

CHAPTER - VI

SUMMARY AND CONCLUSIONS

The Indian farmer faces various problems on production front and domestic front. The most common problems he faces are the shortage of fertilizer and the prohibitive cost of fuel. Bio-gas technology provides solutions to both of the above problems faced by the Indian farmer. The technology provides a low cost but quality organic fertilizer (manure) and also a low cost fuel in the form of bio-gas. Beside this, bio-gas technology provides a clear and hygienic environment and it reduces the cooking time to about 50%. Quality manure provided by bio-gas technology is not only a low cost manure but it further helps improve the yield per hectare. Organic fertilizer as obtained from bio-gas plant is a better substitute for a high-cost chemical or inorganic fertilizer. Inorganic fertilizer is required to be applied in more and more quantity year after year. This may damage the cultivable land permanently. Manure obtained from a bio-gas plant is a quality organic fertilizer, it costs less and helps improve the soil-mass as the years pass by. Health of the women folk in the rural India also shows improvement with reduction in the cooking time and the clean and hygienic environment in which they live with the bio-gas plants.

Role of Shivsadan Society :

Shivsadan Society is a co-operative society registered at Sangli. Its position is unique in the sense that there is no other society of this type in any other part of the country.

Established in 1969, Shivsadan Society has undertaken the following activities during the last 21 years of its existence :

- i) Production and installation of pre-fabricated houses for rural as well as urban population;
- ii) Production and installation of bio-gas plants;
- iii) Production and installation of latrines;
- iv) Production of RCC pipes and
- v) Research in the field of renewable energy, pollution control and social forestry.

Shivsadan Society's work in respect of bio-gas plants is studied in detail so as to understand as to how and to what extent the bio-gas technology can improve the rural life.

Adoption and Implementation of Bio-Gas Technology :

Shivsadan Society started the activity of producing go-bar-gas plants and installing them at sites of its individual and institutional customers in the year 1974-75. In the initial stage, Shivsadan Society, worked in collaboration with Shetkari Sahakari Sakhar Karkhana, Sangli.

The Society adopted the KVIC Model of bio-gas plant, during the first ten years of starting this activity. In the year 1985, Shivsadan Society developed a new model named as Janata Model of the gober-gas plant. This became popular immediately as it was technically improved and less costly to the customers. - Yet another improved model named as Krishna Model was developed by the Society in the year 1988. But it could not gain popular support against the background of the popularity of the previous Janata Model.

During the period of 16 years (i.e., from the year 1974-75 to the year 1989-90) of doing this business, Shivsadan Society has constructed 9512 bio-gas plants in the districts of Satara, Sangli, Kolhapur, Pune, Solapur and Belgaum. On an average the Society has, thus, constructed about 600 bio-gas plants in every year of its operation.

On the basis of the data for the recent six years (ending 30th June, 1990), the above mentioned six district could be ranked as follows :

<u>Rank</u>	<u>District</u>	<u>Percentage of work in respect of bio-gas plants</u>
1	Satara	51.5
2	Sangli	28.4
3	Kolhapur	11.0
4	Solapur	6.4
5	Belgaum	2.0
6	Pune	0.7
		<u>100.0</u>

Satara District ranks first because Shivsadan Society used to received orders from Block Development Officers of some Talukas in that District (like Patan, Jaoli, Karad etc.).

Expert Opinion :

Expert opinion was obtained from the following three experts :

1. Shri P.G.Kulkarni, Kolhapur
2. Shri P.S.Thakur, Sangli
3. Shri Sudhakar Mundhe, Kharshi (Dist. Satara).

According to Shri Kulkarni, apart from time and cost saving aspects of gobar gas plant, the main advantages that accurue to the plant owner are in the form of quality manures daily obtained, automatic creation of hygenic atmosphere and better health conditions for the women folk in rural area.

Shri Thakur admitted the unique position of Shivsadan Society in the field of bio-gas plant. He was, however, critical in respect of the following things -

- 1) Shivsadan Society does not posses all the necessary characteristics of a co-operative society.
- 2) It depends heavily on outsiders for the development of its business.

According to Shri Sudhakar Mundhe, the use of bio-gas plnat as a mechanism of producing a manure which is better than any other fertilizers normally used by the farmer.

Findings of the Survey :

A survey of 100 beneficiencies was also conducted with the help of a schedule. The major findings of the survey are as under :

- 1) 78% of the plant owners have land of 6 acres and above. Only 22% of the plant owners own land which is less than 5 acres.
- 2) 98% of the respondents have plant capacity between 2 cu.m. to 8 cubic meters and only 2% of the respondents have a higher capacity of 9 cubic meters and above.
- 3) In most of cases (72) it is found that the size of family ranges between 6 to 10 members; other 14 respondents had 5 or less than 5 members in their family and 14 had 11 and above members in their family.
- 4) 73% of the respondent-plant-owners had 4 to 7 and more cattle with them while 26 persons had cattle ranging from 1 to 3, 1 person did not have any cattle with him.
- 5) 79% of the respondents had an income range above Rs.31,000/-. There were only 21 respondents having annual income of less than Rs.30,000/-
- 6) Most of the respondents (92%) had an experience of using the gas plant for 4 years and above and 8% persons were using it for 3 years or less than 3 years.
- 7) 82 respondents had taken loan to finance the installation of gobar gas plant. Only 18 respondents

could install the gohar gas plant with the help of their own funds.

- 8) 97 respondents received subsidy in the range of Rs.3000/- to Rs.5000/- from the Government.
- 9) 72 persons did not require to do any repairs of the plant while 28 were required to do repairs after a period of more than 12 months from installation of the plant.
- 10) 91 out of the 100 respondents could get Rs.1500/- or above from the sale/use of fertilizers yearly.
- 11) All the respondents stated that above 50% time was saved, i.e., approximately 1 hour 30 minutes in respect of cooking.

Other Conclusions :

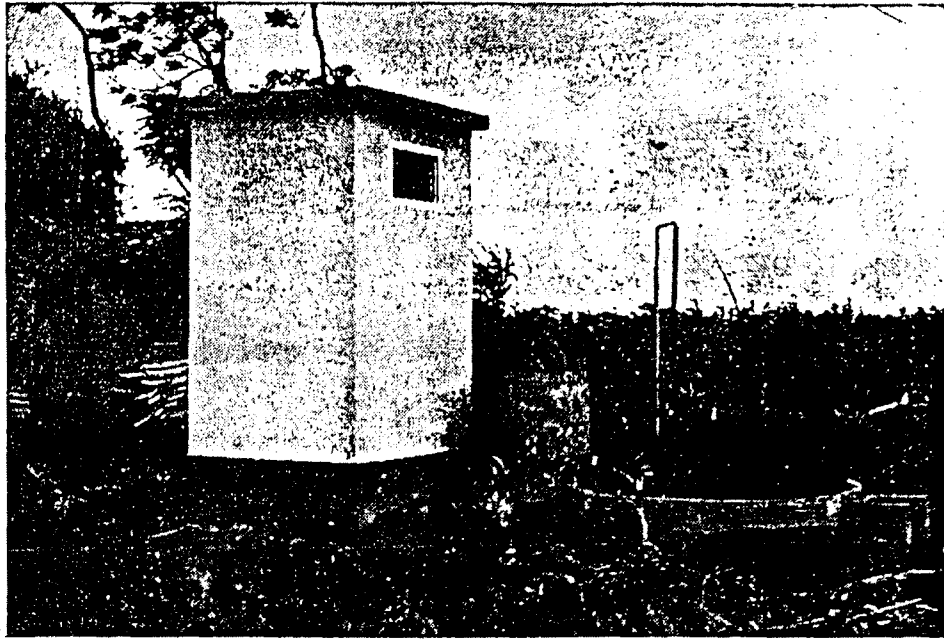
- 1) All the activities undertaken by Shivsadan Society over the period of 21 years of its existence show wide variations.
- 2) The Society seems to have paid less than adequate attention to broadening its share holder's base.
- 3) The Shivsadan Society has not incurred loss in any year of its existence of 21 years.

It's financial position, as reflected, by it's capital structure (debt-equity position) and the Liquidity ratio.

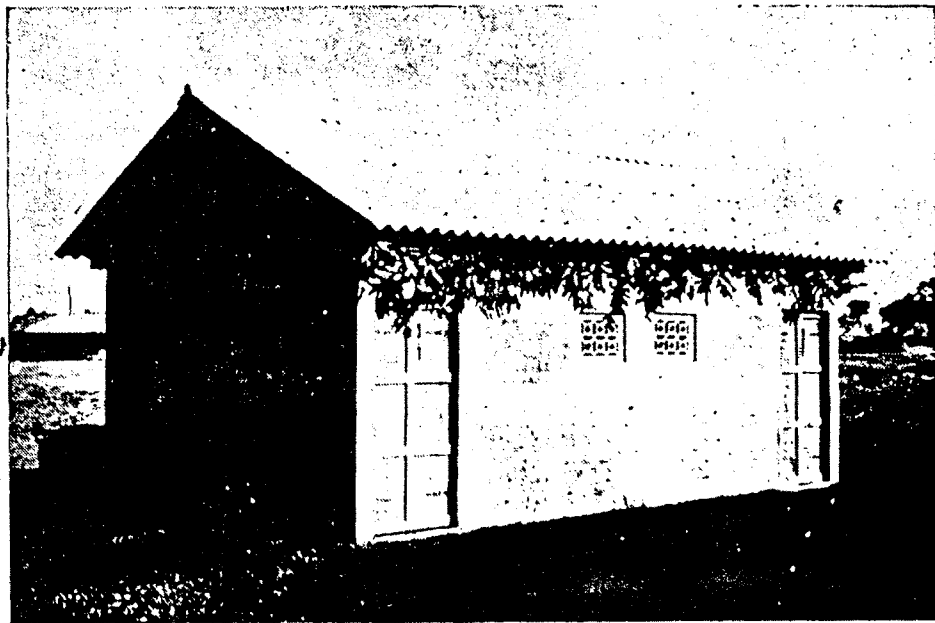
Overall Assessment :

Eventhough Shivsadan Society is a unique organisation of its kind and it has done good work in respect of its activities like pre-fabricated houses and gobar-gas plants, the following points must also be noted :

- 1) The Society should have tried to strengthen its shareholders' base by lowering the face value of its shares from the present Rs.1000 to, say, Rs.100.
- 2) It does not follow the required financial discipline.
- 3) Shivsadan Society depends very heavily on outsiders to its world.
- 4) Shivsadan Society has not done the work and managed its activities in a planned manner. This is reflected in the ups and downs, over a period of time, in almost all the activities it has undertaken.



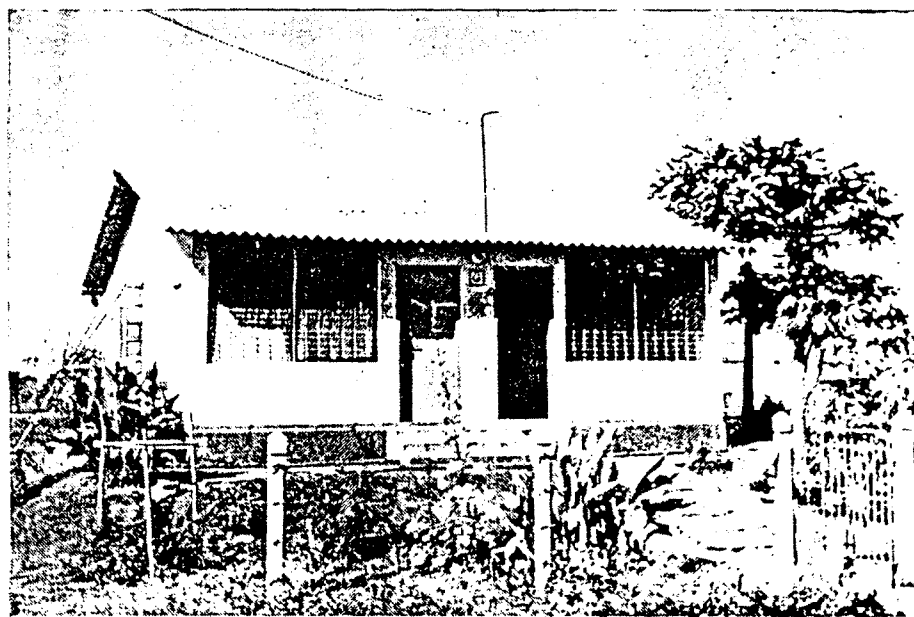
Composite Unit of Prefabricated
Gobar Gas Plant & Latrine Unit



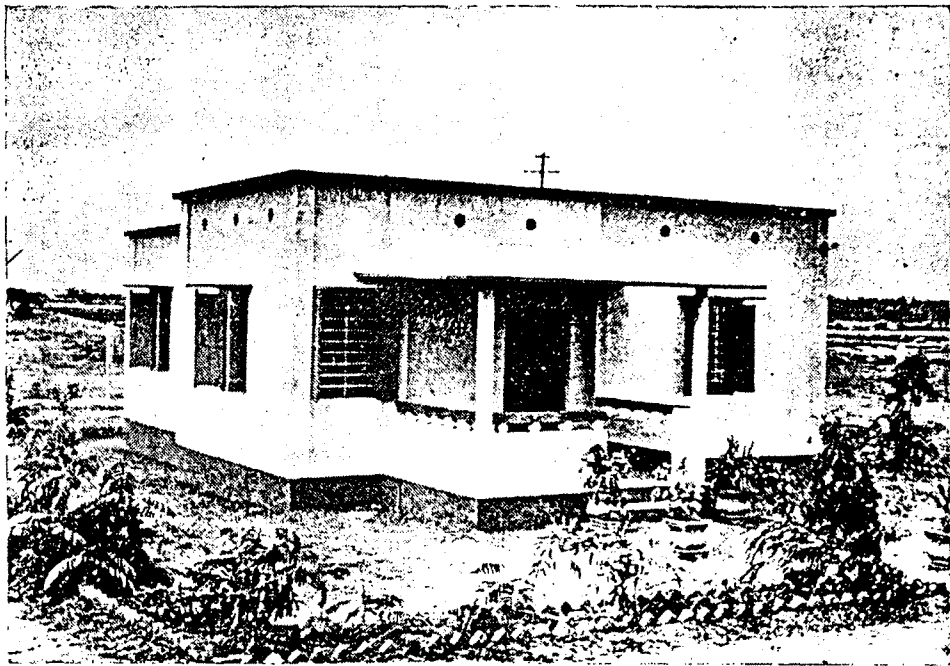
"VASANT GHARKUL" Prefab. Double Room House



Shivsadan Prefab. House with Slab as Roof



Shivsadan Prefab. House with Asbestos Sheet Roofing



Completed View of " SHIVSADAN "
Proto Type House For Display To The Public

Sample Used to Collect data from the Sample/Customers.

१	२	३	४	५	६	७	८
१)	नांव व गांव						
२)	घरची शेती आहे का ? असल्यास किती आहे ?	होय/नाही	१ एकरपेक्षा कमी	६ ते १० एकर	११ एकर व अधिक		
३)	धरातील माणसांची संख्या	--	५ पेक्षा कमी	६ ते १०	११ पेक्षा जास्त		
४)	धरात जनावरे आहेत का ? जसल्यास किती ?	होय/नाही	१ ते ३	४ ते ६	७ पेक्षा अधिक		
५)	वार्षिक उत्पन्न अंदाजे किती आहे ?	--	रु. १० हजारपेक्षा कमी	११ हजार ते २० हजार	रु. २१ हजार ते ३० हजार	रु. ३१ हजार ते ४० हजार	रु. ४१ हजार व त्यापुढे.
६)	बायो गॅस संयंत्र अस्तित्वात किती वई झाली ?	--	स्वयंपेक्षा कमी	४ ते ६ वर्षे	७ ते ९ वर्षे	१ वर्षा- पेक्षा जास्त	--
७)	बायो गॅस संयंत्रासाठी वॉन्डरिंग कॅबिनेट आहे काय ?	होय/नाही	--	--	--	--	--
८)	संयंत्राकडून यासाठी सज्जतीची मिळाली का ?	होय/नाही	रु. ३ ते ६ हजार	रु. ७ ते १० हजार	रु. ११ हजार व जास्त	३३ ते ४० हजार	४१ हजार ते
	मिळाली असल्यास किती ?						
९)	संयंत्र अय्यनस्त्रित वापर आहे का ?	होय/नाही	--	--	--	--	--
१०)	संयंत्रापासून तक्रार झाल्यास साधारण किती दिवसांनी येते ?	--	६ महिने पर्यंत	७ महिने ते १ वर्षे	१ वर्षापेक्षा अधिक	२ महिने नाही	--
११)	संयंत्र कोणामार्फत असल्यास तक्रार आहे ?	--	शिक्षण सोसायटी	साधारण गवडी	--	--	--

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१	२	३	४	५	६	७	८
१३)	वर्षाला साधारण क्विती खत मिळते ३	---	रु.७५०/- पेक्षा कमी	रु.७५० ते १५००/-	रु.१५०० पेक्षा अधिक	--	--
१३)	जमिनीच्या क्वात तयार झालेले खत द्यामत्तन काही फरक पडला कां ३	होय/नाही	--	--	--	--	--
१४)	पडलेला फरक कसा आहे ३	वांगला/ वाईट	--	--	--	--	--
१५)	आर्बुबाच्या वातावरणात कांही फरक पडला कां ३	होय/नाही	--	--	--	--	--
१६)	नेहमीचा कंपनी-गॅस व या संघ्रातील गॅस मधील कोणता सोबीस्त्र वाटतो ३ अ) वापर करण्याच्या टुष्टीने ब) वहातुकीच्या टुष्टीने क) खर्चाच्या टुष्टीने ड) सोयीच्या टुष्टीने	--	कंपनी गॅस	संघ्र गॅस	--	--	--
१७)	संघ्रात तक्रार निर्माण झाल्यास सोसायटीची माणसे देतात कां ३	होय/नाही	--	--	--	--	--