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History of Biogas and Advent of BSP

Although the history of biogas in Nepal dates back to 1955, HMG/N's efforts began only from the Agricultural Year (1975/1976) when some 250 plants were installed with interest free loans from the ADBN. With the restoration of democracy in 1990, biogas was able to draw greater attention of the authorities, which by that time had recognised the importance of the sector and were committed to initiating measures to accelerate the pace of plant installation. So, in 1991, the HMG/N announced a subsidy scheme, which has been in effect until now. The Biogas Support Programme (BSP), a Netherlands government-assisted project, has been carrying out all the activities related to the promotion and selection of biogas companies, subsidy administration, quality control, and monitoring and supervision of the biogas programme.

Recent evaluation studies have revealed that, on numerical aspect, the BSP implementation so far has been able to meet the target. On the average size of the plant also, there has been a steady decline since 1993. The average size in 1990 was 13.6 m^3, which decreased to 9.6 m^3 during 1993/1994, 8.2 m^3 during 1997/1998 and 7.49 m^3 during 1998/1999. All this is due to the flat rate of subsidy, which has decreased the total cost through adoption of plants of smaller sizes.

Entry of Private Sector Construction Companies

Implementation of a sensible and consistent subsidy policy combined with the development of a liberalized policy and procedures for private sector participation triggered the entry of the private sector in the construction biogas plants. This has had a significant impact on the progress of the number of plants. With a mere 1 percent share in the total constructed plants during FY 1990/1991, the private sector continued to record higher share, which reached 80 percent during 1998/1999. In aggregate the GGC and private companies are found to have about equal share in the total plants installed so far.

Quality Control

The quality control aspect is a well-steered programme that has protected the interest of the plant owners and hence elevated the image of the programme to be credible position. The quality control process is quite lengthy and hence costly. Once the BSP is phased out, its continuity may pose some problem, as other institutions have not demonstrated required institutional capability to handle the job.

Another serious aspect of the present quality control is the need for strict adherence to a single model of the biogas plant, which has seriously blocked the possibility of development of cheaper and affordable models through R&D. The socio-economic status of the owners of the existing plants warrants that until and unless low cost models are developed and implemented, the aim of making the plant accessible to the poor may remain just a dream.

Subsidies

Studies have shown that the EIRR is higher than the FIRR, which justifies continuation of the existing subsidy. The impact of the subsidy on increasing the number of plant has been remarkable. Even before the BSP was implemented, the subsidy showed its distinct role in the promotion of the biogas, i.e. there was direct correlation between the number of plants installed and the provision of subsidy. The present programme is a subsidy-driven one. With the implementation of the BSP and continuation of the subsidy, the effect has been quite satisfactory.

Within the framework of the government's policy to phase out subsidy to all sectors, the BSP also is planning to reduce subsidy of larger sizes from FY 1999/2000, with an objective of discouraging larger size plants. It is, however necessary to give a timeframe for the phase-out of the BSP subsidy.

As no timeframe has yet been decided for phase-out, it would be premature to assess the impact of the phase-out. No matter what timeframe is decided, the reduction/phase-out of subsidy in the absence of proper R&D leading to cheaper technology, i.e. considerable reduction in the existing costs of biogas plants could adversely affect the biogas sub-sector, especially in terms of demand. It should, however, be noted that the achievements made in terms of the number of plants installed so far and the impact on the life of the users, the biogas programme can be included among the few successful programmes in Nepal. Moreover, of the various subsidised programmes, biogas has multiplier effects. It not only substitutes fuelwood and saves the nutrients lost through the use of dung cakes, but also has effects on the reduction in the fuelwood consumption, thereby reduction environmental degradation, and reduction in the respiratory diseases. Use of biogas for lighting facilitates the children to study at night and helps rural men and women to carry out some cottage industries.

Financing of Biogas Plants

On the financing front, there has been a very encouraging tend on the proportion of equities-financed plants. For instance, during the first year of the BSP (1992/1993), the number of equities-financed plants was reported at 6 percent, which increased to 30 percent during 1995/1996 and to 42 percent during 1997/1998.

Regarding the source of credit, the ADB/N has been playing a pioneer role. Until the BSP I, it was the only source. Now, some loans are reported to have been disbursed through NBL and RBB as well. Despite lower rates of interest on biogas loans offered by these two commercial banks, the borrowers' preference is reported to be still the ADB/N, which disburses more than 90 percent of the total annual biogas loans. The apparent reason for this is the simpler procedure and more familiar atmosphere.

Institutions

Institutionally, the biogas sub-sector cannot be considered as a strong one. Leaving the BSP aside, it remains with three organisations, i.e. AEPC, AEPDF and the NBPG, which have not been able to demonstrate desirable capacity. The BSP is just a project office and temporary in nature, which will be phased out in future. At present, it has been playing a vital role in the promotion of biogas in the country. It initiated, designed and got government approval on a number of policies, including the subsidy and the privatisation. It has been implementing the most acclaimed work of quality control, which has been a key to the overall success of the biogas programme. Once the BSP is phased out, there needs to be a strong entity to take up the work of policy formulation, regulation and monitoring and supervision.

Impact of the Biogas Plant on the Life of its Users

There has been a remarkable impact of the biogas plant on the life of its users. Surveys have revealed that the tangible impact in terms of savings in firewood, kerosene and savings in time that would be required in the absence of biogas plant, and the intangible benefits such as the reduction in the respiratory diseases plus other benefits all are perceived to be quite significant by the users.

Recommendations

Although very encouraging in absolute terms, the number of biogas plants may not be considered commensurate with the efforts and resources being geared towards this sub-sector. So far, the total number of installations in any year has not crossed the 10,000 mark, indicating the maximum capacity of the existing mechanism. The present supply capacity consisting of an apex body (AEPC), 50 construction companies and the BSP project office, has been able to install a maximum of 11,047 plants during FY 1998/1999, which is only 3 times of the plants installed single-handedly by the GGC during FY 1993/1994 (3,508). So, the BSP target of installing up to 25,000 plants a year remains doubtful. In order to achieve the achievable, there needs to be some improvement in the existing institutional structure and policy. For this the following recommendations are made:

Programme for Institutional Capacity Building of the AEPC

Institutionally, the AEPC is placed at the apex and is to carry out the work of both policy formulation and regulatory and facilitative work that the BSP is doing at present. The BSP is a project-based office, which will be terminated once the external assistance ceases to flow. In this regard, the AEPC should embark upon building itself as an institution that is capable of taking over the activities currently undertaken by the BSP. Considering the state of the private companies and their associations, i.e. NBPG and AEPDF, it will take quite sometime before they can be treated as self-controlled entities, which do not fail to comply with the standards, and norms set for the plant.

Initiate R&D and Introduce Flexibility in the Plant Model

Need for strict adherence to the GGC 2047 model has definitely enhanced the quality of the plant. At the same time, it has seriously limited the scope for developing low cost models appropriate for the poorer sections of the population. Models that have been developed elsewhere could be adapted first and their suitability evaluated.

Announce Timeframe for Subsidy

In order to exploit the potentially in biogas, the subsidy needs to be announced with a timeframe and the steps in phasing it. It would provide the potential owners with a vision for installing the plants. The proposed phasing of the subsidy, however, should be carefully implemented since very little of the potentiality (a little over 50 thousand out of the 1.3 million potentiality) has been achieved to date. Moreover, the EIRR calculated by all the studies (Silwal & Pokharel 1995; Silwal 1991; Kandel 1999) have been found to be quite higher than the FIRR, indicating that the subsidies need to be continued for sometime until the distortion in the prices of fuelwood, urea, kerosene, etc. are corrected to reflect the competitive pricing system. So, an abrupt decision to discontinue the present subsidy may seriously jeopardise the BSP, which has gained momentum to a satisfactory level.

Develop Village Level Masons and Suppliers of Appliances

The present practice of contracting the private companies to construct biogas plants does not allow an adequate coverage of the potential plant owners and at the same time the after-sales-services of the companies are not profitable, leading to non-compliance with the contract. It would be a better proposition to train the masons at the village level so that they can work as the agents of the biogas companies and at the same time also open small shops with supplies of appliances and spare parts. This would increase the outreach of the programme and the progress could be faster.

Concentrate the Plants so that Service become Cheaper

The current practice of installing biogas plants in a scattered manner has resulted in an increase in the costs of services, especially the after-sales-services, and this in turn has further led to even non-compliance with the contract for guarantee of after-sales-services, as it may be cheaper to pay the penalty for non-compliance than to comply and provide the services. So, it is recommended that efforts be made to construct the plants in a pocket area approach.