be frank in addressing also the (possible) failures of approaches;
- Prepare your presentation in PowerPoint or on paper. There will be a LCD projector and laptop available.

Hopefully, this information serves its purpose. Please do not hesitate to contact us in case of questions or lack of clarity.

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4 November, 2007

Annex 2

Information provided by NBP on field visit to Takeo Province

November 29, 2007

During this field visit you can experience typical Cambodia countryside, farming families and learn about the biodigester dissemination method used in Takeo province. You will meet with the main actors/stakeholders in the provincial biodigester programme, these are:

The Client:

The biodigester user is seen as the most important stakeholder in the biodigester programme. The Biodigester Household is responsible for the following:

- Prepare the construction site and material according the instructions of the mason;
- In consultation with the PBPO and mason, set a deadline for the start of the work;
- Provide adequate labour for the digging work and to assist the biodigester mason during the construction. If this is not done, the mason will provide the unskilled labour at additional charge (see attached BoQ);
- Pay for the construction work as agreed in the construction contract.

PBPO (Provincial Biodigester Programme Office):

The Takeo PBPO is part of the Provincial Department of Agriculture. The PBPO is the main partner of the NBP and responsible for:

- Conduct a survey at the premises of the potential client to determine the conditions for biodigester construction and advise the potential client accordingly;
- Co-signing of the construction contract with the client and the mason;
- Provide potential client with an information sheet containing required building material quantities, cost of appliances, cost of skilled labour, and cost of warrantee and participation fee;
- Assures that the Biodigester Mason, is trained, experienced and certified in his profession;
- Give full essential technical support to the client and the mason.
- Monitor the quality of the construction work through sample construction inspections;
- Conduct a Plant Completion Inspection. If the plant is considered by the PBPO Supervisor to be complete and fit to function without problems, it will be handed over to the client. The client will receive a signed a stamped completion report.
- Guarantees the provision of US\$100 subsidy upon completion of the biodigester;
- Provision of user training on biodigester operation and bio-slurry application;
- Deposits the warranty fee, paid by the client, at warrantee savings account and enforce the mason to repair plant the plant if so required under the warrantee conditions. Within two years if the plants have no any problem, the PBPO has to release the warranty fees to the mason;
- Issue a warrantee certificate, on behalf of the mason, to party the client;

- Mason recruitment and management;
- Provision of those plant appliances that are not readily available on the market;
- Coordination with other actors (CEDAC, VSAs, PRASAC-MFI, Commune Councils);
- Administration of data and reporting to the NBP.

Biodigester Mason:

The activities of the mason depend to some extent on his interest and initiative. When a mason is assigned to the construction of a plant he is responsible for:

- Constructs the biodigester according to the National Biodigester Programme quality standards.
- Completion of the construction work, including pipefitting and appliances connection, within 20 calendar days. If there delays due to reasons beyond the influence of the mason such as high ground water or rocky soil, a new completion date will be determined in consultation with the PBPO and the client.
- Instructs the biodigester user on the proper filling procedure of the biodigester and proper use of the biodigester appliances.
- Provision of warranty on the construction within a 24 months period since the completion date.
- Reparation the biodigester if any technical problem occurs, in accordance with the warrantee conditions described in the warrantee certificate.
- Visits to the biodigester at least twice a year during the 2 year warrantee period to check the plant and appliances, also if no complaints have been lodged by the client.

More active masons are also involved in marketing, participation in pre-construction meetings and the initial feasibility visit to interested farmers.

CEDAC (Cambodian Centre for Study and Development in Agriculture):

CEDAC is the largest agricultural NGO in the country, having an agreement with NBP on the promotion of biodigester technology and bio-slurry extension. They work with farmer groups which make it possible to construct plants and conduct trainings in clusters.

PRASAC-MFI:

Since the end of October 2007 PRASAC Micro-Finance Institute is providing credit to farmers who wish to construct a biodigester. The terms and conditions for such a credit are far more favourable for the farmer than ordinary micro credits. The interest rate is 1.2% per month and the repayment period between 4 and 24 months. It is expected that 60% of all plants that will be constructed in the coming years will be credit plants.

VLA (Village Livestock Agent):

The Village Livestock Agents are trained and equipped by the Department of Animal Health and Production. They are spread-out over the province and the first to be called by livestock owners in case of animal sickness. NBP has trained the VLAs on biodigester technology and they organise pre-construction meetings for small groups.

Takeo province lies south of Phnom Penh and borders Kandal province, Vietnam, Kampot province and Kampong Speu province. Under normal traffic conditions the journey from Phnom Penh to Takeo town takes about 1.5 hours. Takeo is, like most of Cambodia, predominantly an agricultural province. Its main produce is rice. At this time of the year the monsoon has come to an end and the rice crop is ripening. In a few weeks time the countryside goes from a hard green via a yellowish to a grey-brown colour. The biogas programme in Takeo started in November 2006 with the set-up of the PBPO and the training of the first masons. Actual plant construction started in January 2007. The target for Takeo in 2007 is the construction of 300 plants, a number that will be surpassed by approximately 60 plants.

Today's programme:

The departure is at 7 am at the Goldiana hotel in two busses. By visiting the biogas families in 2 groups they will not be overcrowded.

We will be visiting a small and typical village, Chheu Teal village in Prey Kabas district about 11 kilometres from the paved road. In this village we can close to each other visit 3 plants:

- A 4 m³ plant completed on 08/11 and owned by Mr. Ouk Chhuon.
- A 4 m³ plant completed but not yet filled owned by Mr. Ngem Pann, this plant can be entered for inside inspection.
- A 4m³ plant under construction and owned by Mr. Chheng Mark.
- On the way to this village an older 6 m³ plant can be visited in Ampil village, this plant was completed in March 2007.

Between 12.30 and 13.00h the busses are expected in Takeo for a short visit to the PBPO office. From 13.00 h onwards lunch will be served in restaurant 'Chhum No Moat Boeung'. After lunch there will be the possibility to ask questions and discuss with the representatives of the main actors in the province these are:

1. Meng Sothy, Director of PBPO
2. Sok daro, Coordinator
3. Seng Meng, Admin/Accountant
4. Kheang Vanthy, Supervisor
5. Tuon Sameth, VLA
6. Mak Phan, VLA
7. Moulm Than, Plant Owner
8. Ouk Chhuon, Plant Owner
9. Hong Sopha, Mason
10. Som Bun Yi, Mason
11. PRASAC representative
12. CEDAC representative

Not later than 16.00 h we will return to Phnom Penh to be off the road before it gets dark.

On behalf of the NBP team we wish you a pleasant and informative day.