

LOOK AROUND THE DOME

A Note On Myrada's Biogas Programme

Aloysius P. Fernandez
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The thrust of the national biogas programme has been on construction of plants, conversion of plants from Bhagyalakshmi to Janatha in Karnataka and to a lesser extent on Research and Development but again on the model and structure. Briefly, the focus has been and continues to remain on the plant. We do not look around the dome. Yet if we do not take into account the inter relationships of the plant with other systems in the village, we will not succeed in using the plant as effectively as possible and in making it possible for even the marginal farmer to install and maintain a plant.

The biogas plant is not an isolated entity it is an integral part of the home and of the village; it relates to the stabling of cattle and other animals often in different locations depending on the time of day and night, the position of the stable, the floor of the stable, the sanitary conditions around the house the attitude of women towards the plant etc.,

Secondly, though not directly part of an anti-poverty programme, the use of biogas for domestic purposes, does have a significant impact on the poor. Thirty years ago in the village around Bangalore, big farmers often used sandal wood for cooking; the fragrance filled the home in the evening; today these same farmers cook with farm waste (including mulberry stems) which the poor had ready access to formerly. As a consequence the poor have to search for other fuels; they have been forced to use shrubs, paper, industrial waste and to walk long distance to collect even these.

Thirdly, resources, especially fuel of different types are scarce and even where they are not scarce like in villages around forests, they have to be conserved if we want our environment to regenerate. In any case there is no running away from utilising our resources as efficiently as possible. Not to do so would be a criminal waste and an increasing burden both we and our children would have to bear. The efficient use of dung therefore as well as the installation of small, efficient and low cost plants is a priority. But unfortunately there is a tendency and a strong one to install biogas plants of larger sizes irrespective of costs. Financing institutions are not particularly concerned with the number of plants they have loaned for but what is the total amount of funds for biogas. Depending on the size of the plants, one could have 25 plants for Rs.1 lakh (1 cum size plant costs Rs. 4,000) or 7 plants of Rs.1 lakh (since several, models and larger sizes cost around

Rs. 15,000 a unit). Are we justified in a situation of scarce resources in making a choice for 7 plants against 25 for the same amount?

Finally, with the cooking made, cleaner, easier, faster and smokeless, women are the motivators for proper maintenance of the plant; adequate stress, therefore, should be given to elicit their participation in the siting and size of the plant.

MYRADA has not concentrated on constructing plants only. Its biogas programme during the past 4 years has had the following objectives:

- 1) To assist the landless and the marginal farmers provided they have no adequate number of animals to harness and utilise waste as effectively as possible.
- 2) To reduce the cost of the plant and the size, so that among other benefits the total cost is kept as low as possible and the size is related to the small number of animals that a marginal farmer has.
- 3) To organize a system of credit flow in order to make funds available when necessary.
- 4) To reduce the overall loan amount only for the marginal and small farmers.
- 5) To establish institutions of masons to maintain these plants and who in turn be entitled to the turnkey fee.
- 6) To involve women in the siting, size and use of the plant. MYRADA has not been equally successful in these areas; but in some of them certain significant developments have occurred which should be shared by all our other projects and programmes.

After constructing over 1,000 biogas plants (Janatha and Deenabandhu 2 cum and 3 cum) we made an analysis which indicated the following:-

- Most of the plants constructed were for large farmers or small farmers with irrigation facilities. Very few of the 38,000 target group families with whom MYRADA works benefited from the biogas programme even though several of them especially in the H.D.Kote and Talavadi areas owned scrub cattle, sheep and even one or two cross bred cows (50% exotic) produced through our animal husbandry programme. The reasons were the following:

the family could not afford a loan of Rs. 2,500 for a 2 cum plant.

even those who had opted for a loan and subsidy found that the cash flow was erratic and created problems; funds had to be advanced in

most cases till loans and subsidies came in. For example in H.D.Kote project out of the 204 plants commissioned, only 75 had received loans and subsidies as on February 1, 1989.

- They did not have adequate number of cattle to feed a 2 cum plant and therefore wanted one of a smaller size.
- Dung and urine were not collected efficiently; much of it was wasted even when the animals were stalled in the shed or around the house.
- Recoveries on the loans were irregular.

On the other hand, it was this group of families who were affected most by the increasing shortage and rising costs of fuel, and by the greater effort and time required to collect fuel requirements. These problems were discussed in the sanghas (socially functional groups) in one of our projects where the poor had scrub cattle and sheep - namely H.D.Kote and the following suggestions emerged from the people:

- The sanghas decided to identify its members who were interested in having a plant and had an adequate number of animals. It would also ensure that recoveries were made.
- A smaller size plant should be constructed. (We decided to try a plant of 1 cum of the Janatha or Deenabandhu models)
- Some degree of financial support should be arranged to reduce the loan burden which was too high for a marginal farmer - who would be able to save at most between Rs. 40 to Rs. 50 a month which was spent on firewood.

After several meetings between our staff, Government and the people we decided to put up a few pilot plants in November 1987 of 1 cum since there was scepticism in some quarters regarding the viability of these plants. The cost of a 1 cum Janatha plant in November 1987 was Rs.2,900/- (in December 1988 it was Rs. 3,450). The cost of 1 cum Deenabandhu in December 1980 was Rs. 3,100 within 13 months 204 plants of 1 cum were constructed in H.D.Kote project. But it was not enough to bring down the size of the plant; we also tried to respect to the other suggestions of the sanghas regarding the loan burden which was too high for the marginal farmers and erratic cash flow.

A gas company came forward to provide a grant to increase the subsidy to poor families opting for and able to manage a biogas plant. The subsidy on a 1 cum plant for the target group was increased by Rs. 1,000/- thus bringing the total subsidy to Rs. 2,250/- (December 1987) Since the total cost of the plant was Rs. 3,450/- (December 1987) the loan was reduced to Rs. 1,000/-. The remaining amount of Rs. 200/- was contributed by the beneficiary mainly in the form of labour.

Besides reducing the loan burden, thus grant also enabled the project to purchase bricks (manufactured by the sanghas) and cement in large quantities, thus reducing costs and ensuring a steady flow of inputs. Since there was a time lag between commissioning of the plants and the release of subsidies and consequently of loans this arrangement was mainly responsible to ensure that the momentum of the programme was not reduced due to obstruction in the flow of funds.

As a consequence of this package, 204 plants have been commissioned in the H.D.Kote project area within a period of 13 months. This compares favourably with an achievement of 60 plants in 2 1/2 years when delays were due to the erratic fund flow and the reluctance of the family to take on a large loan. Besides all these 204 plants have gone to the target group families.

The Sanghas have taken over the responsibility of recovering loans; out of 75 plants which have received loans amounting to Rs. 75,000/- already an amount of Rs. 12,400 has been recovered which is within the schedule of repayments.

But the programme had to go further. These families do not have many animals; every effort therefore, was required to collect as much dung and urine as possible. (So far no family has come forward to connect the latrines to the biogas digester and no attempts have been made to fund substitutes mainly because the confidence in the biogas plant was severely eroded as a result of the failure of the Bhagyalakshmi model and no further risk could be taken at this time).

Several families therefore decided to take the following measures:-

- To use granite slabs for the floor of the stable instead of mud and provide proper drainage so that all the night droppings could be channelled directly into the intake chamber of the biogas plant or into a stone lined pit from where it could be transferred to the intake chamber.
- To stable animals during the day in an area where droppings would not be unduly wasted due to presence of sand/mud or movement of carts etc.
- To utilise droppings of sheep, goats and silk worms.

This aspect of proper management of animal waste received a filling in the context of the public sanitation programmes which several villages were motivated to undertake and which they carried out successfully.

Masons Societies - another area in which volags could provide support is in the formation of masons societies. In keeping with the volag mission to form Local Level Institutions which are functional and can generate adequate income, volags should endeavour to form

these masons societies which would then receive the turn key fee. This approach would assist in decentralising the service support required for such a spread out programme. In one such experiment, we have 15 masons in a society. Each saves Rs. 35/- monthly which goes into a common account. When a mason has no work he can borrow up to Rs. 100 from the society; the interest is fixed by the society. The masons in these societies should have adequate experience to construct plants on their own, they should be accepted by the others as members and abide by the terms and conditions set up by the society. To enable this masons society to build up a common fund, it receives the turnkey fee.

The biogas programme therefore can be used as a tool to trigger off a process which goes beyond the objective of providing a system that uses energy more efficiently. It can trigger off community action for public sanitation, help to build small self help groups of masons, motivate families to manage waste more efficiently, give women a bigger role in management. All this is possible if volags are prepared to look around the dome and not restrict their activity to the structure.

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