

The Strengths and Weaknesses of Private Sector in the Biogas support Program in Nepal

Abstract

- Wide scale promotion of domestic biogas was started in Nepal once Biogas Support Program (BSP) was established in 1992. About 11,000 biogas plants were installed by one company before the establishment of BSP.
- Currently, 140,457 fixed dome design domestic biogas plants are installed through out the country under the BSP. Out of them about 97 percent are in well operation. Biogas in Nepal is used primarily for cooking and to some extent for lighting.
- 62 private biogas companies are established. However, many of them are small and financially weak. Similarly, 140 Micro Finance Institutes are being involved in biogas lending in rural areas.
- Only due to the involvement of private sector, the number of biogas plant installation has been increased, quality of construction and after sales services has been maintained, and users are properly trained on operation and maintenance of biogas plants.
- Biogas cost has been maintained due to the competition among the companies. New marketing strategies are applied by companies so that more and more households are aware about benefits and importance of biogas through the staff of biogas companies.
- Biogas program is moving towards self sustain with the opportunity of possible carbon financing. Carbon financing was only possible because of high quality service of biogas companies and its respective certification.
- Some biogas companies who do not have long term vision and planning may distort biogas market with inferior quality plants through unhealthy competition. These companies needs strong business advises and continuous supervision.
- One of the problems working with private sector is that they want to work in easy and highly profitable areas and can not be forced to go in remote and difficult areas unless they get additional support. This needs more attention on marketing and additional efforts on creating more demands.
- It can be concluded that private sector involvement is one of the most important factors for biogas success in Nepal.

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Introduction

In Nepal, because of various reasons, people still heavily depend on traditional sources of energy, especially on fuelwood to fulfill their cooking energy needs. Looking into an alternative of these traditional energy of Nepalese society, biogas program was started in 1992 with the aim of maximizing the number of plants at rural households as a commercial product.

The first biogas plant in Nepal was introduced in 1955. Only a few individuals were involved in biogas technology until the World Energy Crisis of 1973. His Majesty's Government of Nepal introduced official biogas program in 1975 aiming at controlling deforestation and preventing burning of cattle-dung which other wise could be utilized as valuable fertilizer. During 1975/76 some 250 floating drum type biogas plants were installed. With the purpose of institutionalizing biogas development, Gobar Gas and Agricultural Equipment Development Company (GGC) was established in 1977. This was the only company worked for 15 years (till 1991) and constructed some 11,000 different designs and sizes of biogas plants in the country. With the creation of SNV/Biogas Support Program in 1992, the biogas plant installation in Nepal gained momentum.

The Biogas Support Programme (BSP) is a successful model of development cooperation; technological innovation and biogas market development have helped to address some of the social, economic, energy and environmental needs of the rural people of Nepal. The BSP also represents a working partnership between His Majesty's Government of Nepal (HMG/N), the Dutch Development Cooperation (DGIS), the German Financial Cooperation through the German Development Bank (KfW), the Netherlands Development Organization (SNV), the financial institutes, the private sector and the rural farmers of Nepal. As a result, there are a number of lessons to be learnt from the BSP that can be applied to other development assistance programs targeted at the dissemination of small-scale rural and renewable energy technologies.

A fixed dome designed called GGC 2047, the only one design of different sizes, is being promoted in Nepal since the beginning of the program. The design itself is reliable, durable and easy to construct.

The biogas program is being supported by the Netherlands Government through SNV, German Government through KfW and His Majesty's Government of Nepal. Total number of biogas plants constructed under the BSP has reached 140,457 by July 2005. These plants are spread over 66 districts of Nepal and are of high quality (97% in operation). BSP has obtained ISO 9001-2000 certificate for its quality management system and received various awards and recognitions for outstanding performance on biogas development. So far in Nepal, biogas is mainly used for cooking (90%) and lighting (10%). Since there is no access to electricity, hills people prefer biogas for lighting. Apart from provision of reliable fuel, the next important byproduct of the plant is slurry, which is considered as a high quality fertilizer. The slurry is used as fertilizer for crop and vegetable production as well as feed for fish.

The ultimate beneficiaries of biogas program are the farmers, especially women who have to undergo drudgery of cooking with firewood. The program can be considered successful only when *their* plants perform well and *they* are satisfied with the benefits. In this context, the performance of biogas plants is evaluated every year by independent consultant by conducting Biogas Users Surveys.

The results of 7 years of survey have revealed remarkably that the number of *Satisfied Users* ranges from 94 to 97 percent in different years. Among the satisfied users of biogas for cooking, highest percentage (96%) expressed cooking in smokeless environment as their reason for satisfaction. Other most important reasons are faster cooking and tasty meals (85%), followed by ease of cleaning pots (55%) and no need of constant attention while cooking (30%).

The results of the biogas users' survey also indicated that around 75 percent of the users utilized bio-slurry as the major source of nutrient supply.

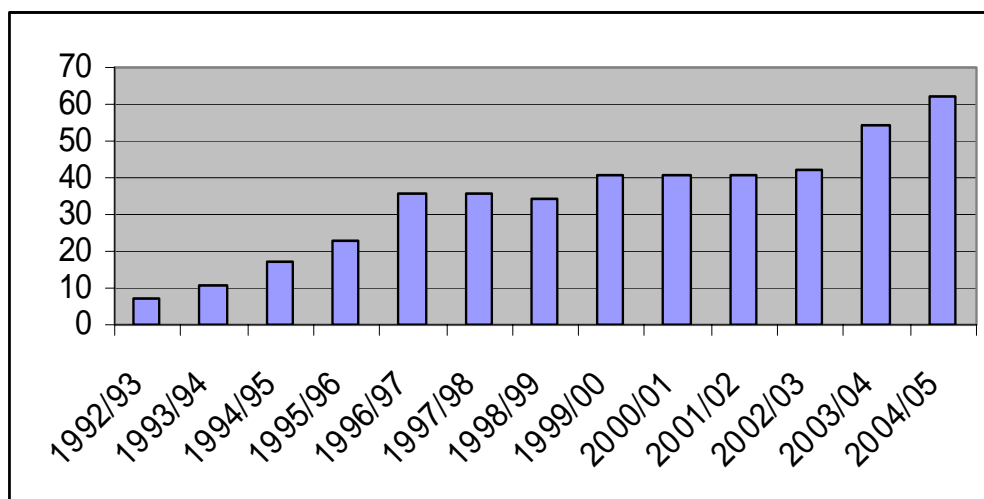
Private sector involvement in the Biogas program

As mentioned earlier, Biogas program is implemented with the involvement of various actors. Among them, private sector plays a crucial role. Actors from private sector are; (a) biogas companies (b) appliances manufacturers, and (c) financing institutes.

a) Biogas Companies

Before the start of BSP, there was only one company that was established with the initiation of Agriculture Development Bank of Nepal called GGC. Once BSP was established, BSP adopted an approach of opening opportunities for private biogas companies to participate in the program. The aim of involving more private biogas companies was to increase the number of plant installation through open market competition and commercialization of the biogas sector. The number of biogas companies increased gradually every year and reached to 62 in 2005.

Growth of Number of Biogas Companies¹
(1992/93- 2004/05)

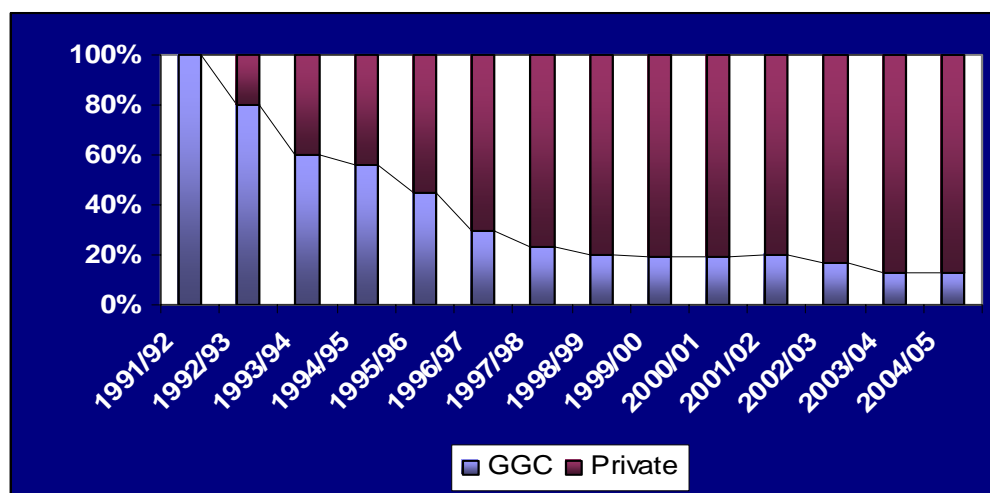


The biogas plant is constructed by the recognized Biogas Company as per specification and fixed standards approved by BSP. These companies also provide after sales services and repair and maintenance training to the users. Quality control of the installed biogas plants is done by BSP. It is striking to note that as many as 97 percent of the installed plants are in operation mainly due to the quality enforcement.

The market share of the plants was totally monopolized by GGC before the establishment of BSP. However, over the years the trend has seen a transition of the market being more in the hands of the private sector. The market share of the participating companies is given in the chart below:

¹ BSP recognized only one company (GGC) in the first two years (1992/93 and 1993/94). However, HMG/N allowed in these years some other companies to construct biogas plants beyond the Program.

Trend in the construction Share of Private Sector²



The strength of the companies here is categorized according to their capacity to install a certain number of plants per annum. Those installing only 100 plants classified as *weak*; installing between 100-500 *medium* and more than 500 plants *strong*. Biogas companies are also graded from A (*excellent*) to E (*poor*) based on their performance every year. The grading system particularly of being A or B grade is a strong tool of marketing the biogas plants to the potential customers. This grading system always forces companies to maintain high quality services.

BSP does not only approve the companies and control the activities executed by them but assists and advises them through continuous training, business counseling and advises on entrepreneurship skills. BSP believes that once biogas companies are strong enough to supply high quality products and services and are equipped with strong management and marketing system they can continue the biogas construction and the sector can be developed as a commercially viable and market oriented industry. The current construction capacity of biogas companies is about 30,000 plants per year. Besides the construction of biogas plants, biogas companies also provide after sales services, training to the users on operation and maintenance and training on maximum utilization of bio-slurry as fertilizer.

b) Appliances manufacturers

Biogas plants need appliances such as stove, dung mixer, gas tap, water drain device, main gas pipe, gas valve and lamp. Before the start of BSP there was only one workshop that was producing most of these appliances. BSP supported the establishment of other capable private manufacturers to produce quality appliances as per the standards approved by BSP. Currently, 15 such manufacturers are operative. BSP regularly checks the quality of these appliances produced by recognized manufacturers and looks for continuous improvement through research and development. Eventually, these manufacturers are in the capacity to supply all required appliances except a main gas valve.

² BSP recognized only one company (GGC) in the first two years (1992/93 and 1993/94). However, HMG/N allowed in these years some other companies to construct biogas plants beyond the Program.

c) Financing institutes

One of the important features of the BSP has been its innovative financial engineering and judicious application of consumer subsidies to help develop the market for biogas plants. Working with the Agriculture Development Bank of Nepal and the Rastriya Banijya Bank (RBB), both government banks, a loan and subsidy program was structured that was targeted at supporting the small and medium-scale rural farmers. This loan and subsidy program has been a very critical element in developing the commercial market for the biogas plants in Nepal. The subsidy, fixed at three levels (for the Terai, Hill and Remote Hill District), at present represents on the average 30 percent of the total cost of the biogas plant. As the amount of subsidy is fixed, its relative contribution to the total price of the biogas plant is expected to decline with rising inflation in the economy of Nepal.

Besides these two government banks, more recently BSP is working with more than 140 Micro Finance Institutes (MFI) for biogas lending. These MFIs, mostly cooperatives, located in rural areas and lend biogas credit to their members in an easy and transparent way. MFIs do not only lend the credit but also disseminate the biogas technology and identify demand for biogas plants to be constructed.

Strength of private sector

An operating principle of BSP has been to strengthen the local capacity and collaborate with the private sector to implement and achieve its objectives. As a result, the BSP technically and financially supported the creation and certification of a number of private biogas companies. Clear procedures for contracting, installation, quality control, service, repair and maintenance were developed and followed. This has resulted significant growth of number of companies and together with growth of biogas plant installation.

The certified biogas companies also provide after sales service to the biogas plants. They provide each customer, maintenance/service over a three-year period at no cost. In case the constructed plant has any problems the biogas company must also repair the plant free of cost during this guarantee period. This system has ensured plant functioning and farmers are free from bigger risks.

The private sector always tries to utilize local persons in biogas construction, supervision, credit lending and promotion. Utilization of local persons is relatively cheap but also effective in demand creation and after sales service. With this approach significant number of persons through out the country is knowledgeable in biogas technology. Approximately 11,000 persons are directly employed in the biogas sector. This includes the staff from the biogas companies, appliance manufacturers, materials suppliers and financial institutions. Besides this figure, about 400 new technicians (mostly masons) are trained every year. The development of technicians on local level is not only provides opportunity of employment but also assures the services on biogas plant and promotes the technology more effectively and efficiently in that area. Therefore, with the involvement of private sector a considerable number of local employments have been created.

BSP has played a key role in developing and strengthening the technical and institutional capacity of all the important partners associated with the biogas sector in Nepal. Training programs conducted by the BSP have been critical in establishing and strengthening the capacity of among others the biogas companies, the lending banks, the NGOs, the biogas inspectors, and even biogas end-users. Thus private sector involvement has created an environment to strengthen the capacity on biogas on local level.

Biogas consumers are the rural farmers who must be first convinced of the value of owning a biogas plant and then must get involved in the contracting, financing, construction and daily operation and maintenance of the biogas plant. They have to be fully informed, trained and supportive of owning, operating and maintaining biogas systems. The biogas companies and financing institutes play a major role to motivate and convince them in this regard.

With the establishment and involvement of the private appliances manufacturers, Nepal has become self sustain on quality appliances production. All the required appliances except main gas valve are producing in Nepal. Quality of these appliances are centrally controlled so that plant functioning is guaranteed without appliances failure.

The BSP has also encouraged the involvement of local NGOs and INGOs in the promotion of biogas in Nepal. These NGOs are mainly involved in providing information on biogas, identifying demand for biogas plants and bridging relations between biogas companies and biogas users. Due to the involvement of these NGOs in promotional and extension activities number of biogas production has been increased. They have established network relations with the local organizations that have good connections with potential biogas households. Similarly, they always look for new strategies for market development and always try to maximizing the number of clients

Private sector has made significant investment on biogas in terms of capital but also in human resources and other logistic arrangements. They have created a market and good image within their area of operation. They are motivated to continue in the biogas program even after termination of subsidies. The new initiative of carbon financing can be an attractive financing source for continuity of the program. Carbon financing will be only possible due to high quality services of biogas companies. Therefore, private sector involvement ensures the continuity of the program in future.

Due to the high number of companies involved in biogas construction, a competitive environment on quality, service and price has been created. It has helped to maintain the biogas installation price in one hand but also maintained the quality service in the other. The service delivery cost of biogas companies is also relatively lower than that of a Government implemented program because of competitiveness and utilization of local resources.

One of the objectives of BSP is to develop biogas sector as a commercial and market oriented industry which can only be fulfilled by the involvement of private sector. In this regard, an umbrella organization of private biogas companies called Nepal Biogas Promotion Group (NBPG) is established to coordinate and support its member companies with capacity building, marketing, appliances supplying and creating healthy working environment among the companies. The NBPG is bringing biogas companies in one umbrella with collective thinking on sectoral growth and advising the Government for policy formulation and tax exemptions on biogas appliances.

Weakness of private sector

Although private sector has played a crucial role in wide scale promotion of biogas in Nepal, there are still some weak parts of the private sector.

Private biogas companies expanded from one dominant company to the present level of 62 companies. Of these 62 companies, only eight are presently capable of producing more than 500 biogas plants per year. Many of the companies are financially weak. They require additional management and training support to become "significant players" that are capable of producing more than 500 biogas plants per year. More efficient biogas companies are needed in order to achieve the target of 200,000 biogas plants by mid of 2009. In this regard they need more support and more

supervision from the BSP side.

Most of the companies do not have long term business plan and do not have trans-sectoral thinking. It is risky to depend on such companies for quality services. These short sighted companies may distort the market with unhealthy competition. Their activities have to be monitored constantly and strict regulation will be required which will increase the time and resources of the program.

Since the private sector is free to choose their business and working areas, areas where profit is high, market is big and easy to operate are preferred. If biogas program intends to work in remote areas and reach relatively poor people, it is difficult to direct them to work in those areas unless additional support is provided. Therefore, the biogas program has to focus more to create better working environment in remote areas with proper promotion, networking and may be with higher subsidy to the farmers.

Since biogas construction is a seasonal business, most of the companies faced a problem utilizing their staff through out the year. Thus it is difficult to retain experienced staff through out the year. Shortage of staff especially masons during construction is often a problem due to the weak personnel management of biogas companies. Most of the companies are more (self) employment oriented than profit oriented.

Conclusion

Despite some weaknesses, private sector involvement has contributed a lot in the development and successful execution of biogas program in Nepal. High quality plant installation, proper after sales services, proper training to the users on operation and maintenance, and training on slurry utilization, toilet construction and connection with biogas plant and market development are the main contribution of private biogas companies. Similarly, effective credit lending in field level by Micro Finance Institutes and awareness creation by NGOs are also important activities that have helped biogas to reach the current stage. Nepal became independent from imports for high quality appliances that are being produced by 15 manufacturers.

The aim of doubling the current installation and promoting biogas in those areas where biogas plants are not well penetrated can only be achieved under an active program stimulating the demand for biogas plants. One option is to engage the support of local, national and international NGOs to promote biogas use. Another very important option is to draw on the support of the over 140,000 satisfied biogas users to spread the information about the benefits of biogas. It is very important that the biogas companies are encouraged to actively market their products rather than just waiting for the customer to approach the companies. A policy on staff retention can be developed through product diversification and utilization of staff in other services during the slack seasons. Problems with biogas companies are not that serious and can be resolved with careful planning and additional arrangements.

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