

TABLE OF CONTENTS

EXECUTIVE SUMMARY	2
1 BACKGROUND OF EVALUATION	4
2 OBJECTIVES OF EVALUATION.....	4
2.1 General objective	4
2.2 Specific objective.....	5
2.3 Scope of evaluation.....	5
3 METHODOLOGY OF EVALUATION.....	5
4 PROJECT EFFECTIVENESS AND EFFICIENCY	8
5 PROMOTION ACTIVITIES	9
6 TRAINING	12
7 SUBSIDY	14
8 CREDITS.....	16
9 QUALITY CONTROL.....	17
10 EXTENSION AND R&D	19
11 MANAGEMENT	21
11.1 Human resources.....	21
11.2 Planning	23
11.3 Monitoring and evaluation.....	23
11.4 PBPO - Provincial management of the project.....	24
11.5 BPO - Central management of the project.....	25
12 CONCLUSIONS	27
APPENDICES	30

EXECUTIVE SUMMARY

The Phase I of Biogas Project (BP) has been operated since 2003 and will come to completion in January 2006. This report is a synopsis of the evaluation task, undertaken by the AITCV consultant team, to assess the achievements and experiences of the various activities of BP in the last 3 years.

The evaluation was aimed to analyze the key issues in the management and operation of the project in Phase I. The results of this independent evaluation will help the Government, donor, beneficiaries and project management to have an overview of the project's outputs and approach in order to effectively prepare for the planning and operation of the next Phase II.

The method used to evaluate the BP- Phase I was a combination of desk review and participatory assessment, including various information collection and analysis tools. The consultant team visited BPO, Thai Nguyen and Hoa Binh Provinces in 3 days from 11 to 13 December 2005 to conduct the field evaluation with activities as focus group discussions, interviews, and workshop discussions. The preliminary findings from these visits were then presented in the BP national workshop on 17 December 2005 in order to verify and further discuss the preliminary findings to the project stakeholders in all 12 partner provinces. This evaluation approach have received high appreciation from the project stakeholders in terms of effective methodology and efficient timing.

Overall, the BP has achieved significant results in Phase 1 through the supporting of 18,000 biogas plants in 12 provinces over 8 economic regions in Vietnam. The number of biogas plants constructed exceeded the original target by 50% (18,000 to 12,000 plants) and the construction was completed 7 months earlier than planned.

The implementation of Promotion and Marketing tools of the project was assessed by the provinces and BPO as very good. The most effective tools were the investigation of potential users and the promotion talks by district technicians. The least effective tools were leaflets and bulletins. The P & M activities have gained strong supports from local authorities. The provinces took initiatives to integrate biogas promotion into their various information and media programmes. The evaluation also tried to point out the conditions positively and negatively affecting the P &M activities in the provinces. For further improvement of P&M activities the stakeholders gave plenty suggestions such as more attractive leaflet design, introducing visual tools, and the official involvement of local authorities.

The training activities given to BPO staff; provincial technicians; masons; and preconstruction, and operation and maintenance of biogas plants for users were evaluated very well. Timing and logistics arrangement were also rated high. However, it was suggested that the time for training should be arranged out of production time of farmers. The numbers of participants, and the financial supports for the training should be flexible depending on the context of the regions/provinces. Experience sharing activities for provincial project staff and users should be enhanced.

Subsidy was highly appreciated and played an important role in facilitating household's decisions. The stakeholders however was not very pleased with the equal

subsidy scheme because it did not reflect the disparity in economic conditions between biogas users. For Phase II, the project should consider higher subsidy rate to accommodate inflation trend as well as multilevel subsidy scheme to provide different subsidy for rich, poor, and ethnic households. The mode of subsidy transfer and the procedure to obtain subsidy were very convenient and effective; but the money transfer was often delayed. In addition to the subsidy, credits issues were also recommended by the interviewees to provide more supports for less rich households with high demand for biogas.

The quality control system of the BP in terms of quality of the biogas plants, the quality inspection, qualification of the masons, BPO quality control efforts, etc was evaluated to work effectively by the respondents. The role of district technicians in quality control was very important. Major strengths and weaknesses of the quality control system were also investigated in the evaluation process. To improve the quality control system, specific recommendations were given such as clear monitoring tools and indicators, standardized and simplified quality control procedures.

It was found during the evaluation that the activities of extending the use and application of biogas products during phase 1 have been very efficient . Biogas has been used in cooking, lighting, warming up chicks, drying teas, etc. Farmers have used bio-slurry as fertilizers for their crops or as feed for livestock. The above uses have helped households to save significant amounts of money previously spent on fuel, fertilizers and associated pesticides. Certain actions of extension and R&D such as consulting service, experience sharing, and cooperating with other science institutions should be developed to explore the use and solve problems arisen during process of use.

Management of PBPO and BPO was also evaluated. Recruitment and training activities, coordination between provincial and district levels, clear vision and supports from provincial government and political bodies, etc. contributed to the success of the BP. However, the top-down planning, supporting facilities, and part-time staffing in provinces made the BP less effective. The evaluation have tried also to collect specific recommendations to improve management of PBPO and BPO from the project stakeholders.

In summary, the programme has been very successful in achieving its objectives in phase 1. Proactive preparation, together with experience sharing, activities coordination, management and further improvement of management tools, will lead to a new success in phase 2 of the BP.

1 BACKGROUND OF EVALUATION

The Biogas Project (BP) has been set up in January 2003 between the Governments of Vietnam and the Netherlands. The main objective of this project is to further develop the commercial and structural development of biogas, at the same time avoiding the use of fossil fuels and biomass resource depletion. To implement and coordinate this project, a central Biogas Project Office (BPO) was set-up in May 2003.

Over nearly 3 years of establishment BP and operation of Phase 1, the Biogas Project has achieved significant results through supporting the construction of 18,000 biogas plants in 12 provinces over 8 economic regions in Vietnam. The Phase 1 of the Biogas Project will run up to January the 31st 2006. In order to extend the project's successfulness, ensure continued operation of all plants constructed, and strengthen the institutions for continued and sustained development of the biogas sector, the second phase of this project will be implemented from February 2006.

In preparation of Phase 2, it is necessary to evaluate all project activities that have been carried out in the last 3 years. This evaluation will help the Government, donors, beneficiaries and project management board to have an overview of the project's outputs and approach. This evaluation will also point out the achievements and shortcomings. From subjective opinions and feedbacks of all stakeholders, the evaluation will specify the key issues that need to be addressed and lessons to learn. The results of the evaluation will help the Phase 2 to achieve its objectives in an effective and efficient way.

This report is the output of an independent evaluation conducted for the Biogas Project by the AITCV consulting team. The report presents the main findings on the achievements and shortcomings of the various project activities in Phase 1. The objective, scope and methodology of the evaluation are presented in sections 2, 3 and 4, respectively. Analysis of findings for each project activity will be consecutively presented in sections 5 to 9. Finally, the report presents the summary of key issues that need special attention in the next Phase 2 of the project with constructive recommendations in section 10.

2 OBJECTIVES OF EVALUATION

2.1 General objective

Running in parallel with the evaluation efforts made by the provinces and the BPO, the principal objective of this evaluation is to assess the management and implementation of the domestic Biogas Project in Vietnam by an independent evaluator. To this extent, the evaluation shall assess all aspects of the project, such as promotion and marketing, quality control, extension, training, administration, and monitoring. The evaluation include the views of all stakeholders including government, donors, Biogas Project Office, Provincial Biogas Project Offices, masons, and technicians. As the perception of the biogas users is subject of the Biogas User Survey, the review is not expected to include the views of the users.

2.2 Specific objective

The above general objective can be broken down into a number of specific objectives, namely:

- a. The effectiveness and efficiency of the various project activities, ranging from Promotion & Marketing (P&M) to Quality Control
- b. The effectiveness and efficiency of the project management from central BPO to provincial PBPOs
- c. Suggestions from stakeholders for possible improvements of the Biogas Project

2.3 Scope of evaluation

This evaluation is not a comprehensive project evaluation. It is driven by the focused attention of the BPO on achievements from the first phase that need to continue and lesson learnt for improvement. Besides, the evaluation does not include the views and assessments of the biogas household users, which have been collected and analysed in a separate assessment.

Due to time and resource constraints, the field survey for this evaluation has been conducted in the BPO and only two provinces out of the 12 provinces participating in the project. The evaluation will involve the main stakeholders of the project including the BPO, PBPOs, district technicians and masons.

3 METHODOLOGY OF EVALUATION

The method used to evaluate the Biogas Project was a combination of desk review and participatory assessment, including various information collection and analysis tools as shown in Figure 1. To conduct the evaluation, a consulting team was set up with 9 experienced experts and staff of AITCV.

Steps in the evaluation process, which lasted for 14 days from 4 December to 17 December 2005, are presented in Figure 2.

Review of the project documents and website have provided the evaluation team with proper understanding on the project design and stakeholders. These documents included, but not limited to, the proposal and implementation plan, annual and half-year reports, project guidelines for implementation, project leaflets and bulletins. The understanding gained from the desk review was very helpful in development of the questionnaires (Appendix 3), interview guidelines (Appendix 3), and focus group discussions.

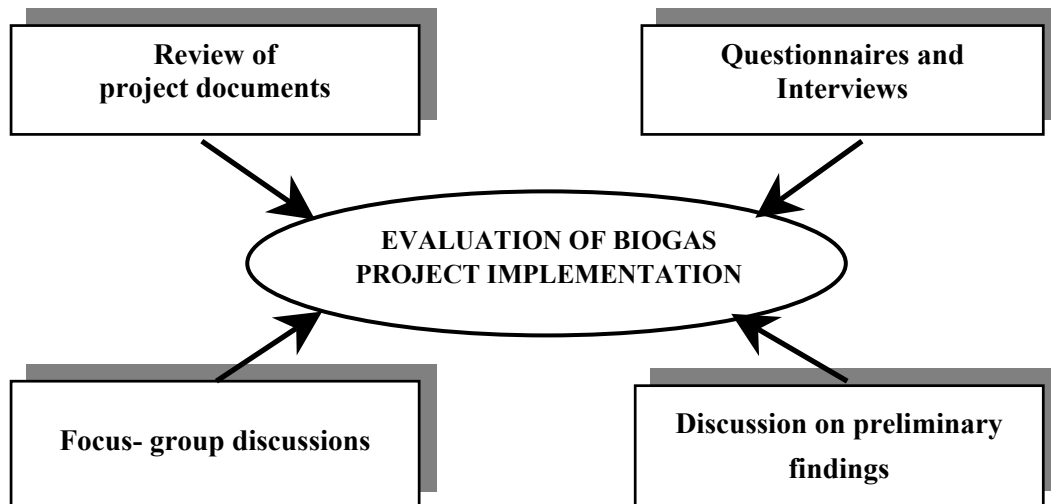


Figure 1. Tools used in evaluation of the project

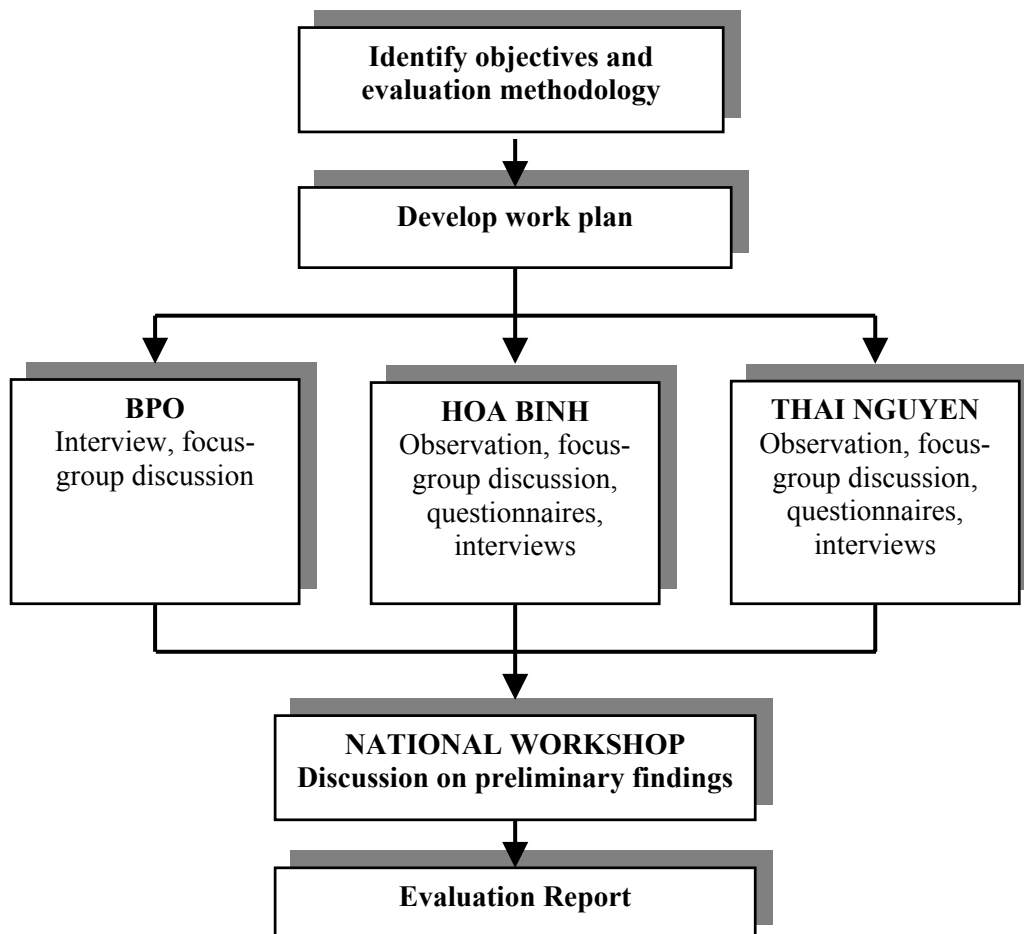


Figure 2. Steps in evaluation process

Opinions of the various stakeholders of the project, except the users, firstly were collected in the 3 field visits from 11 to 13 Dec 2005 in Hanoi (national level), in Thai Nguyen and Hoa Binh provinces. The list of activities conducted is presented in Appendix 1. Participants joining our focus-group discussions and interviews in the 3 locations are listed in Appendices 2a, 2b and 2c, including

- The director, coordinator, TA, technical manager and the administrator of the BPO,
- The Director of the Agricultural Department and the Deputy Manager of Planning Division of MARD;
- The directors, deputy directors, coordinators, technicians and accountants of the PBPOs in Hoa Binh and Thai Nguyen
- The district technicians, representatives of masons, representatives of commune authorities, and representative users in Hoa Binh and Thai Nguyen.

Due to the time constraint, the invitation for the focus-group discussion in Hanoi, Hoa Binh and Thai Nguyen was sent only two days before the workshop. Therefore the PBPO could invite participants based on their availability rather than on pragmatic proportion.

The questionnaires, discussions, and interviews were designed to collect the assessments and recommendations of the different stakeholders on the various activities of the project. To have some quantitative assessment, the questionnaires asked participants to rate how they assess the effectiveness of project activities by a grade scale of 9, of which grade 1 to 3 was for not effective, 4 to 6 was effective, and 7 to 9 was for very effective.

The activities of concern were, according to suggestion of the BPO, promotion and marketing, subsidy and credit, quality control, extension, and management at all levels. At the BPO in Hanoi, stakeholders views were collected with open group discussions and semi-structured interviews. In the two provinces visited, opinions of stakeholders were collected by the use of card discussions in a one-day workshop followed by individual interviews and visits. Interviews were conducted after the focus group discussion. This had the advantage that the provincial participants after the workshop understood better the context and objectives of the evaluation, and would use the interviews as chances to express their own ideas on the issues. Working agenda and methodology for provincial focus group discussions are presented in Appendix 1b.

Evaluation of stakeholders on the project activities collected from the 3 surveys were analyzed and summarized into main primary findings, which in turn were presented for further discussion at the national workshop in Hanoi on December 17, 2005. The participants at the national workshop, who were mainly project partners at provincial level, were asked to express their agreement or disagreement with the key issues discovered through the surveys. This approach helped to clarify the similarities or differences in implementation of the project in the 12 provinces, of course not detailed enough due to time constraints. The national workshop was also a chance for the evaluation team to gain further explanation from the provinces on the implementation practices and collect additional recommendation from these stakeholders.

Overall, the evaluation activities designed by AITCV team have received great appreciation from the participants in terms of its effective methodology and efficient timing. From the feedbacks of PBO and provincial stakeholders at the national workshop, it was confirmed that almost all the main positive and negative issues of the project have been revealed in the evaluation. The participants felt comfortable to express their opinions precisely with both the cards and the open discussions. The success of the evaluation was achieved also thanks to the close and effective communication between the BPO, stakeholders and the consulting team throughout the evaluation process. At the national level, communication was facilitated with a briefing discussion on December 7 and the presentation of primary findings for BPO feedback on December 16, 2005.

4 PROJECT EFFECTIVENESS AND EFFICIENCY

Achievements

By the end of Phase 1, the project has achieved all of its objectives.

- The project completed its objective of biogas plant construction 7 months earlier. The number of the biogas plants installed by the project exceeded 50% of the original target (18,000 compared to 12,000 plants). The number of provinces participating in the project also expanded from 10 to 12 provinces.
- The selected technology was very appropriate and the quality control system worked very well. These two assets of the project ensured affordable cost and good quality for the biogas plants.

In terms of effectiveness, the project has engendered both socio-economic and environmental benefits to the user households, the local communities and the provinces.

- Economic benefits: According to BPO experts, each biogas plant of medium capacity could provide enough cooking and lighting energy for a household from 5 to 7 members. It would save approximately cost 150,000 – 225,000 VND per month (or 1,800,000 – 2,700,000 VND per year) for an urban household who used liquid gas. With the life cycle of a biogas plant of 10 years, the economic return of 18,000 plants would be 324-486 billion VND. If being combined with the construction of the toilet system as per the project recommendation, the biogas plant could help farmers to save 1 -1.5 million VND for the septic tank, which results in the total saving of 18-27 billion VND.

The waste of biogas plants was a good source of fertilizer for planting rice and other crops and of feed for aquaculture and livestock. Farmers already recognized that they could save a lot of money previously spent on inorganic fertilizers and pesticides. The saving was steadily fast.

Besides, once the problem of animal waste was solved with the introduction of biogas, livestock households could think of expanding their livestock herds and therefore improving their income in the long term.

- Social benefits: Using biogas helped to change the custom of cooking and lighting in the rural area, minimizing the burden and diseases for the house wives in the rural area.
- Environmental benefits: Biogas helped to well treating the animal waste in raising livestock, improving environmental sanitation in rural and urban communities, especially for areas with high density of livestock raising; reducing air pollution causing green house effects (which was estimated up to 64,000 – 119,000 tons of CO₂ annually). Also biogas could replace wood in cooking, which would reduce the destruction of forests.

Unachievable results

There were two project objectives that have not been achieved related to establishment of Project Steering Committee and the credit facility. The national steering committee due to many reasons has not been ever established as designed. However, it seems these shortcomings have put little affect on the performance of the project.

The objective “to develop a commercially viable, market-oriented biogas industry” was not clear in terms of definition. Indicators for assessing the existing of a biogas industry were not defined.

5 PROMOTION ACTIVITIES

Effective promotion tools

In Phase 1, the biogas project was mainly promoted by/through several tools as:

- Investigating of potential clients/users,
- Organizing talks to potential users on the benefits of using biogas and bio-slurry,
- “Marketing” efforts by technicians and masons, which were considered as part of their responsibilities in the project
- Articles and broadcasts on local newspaper, local radio and television
- Posters, leaflets, and bulletins.

In the two surveyed provinces, in a grade scale of 9 the implementation of these received a grade of 6 (or 6 over 9) which meant from good to very good (see Appendix 4). The most effective tools were considered as the investigation of potential clients/users (7.6 over 9 in Thai Nguyen and 7 over 9 in Hoa Binh) and the promotion talks (6.8 over 9 in Thai Nguyen and 7.4 over 9 in Hoa Binh). Less effective were the marketing leaflets and bulletins. Evaluation of media activities for promotion was quite different between the two provinces. It was only satisfactory in Thai Nguyen (6 over 9) due to budget constraint has limited the frequency of broadcasting, while very satisfactory in Hoa Binh (7.3 over 9) resulting from the strong political will and thus support from provincial government (see Appendix 4). It was confirmed at the national workshop that the findings on relative effectiveness of the P& M tools reflect well the situation in all the 12 provinces.

According to the stakeholders, the first promotion activity to investigate potential users has created awareness among livestock households. The succeeding promotion talks and training then gave these potential users opportunities to assess the benefits that biogas could bring about and make their own decision.

The effectiveness of leaflets and bulletins was not positive as expected because of several reasons. Among them were:

- Lack of reading habits of local partners and especially farmers,
- Designs were not very attractive, “too many letters and lack of eye-catching pictures”,
- Posters were not put in suitable and safe places, children could take them away easily,
- Delayed and insufficient leaflets and bulletins sent to communes.

Interviews with a few household users revealed that rural people prefer to assess the benefits and convenience of biogas plants by seeing them “with their own eyes”. A lady user told us that her neighbors keep visiting her home to see how the plant was constructed and operated. Demonstration models therefore were recommended as the most effective marketing tool for biogas. Simple demonstration models at households with modest investment seem to be interesting enough to local people, especially in remote areas.

Marketing by district technicians and masons was effective “beyond expectation”. Many technicians and masons have constructed biogas plants of their own, and those automatically have become the “demonstration models”. Marketing was also beneficial to these masons as it brought them more construction and more income.

In fact, the promotion and marketing activities of this project have been affected somehow by the unsuccessful introduction of biogas technologies several years before also through the agricultural extension system. Rural people had become more careful in investment in biogas, which made the promotion activities this time more difficult. Promotion activities were also difficult in remote areas, where the density of households was low and it took a lot of efforts for technicians to visit households.

Supports from local authorities

Besides the designed promotion tools, the project also benefited from local authorities' efforts to boost up biogas construction. Recognizing the benefits that the biogas project could bring to the livestock households, the local community and to themselves as individuals, the local authorities took initiatives to promote biogas construction even beyond the project requirements. “I wish the project will develop really strong for the benefits of people in my commune and then later I can benefit from it too”, a commune leader told us in an interview.

The various promotion initiatives that the provincial, district and commune authorities have taken are, among others:

- Integrating biogas promotion into agricultural extension activities and other programs.
- Considering the biogas promotion as one among other responsibilities of the agricultural extension officers (as in the case of Hoa Binh)
- Mandating local departments, programs and civil associations to cooperate in promoting biogas.



Key issues in P&M

Comments of the BPO, provincial and district personnel of the project on P& M activities were very positive. From these comments and discussions at provincial and national workshops, we learnt that P&M activities have been very successful and received high attention and support of local authorities. Its success could be proven by the project reaching its target in 11 out of 12 provinces several months earlier than schedule.

There were various conditions which affected the success of certain promotion tools and caused difficulty in implementing the others. These conditions were primarily:

Advantageous conditions:

- Clear orientation, guiding and budget provided from BPO in organizing local promotion activities,
- Clear vision and support of provincial and district authorities
- Good selection of biogas technology to be introduced
- Involvement of a wide and strong agricultural extension network
- Qualified and enthusiastic district technicians

Unfavorable conditions:

- Previous defective biogas technologies hindering marketing efforts at the beginning
- Not including local authorities and civil societies, from which resources and opportunities for biogas promotion could be mobilized,
- Insufficient budget allocated for activities, especially media programs
- Lack of participation of PBPOs in planning and design of activities

Stakeholders recommendations

In phase 2, in order to boost up promotion and marketing more suitable to the provincial situations, it was recommended that:

- More investment should be spent on demonstration models and visits of users, while bulletins and leaflets need to be more attractive with fewer words and more pictures. Visual promotion tools such as movies and CDs were recommended as a good tool for information disseminating. They could contain programs reporting successful cases on using biogas and bio-slurry. The stakeholders also emphasized that it was necessary to assess the impacts of biogas introduction in order to gather supportive information for P&M.
- The project should mobilize official participation of local authorities (province, district and commune) in order to benefit from their resources and influence at locality. The local participation could be in many forms ranging from policy support to infrastructure and financial contribution. In phase 1, initial step has been taken to mobilize financial contribution from Hanoi and Thai Nguyen provinces. Various provinces have already taken initiative to integrate biogas promotion into their regular media and information programs. In Phase 2, BPO should consider the possibility of providing lump sum marketing budget to the provinces. With this budget, the PBPOs will develop their own promotion and marketing plan based on BPO guideline.
- Marketing efforts of technicians and masons need to be more recognized. There should be certain awarding schemes developed to motivate the contribution of these individuals in order to ensure sustainability of the project. In the first phase, financial support for technician activities in the project was considered as rather low.

The findings in this report on P&M activities need to be further explored with a detailed evaluation of the effectiveness of each P&M tool. The number of biogas plants constructed outside of the project during phase 1 has shown somehow that demand for treatment of livestock waste for production expansion and environment was high during the project time. However in later stages of the project, when the demand will be gradually satisfied, P&M activities may need to be boosted up in order to reach the final goal of a commercial biogas sector.

6 TRAINING

Useful and effective training activities

Within the project design, training activities include

- Management training for BPO staff
- Training for provincial and district technicians
- Training for masons



- Training for provincial accountants
- Pre-construction training for users
- Training on operation and maintenance of the biogas plants and extension for users

Responses from questionnaires in the two survey provinces generally graded the contents of those trainings, their approach, trainers and applicability as very good at a grade of 6.5 to 8 on the grade scale of 9. Timing and logistic arrangement for those training were good with grade of 6 to 7 over 9 (see Appendix 4). Certification for masons was considered as a very good approach. It was part of the trademark of the project's quality control system. The evaluation was obtained for all training activities as a whole and did not classify the impact of each type of training. Detailed evaluation of project's training activities could only be obtained in a separate training impact assessment.

Difficulties in organizing training

District technicians, in the provincial surveys and further discussions at national workshop, shared their concerns in organizing training. The aspects that need improvements were mentioned as:

- Timing of training was not ideal. For example, there were cases where pre-construction training was organized after construction due to the delay of financial planning and money transfer.
- The preset number of participant to a training course was not reasonable. The number of people who wished to attend the user trainings, for example, was often higher than the seats allowed by the project design. On the other hand, in remote and mountainous areas, it was rather difficult to collect enough participants for a training class. District technicians found this issue rather ridiculous and wished to have more flexibility in organizing user training.
- The rate of financial support for participants to these trainings was lower than that of other rural development projects, which need to be increased in the phase 2. For example, in Thai Nguyen farmers attended farmer field schools could receive from 15,000 to 25,000 VND per day while the project could provide only 10,000 VND.

Recommendations for improvement in phase 2

- The best period for training provided to users and potential users should be out of the production time of farmers. Accordingly it should be from April to August for the Northern provinces and August to December for the Southern provinces.
- Conduct Training Needs Assessment for BPO, PBPOs, technicians and masons. The project staff and technicians have expressed their needs to be further trained for necessary knowledge and skills specific to their tasks. It was also suggested that the project organize more study tours and visits for project staff and technicians in order to promote learning and experience exchange.

- Training plan, as well as other activities, should be developed with the participation of local levels to capitalize local experiences and ensure its matching with the specific local conditions. Working plans should also be informed to provinces with sufficient time in advance so that the local stakeholders will be able to develop their programs more actively.
- Create and maintain users clubs for sharing experiences in terms of operation, application and maintenance. The activities of these clubs could be opened to people outside for the purpose of promotion as well.
- Sharing experiences among the provinces was essential for development and sustainability of biogas as a sector.
- Standardize all kinds of training materials and provide clear guidelines for provincial and district technicians how to arrange training for users.

7 SUBSIDY

Subsidy was highly appreciated

Subsidy was granted on a flat-rate basis. Each livestock household benefited an equal subsidy of VND 1,000,000 disregarding either the size of the biogas plant they need or their economic conditions. Within the project time frame, this amount of subsidy could cover from 20 to 30% of the construction cost of an average biogas plant (4,000,000 to 5,000,000 VND). However once constructing the biogas plant, the livestock household also wished to renovate their kitchen and breeding facilities, which caused increase of the total costs. Subsidy was transferred to users directly by post in principle 30 days after the testing and acceptance report of the biogas plant was submitted.

In the two provinces of our survey, satisfaction of the project partners (the PBPOs and district technicians & masons) on the availability of subsidy was graded very high. However, the equal subsidy scheme was not very appreciated, receiving a grade of 4.5 in a grade scale of 9, as rather good. The mode of subsidy transfer through post office received different grades, higher in Thai Nguyen with 7.6 over 9 and lower in Hoa Binh with 4.1 over 9. The required procedure to obtain subsidy was assessed as good to very good, with an average grade of 6 over 9, while delay in money transfer has made timing for money transfer an unsatisfactory issue with only grade of 3.5 over 9.

Expressing in different ways, all participants taking part in our evaluation have praised that subsidy was one of the “beauties” or assets of this project. The other beauty was the quality control system. Although subsidy could cover only a small part of the total investment of livestock farmers, it was highly appreciated and played an important role in facilitating household’s decision. In the phase 2 of the project, when the new potential users will be less rich compared to the previous ones, this role would be more essential. Accordingly, it was commonly recommended that subsidy definitely needs to be continued in Phase 2.

The equal subsidy scheme, although did not create any problems during phase 1, has been assessed as inappropriate. It had the advantage of simple management but could not reflect the disparity in economic conditions between households and between areas. While spreading the biogas use was one of the objectives of the project and new

users in phase 2 would be less rich and/or residing in more difficult or remote areas, a subsidy scheme with 2 or 3 levels should be considered.

Very appropriate mode of transfer, delay in money received

The approach to transfer subsidy to users by post was, in general, highly evaluated. Majority of participants agreed that transfer directly through post office was very effective and convenient for users. Stakeholders' opinions at the national workshop confirmed that subsidy was transferred to farmers without getting lost. A user said that it cost him a maximum of 2,000 VND to get the commune certification before going to post office while cost of money transfer was covered by the project. Within our limited survey in the two provinces, there were no complains from users that they faced any loss or difficulty in receiving the subsidy. However, as learnt from an interview with a district technician, there may be cases where commune authorities ask the farmers to contribute back 50,000 to 100.000 VND, but we could not check this thoroughly within our survey.

There were suggestions that subsidy or part of it should better made in terms of pre-fabricated biogas plants, equipments or accessories instead of money to assure quality of the biogas plants. Provincial leaders at the national workshop did not favor this idea very much. They argued that, besides its convenience and efficiency to beneficial households, subsidy in monetary term also helped to show transparency of the subsidy process and thus avoid corruption.

All provinces complained on the delay of transferring subsidy. Especially in 2005 money was transferred from 8 month to 1 year late on the average. Compared to the commitment of 30 days after the signing of acceptance report, this delay was rather unacceptable. There were cases where part of the payment to masons was suspended until households received their subsidy. In the worst case, the household did not pay back although subsidy had already been transferred. Accordingly the technicians and masons requested that they should be informed once the money was transferred.

Strengths and weaknesses in subsidy activity

The strengths of this current subsidy design were:

- The subsidy itself
- The effective and convenient transfer approach by post, and
- The monitoring of subsidy transfer at central and provincial levels with the database

The aspects of subsidy that need improvements were commented as

- The equality in subsidy,
- The low subsidy level,
- The delay in transferring the money to users,
- The complicated paper works, and
- The monitoring system to verify all subsidized biogas plants. There was evidence that virtual or outside-project biogas plants benefited from subsidy.

Recommendations from stakeholders

- Most of the participants recommended the continuation of subsidy in phase 2. As mentioned before, subsidy was recognized as an asset of the biogas project. It encouraged livestock holders, who were facing dilemma of expanding their livestock breeding and solving sanitation problems related to livestock wastes, to construct biogas plant.
- Subsidy in monetary terms and transferred by post was an appropriate approach and should be continued.
- Various multilevel subsidy schemes were recommended, including (1) 2-rate subsidy for rich and poor households, (2) 3-rate subsidy for rich, poor, and 135-commune households, and (3) subsidy proportional to plant size. The 2nd option would rather complicate management. The 3rd option was not favored as it would be costly and lead to more support for better-off households.
- The subsidy rate should be higher than that in the first phase considering the inflation trend.

8 CREDITS

In phase 1 of the project, potential clients with livestock capacity of at least 10 pigs were identified quite successfully. These households, in general, seem not to face big difficulties to secure the budgets for their own biogas plants. Some project officers and technicians even said that subsidy was for encouragement only, because it covered only a small part of the total cost. One user being interviewed expressed how happy she was with the decision to sell her pigs for the biogas plant. Another user made brief calculation to show how fast he could take back his investment through saving money in fuels, fertilizers and pesticides. With the limited information that we could gather, it was seen that the project decision for not having yet credit in phase 1 was a right decision.

The participants to provincial or national workshops considered that credit would be needed to potential users having no strong economic conditions or residing in remote or difficult areas. Where better-off households already joined the project during phase 1, it is very likely that the target users in phase 2 would be households that need financial support. A credit facility therefore would be very useful in phase 2.

Responses from both project personnel and farmers confirmed that farmers would take credit only if

- Interest rate is low
- Collateral is not required, and
- Simple borrowing procedure.

On the management side, provinces suggested that credit facility should not be managed by the project but organized in line with the existing micro-credit channels. There should not be any major problems in introducing micro credit for biogas construction in Phase 2 because almost all agricultural extension and rural water

supply and sanitation departments have their own experiences with micro credit projects, linked to various governmental and/or non-governmental activities. For example, in Thai Nguyen there was a credit project funded by CIDSE and operated through the women union. The project technicians could play a role in identifying credit-needed households.

9 QUALITY CONTROL

The quality control system of this project was set up with

- Standardized construction and maintenance requirements,
- Qualified and well-trained technicians and masons,
- Guidelines on the quality control for provincial and district levels,
- Quality inspection with central technical surveyor, provincial and district technicians, and very importantly,
- Participation of users to quality control during construction and operation.

Feedbacks of questionnaires in the two survey provinces reflected fairly the results of quality control activities. The provincial participants graded very high the quality of biogas plants at 8 in the grade scale of 9. This was achieved via very good quality inspection (7.8 over 9), quality management (7.5 over 9), qualification of masons (7.4 over 9), user training on inspection and use (7.6 over 9), and BPO quality control efforts (7.7 over 9). Evaluation from BPO on the quality of biogas plants construction was, although less ambitious as their provincial counterpart, was also positive.

Biogas plants quality was guaranteed

The provided quality control system was another asset of the biogas project in stakeholders' point of view. The demand for biogas was high among the livestock households but failures of previous biogas technologies had loose people's trust in it. After 2 years of operation, the quality control system provided by the project has helped livestock community to regain their trust. In this aspect, the project designed by SNV has showed to be very unique and successful.

So far, within the project lifetime, the quality of biogas plants was good. The provinces reported that there have been no major quality problems or complaints on the construction and operation of biogas plants. Technicians and masons were experienced, qualified and enthusiastic. Training of users to equip them with necessary knowledge on biogas plant construction showed to be helpful. The users could monitor the construction themselves following technical drawings. Since the outcome of quality was good, we could say that the designed quality control system of the program has worked effectively. However nothing can be said yet about the quality of the constructions in the next years, beyond the project lifetime, because of the low inspection coverage.

Somehow, district technicians were the strongest link in the quality control system. They followed the biogas construction "from a to z" and were the persons who know best about the project activities at local level. Workload of technicians was rather high.

It involved a lot of traveling within the district and the management of few construction teams. Since their responsibility with the biogas project was just a part-time job, it was questionable that they could be able to follow strictly the quality management requirements. For example, measurements of the biogas plants might not be taken completely as required. In phase 2, where the number of biogas plants will be increased, if support for technicians will not be raised, the quality of their services will be affected.

Quality of biogas plants depends not only on quality of construction. Household's operation of the biogas plant, accompanied accessories and maintenance are important factors. It was reported that technicians sometime received users complaints on operation problems related to either incorrect operation of users or poor quality of stoves or valves. To tackle this problem, there were suggestions that the project should either cover also accessories (stoves, pipes, valves...) in its technical supply or advise users a number of qualified suppliers for these accessories. Training of users on operation of the biogas plants should also be improved.

Strengths and weaknesses of the quality control system

Opinions and feedback of the national and provincial stakeholders to questions on quality control were very rich (see Appendices 4, 5, 6 and 7). It was seen that provincial and district technicians were more confident on the quality of the biogas plants than their national counterparts. They confirmed there have been no major problems in quality of the biogas plants in the areas under their responsibility.

The major strengths of the current quality control system, according to all stakeholders, lied in:

- The good biogas technology selected by the project,
- The enthusiastic and experienced district technicians and their availability in case of problems, through phones or visits,
- The effective training and certification provided to masons,
- The close management of masons by district technicians, and
- Participation of users in monitoring construction

The weaknesses that need further investigation and adjustment include

- Inconsistent practices of quality inspection of district technicians. The guideline was provided but inspection steps and procedures were not standardized.
- No monitoring system to ensure that technical inspections of district technicians have been performed as required. Reports were accepted "quite easily".
- Maintenance of the plants was not performed as required.
- Provincial and national inspection coverage of 6% was too low. The method for sampling of inspected plants was not carefully explained.

Stakeholders' recommendations

To further improve quality control system, certain actions should be considered, specifically:

- BPO should set up and provide QC checklist for the whole biogas construction process including under construction, acceptance, and after 6 months quality control.
- Put codes on the biogas plants to facilitate monitoring and inspection. This could help to avoid virtual biogas plants.
- Simplify the requirements for testing and acceptance report with less indicators (some were considered by the technicians as redundant). This would help reducing workload for district technicians and speeding up the administration procedure for subsidy.
- Collect users' complaints for the purpose of monitoring and improve quality control.
- Maintain the existing technicians and construction teams. Increase financial support for district technicians and train commune technicians. Ensure independence of technicians to masons.
- Continue participation of users in construction monitoring.
- Improve training of households on operation.
- Advise users on qualified suppliers of accessories.
- Standardize QC procedure with detailed guidelines. Develop criteria to assess quality and durability of biogas plants.

10 EXTENSION AND R&D

This section of the report investigates the activities of extending use and application of biogas products during Phase 1 of the program.

Stakeholder's opinions about extension and R&D

To extend the use of biogas products, the project provided guidance to users through user's training, technicians, project leaflets, media programs, and demonstration models. The guidance provided was assessed by questionnaires at the two survey provinces as very effective with a grade of 6.5 in the grade scale of 9 (see Appendix 4). Opinions of the stakeholders were rather diverse on whether the number of demonstration models was sufficient for extension purposes; some gave a grade of 1 over 9 while others gave a 9.

Feedback from questionnaires showed that the use of biogas in households and production



activities has been very efficient, with an average grade of 8 over 9 on the average. Use of bio-slurry in agricultural production was also graded at the same level, of 7.5 over 9. The most effective forms of use included using biogas in cooking, lighting, cooking pig feeding, warming up chicks, drying tea, etc. Farmers have used bio-slurry as fertilizers for their crops or as feed for livestock. Successful harvest was gained with applications on tea, vegetables, corn and rice.

The above uses have helped households to save significant amounts of money previously spent on fuel, fertilizer and associated pesticide. A household in Thai Nguyen with tea planting and pig raising could report to us with details how he have reduced the use of fertilizers and pesticides after using bio-slurry for tea. “The soil becomes softer and blacker”, were his words to explain biogas impacts in soil conservation. He could calculate the time of getting back his “investment in biogas plant” as approximately after 1 year of construction. Another user with cows and vegetable confirmed the environmental impact that her biogas plant has brought to her family. Happy with the change, she encouraged her neighbors and relatives to join the project in its later stage.

The full economic and social effects of biogas use can only be assessed with a comprehensive impact assessment that this evaluation cannot cover. It was difficult for the consulting team within its limited time and resource to come up with any precise impact conclusion. However, the pleasant meetings with few users in Thai Nguyen and Hoa Binh have given us the feeling that effectiveness of biogas use was obvious.

Once the amount of biogas produced exceeded the using capacity of households, efforts have been made in some places to share it to neighbors through pipes. Excessive bio-slurry was either shared with neighbors for fertilizing their fields or, unfortunately, dumped into ponds or rivers. We have been introduced to a small pond along the commune road, where the farmers “get rid of the excessive bio-slurry”. There should be better and more sustainable solutions to assist households resolving this problem. Otherwise, the positive environmental impacts of biogas technology would be reduced.



With use of biogas, the problems of animal waste have been solved rather efficiently. It took less time to clean up breeding facilities (but used more water). The houses were clear of the bad smell of dung. Therefore, the households were eager to expand their production, raising more pigs or cows. They soon found out that the capacity of their biogas plant was no longer sufficient to the new amount of livestock wastes. Taking this lesson seriously, the households have recommended that the project should advise new users to build bigger plants than needed to anticipate the opportunity of raising the livestock herds.

Stemming from their own demand for use of biogas or bio-slurry, the farmers have taken initiatives to “research” ways in applying biogas and bio-slurry further. In Thai Nguyen, a farmer had tried to process tea with biogas fire but was not successful. He found it “extremely difficult” to tuning the fire complying with the strict requirements of the tea-drying task. Technicians and project officers also reported many cases where farmers tried to define the suitable amount of bio-slurry used as fertilizers for their own crops. These experiments, successful or not, definitely need support. There should have been a survey on these experiments in order to enhance extension and identify interesting and useful subjects for R&D.

Farmers’ efforts to use biogas products often met with geographical difficulties. Rural areas in Vietnam are classified into tenant and agricultural land. Location for livestock breeding and thus biogas plants was in many cases far from the fields of rice or vegetable crops. In order to use bio-slurry as fertilizer, the household members had to carry bio-slurry at least 500m to the field. It was not very convenient and thus driven down the extent to which use of bio-slurry could be realized.

Recommendations for improving extension activities.

The provincial and national participants had the common assessment that the use of biogas product could be expanded further. Certain actions of extension and R&D should be developed in order to explore the forms of use and to solve problems arisen during process of use. These actions could be, but not restricted to

- Evaluate existing user efforts and user needs for different forms of biogas use to improve the use of biogas products.
- Cooperate with the Institute of Agricultural Chemicals and Soil Fertility in research for use of bio-slurry; with the Institute of Energy for optimizing biogas use.
- Research on ways to share excessive biogas and bio-slurry to non-users, especially the poor.
- Provide more consulting services for users on the application of biogas products.
- Build at least 1 demonstration model per district and organize user/potential user visits to these models.

An important action would be to promote experience sharing among users and technicians of different provinces by organizing more seminars, site visits, or information programs in CDs, video, radio and television. These activities for experience sharing would inform users on different forms of use, techniques required for efficient use as well as the development of biogas sector. Seminars or meetings will create important fora where biogas applications will be spread around efficiently.

11 MANAGEMENT

11.1 Human resources

One of the strength of the project was its human resources, as explained by the BPO members, through effective recruitment and training.



In the PBO office, staff was enthusiastic, committed and responsible. The project has been able to attract leading experts in biogas technology of the country. Workload of BPO staff was rather high. The quantity of work increased with the number of participating provinces, from 10 to 12, and the number of biogas plants constructed, from 12,000 to 18,000. Only managing the database could take the staff long hours after working time.

In provinces and districts:

- Provincial accountants were working in the project as part-time staff. Although the accounting work in the project was simple, the large amount of biogas plants (1,500 per province) and tedious paper works made their task difficult and time consuming. There have been many suggestions to have a full-time accountant for each PBPO. It would help to speed up work progress of both the BPBO itself and the district technicians.
- Project technicians have performed their task effectively in a very enthusiastic manner. They have been very skillful in performing their P& M and quality management tasks. The technicians were keen in building a “trust system” between technicians, masons and users. Their workload in Phase 1 was rather heavy. Their contribution need to be more recognized in Phase 2.
- Without the official involvement of district agricultural extension departments, district technicians were challenged with conflicts or mismatches of the double management systems, which belonged to the project and the district agricultural departments. District technicians participated in the project as a part time job and were administered by the PBPO in vertical chain of commands. At the same time

they had their permanent job as staff of the district agricultural extension section/center and were managed by them too. Since the heads of district agricultural extension were not officially involved in the project, technicians faced many problems with conflicts of interests. The worst case, as the technicians could estimate, would be that they would be “transferred to another job and could no longer participate in biogas project”. The technicians suggested that the project consider to include their district employer officially. In a visit, this issue was similarly expressed by a head of agricultural extension.

- The masons, in general, were quite qualified. They showed willingness to continue their job through efforts to build trust with users. Being local people, the masons had their own advantage to do marketing for the biogas. Often we observed tight linkages between masons and district technicians. As a stakeholder commented, this linkage could be either very positive for quality control or negative in case monopoly of the market exist. The high quality of masons was the result of the training with certification system and quality management provided by district technicians.

11.2 Planning

Top-down planning was a topical issue which received a lot of comments. All PBPOs did not appreciate this practice. Negative sides of this planning approach were reflecting in short notice of announcements of subsidy distribution to provinces, frequent changes of regulations, rushing preparation for reports or financial clearance, calling for meetings or inspections without writing invitations, etc.

Moreover, untimely organization of training and or construction have reduced the effects of training and made quality control difficult. It happened that pre-construction training was organized after construction, construction was scheduled out of the construction season, and in the worst case acceptance reports might have been made before completion.

Planning approach can be improved by including participation of provincial levels. Participatory planning is of course not very simple in practice, therefore appropriate training should be provided to the provinces.

11.3 Monitoring and evaluation

At the national level, monitoring of the project was the responsibility of the BPO. The M&E indicators were formulated for successful implementation of the specific objectives as installed biogas plants, operation and maintenance, developing of appliances and maximization of benefits. A database was developed to monitor the subsidy transfer, which has been evaluated as very efficient. Management of budget was monitored very well.

The decentralized monitoring system of the project was not standardized. During the group discussions at national workshop, we have found that monitoring practice was different in different provinces.

For inspection, every year, SNV Viet Nam sent expert to evaluate one time at 1 to 3 partner provinces, and manager from BPO visited and evaluated all provincial offices once a year. As mentioned in the session on quality control, the coverage of visit was rather low, only 6%. However the regular inspection was effective, which has been able to identify “1 virtual construction in Thai Nguyen, 1 in Hanoi, and 19 constructions outside-project benefited from subsidy”, from an interview in BPO.

Suggestions to improve M& E were numerous, among them the following points were most important for consideration:

- Develop clear indicators for monitoring and evaluation,
- Develop mechanism to monitor activities of district technicians,
- BPO recognized the problem that virtual or outside-project biogas plants could have benefited from subsidy. Putting some codes on the biogas could help to avoid virtual biogas plants.
- The project could share the monitoring responsibilities with local government through involvement of district agricultural extension and commune PCs.
- Using more advanced technical assistance as GPS to locate the biogas plants.

11.4 PBPO - Provincial management of the project

At provincial level, a PBPO was established to manage the project activities within the province. Partly decentralized administration was promoted whereby decisions on use of administration and marketing funds were within the power of PBPOs while project implementation plans were developed at central level. The effectiveness of this top-down planning have been discussed above.

Most of personnel of the PBPO were with part time jobs. In most cases Director of BPBO was from Department of Agriculture while Deputy director was with the Center of Agricultural Extension. The PBPO had its own office, located in the Center of Agricultural Extension. The project accountants and technicians, who were respectively responsible for quality control and subsidy and administration budgets, were all part time officers.

The staff arrangement of the PBPO was not very convenient for operation. According to a deputy director “part time positions imply not flexible time schedule and that affects greatly coordination”. “To have the acceptance report completed”, a district technician explained, “ I may have to run around three places to get all required signatures from the PBPO”. Workload of provincial accountants was heavy, as explained before. For this reason, some provinces suggested to have a full time accountant for Phase 2. Workload of provincial technicians was also heavy and even would be higher in phase 2 when the number of plants increase (and if inspection rate be increased, too). Assuming that the PBPOs did not have sufficient manpower, over the Phase 1, they had to work effectively and successfully to achieve the project’s objectives ahead of time.

Strengths and weaknesses of PBPOs

Strengths

- Effective coordination between provincial and district levels. Through the strong and wide agricultural extension networks, communication and reporting were very efficient.
- Clear vision and supports from provincial government and political bodies. In some provinces, biogas activities have been mandated officially to the agricultural extension section and media organizations.
- Project directors and deputy directors with decision-making power.

Weaknesses

- Being excluded in the project planning process.
- Insufficient administration budget.

Recommendations to improve management of PBPOs

The participants taking part in our evaluation, especially the directors/deputy directors group, have proposed few changes and measures that could help to improve management of the PBPOs:

- Develop clear criteria for evaluation of each and every activity of the project,
- PBPOs should be able to take their own responsibilities in managing the quantity and quality of biogas constructed.
- Organize competition among provinces with clear rewarding policy to facilitate provincial efforts,
- Early inform project policies, subsidy quotas (possibly every 6 months), etc. so that the PBPOs can develop their working plans proactively,
- Communication with PBPOs should be done officially in writing,
- Improve and simplify administrative procedures,
- Timely inform on the plans and policies of Phase 2, especially the requirements for financial contribution, so that the provinces can prepare well for their participation,
- Increase budget for administration and quality inspections.

11.5 BPO - Central management of the project

BPO was the executive agency for the project. Its main function was to implement the plan set by the Department of Agriculture and SNV. BPO was organized into two departments: Administration and Technical Departments. The activities of the BPO were synchronized by the Program Coordinator whom was advised by the Technical Advisor assigned by SNV and who reported directly to the project director.

With a staff of 13 employees, BPO supervised project activities in 12 provinces and 18,000 biogas plants throughout the country. The management challenge was made achievable thanks to the set of guidelines for operation and maintenance. The guidelines adopted a “military form” which provided sufficient rules and regulations

on all steps of project implementation processes from planning to construction. BPO considered the guidelines as a key factor contributing to the success of the project.

Overall, BPO had a moderate level of capacity in managing the project.

Strengths and weaknesses of BPO

From evaluation of the various stakeholders, the strengths and weaknesses of BPO can be summarized as:

Strengths:

- Highly proud of the project technology and achievement
- Highly motivated staff who have prior exposure to international working environment
- Highly competent chiefs of departments (technical and admin).
- Sharing common objectives
- Ability to influence policy
- Users database
- Good financial budgeting and control
- Highly efficient operation (productivity, overhead cost, efficient investment in office equipment, transport cost)

Weaknesses:

- Absence of vision
- Technical and financial driven
- Top-down planning process
- Absence of a written policy and procedures on human resource development and financial incentive policy (salary incensement, bonus system, allowances, etc.)
- Absence of financial and accounting software for provinces
- High degree of seniority, masculinity that negatively influences the leadership, communication, team performance
- Poor recruitment and training practice for office staff, employee performance appraisal
- Decision making process (not clear between director, CTA and coordinator)
- Performance measurement (verification of biogas plants installed is not reliable)
- Poor linkage with other projects
- Frequent change of the coordinatorship
- Overloading staff

Recommendations to improve management of BPO

On the organizational capacity of BPO

- Maintaining the present enthusiasm and commitments.

- BPO should formulate a vision reflecting an inspiring view of the future; demanding yet achievable.
- BPO should set up in writing its policy and procedures (P&P) on all aspects of human resources development such as those related to recruitment, job placement, performance evaluation, training, reward and promotion etc. P&P should be reviewed and get a nod from DA and SNV.
- Hire additional staff to share the increasing workload.
- Assess training needs and offer training for administrative staff.

Things that BPO should do for project provinces

Management of BPO could be improved a lot if assistance from the PBPOs was well mobilized. There are a number of tasks and contributions that the PBPOs can perform very well to share responsibilities with BPO, possibly including

- Review and update the current guidelines with a special attention to the quality control and verification of built biogas plants.
- Apply the participatory approach in planning and implementing project activities.
- Support institutional capacity building for PBPO especially in planning and monitoring
- Conducting P&M activities from designing & planning to implementation, of course with information and technical assistance from BPO.
- Conducting some R&D activities on specific applications of local needs.
- Recognizing and enhancing PBPO's roles in management of quantity and quality of biogas plants.
- Indicating possibilities for cooperation between provinces, between province and BPO.
- Allocating a full-time project officer at provincial level

12 CONCLUSIONS

Generally, the biogas project has been able to achieve all its objectives in Phase 1. The provinces have completed their construction plans in advance. The goal to commercialize the biogas sector can be said to be within reach when the masons, trained and provided opportunities by the project, have been able to develop their own business in places without project supports. Although the project did not take on poverty reduction initiatives, it has indirectly done so through creating construction jobs and contributing to community development with environmental sanitation efforts.

The quality control system and the subsidy can be considered as “public goods” that the biogas project has chosen to provide to its users in promoting the commercial biogas sector, an environmental and social “private goods”. As the participants of our evaluation considered these “public goods” as the assets of the project, we can conclude that the project has been very successful in achieving its goal. The fact that all partner provinces of phase 1 wish to continue into Phase 2, even though they will have to contribute financially, and the other new provinces would like to join are positive signs showing the success and sustainability of the project.



To prolong the success of the project into the next phase, it is necessary to draw experiences from the first. This independent evaluation is one of the good actions for this orientation. Through scientific and effective evaluation approach, and with the intensive participation and cooperation of the project stakeholders from BPO to provinces, the main strengths and weaknesses of the project in phase 1 as well as the opportunities and threats of phase 2 can be summarized as below.

Strengths

- Timely provision of products to the high demands for biogas in Vietnam. This project responded satisfactorily to the demands for treatment of animal wastes of livestock households and communities. A household expressed strongly that she would not hesitate to “bury” 5-6 millions dong for the cleanliness of breeding facilities and surrounding environment.
- The good biogas technology provided. Several biogas technologies were applied before but not as successful as this time.
- The involvement of the Agricultural Extension System, which has strong and wide networks in Vietnam down to the communes. Agricultural extension staff is enthusiastic and experienced.
- The subsidy, a tool for financial encouragement and at the same time a sign of quality guarantee.
- The supports from provincial governments in recognizing of the project good objectives and approach.

Weaknesses

- The planning part, unsystematic and ineffective top-down approach.

- The monitoring and evaluation system, not clear indicators and lack of important tools
- The administration system, complicated paper works
- The discrepancy of the two management systems, governmental and SNV, which needs harmonization.

Opportunities

- Harmonization and linking with other projects/programmes especially those working with biogas construction. The cooperation can be extended possibly in many activities such as P&M, extension and micro-credits
- Participation of civil societies, possibly also in P&M, extension and micro-credits
- Participation of local authorities, in sharing management responsibilities
- Infrastructure and financial contribution from provinces to share the cost

Threats

- Low priority of biogas in the political agenda,
- Policy to favor livestock industry over small scale livestock farming which need consideration in long term planning of the programme.

The evaluation findings in this report, although brief, has covered all of the key issues of the biogas project during Phase 2. We highly recommended that a comprehensive evaluation should be conducted for the project, probably one year later. For SNV, MARD and BPO, it would be useful to revisit the stakeholders, especially the biogas users, to assess the socio-economic and environmental impacts of the project. The lesson learns on success and failures will be interesting and helpful not only for the biogas sector but also for development communities in general, both national and international.

APPENDICES

Appendix 1.	Working schedule	31
1a	General working schedule	31
1b	Agenda for focus group discussions for provinces	32
Appendix 2.	List of all participants to the evaluation	33
2a	Participants in BPO interview	33
2b	Participants to survey, focus-group discussion and interviews in Hoa Binh	34
2c	Participants to survey, focus-group discussion and interviews in Thai Nguyen	35
2d	Participants to Workshop for Closing of Phase 1	36
Appendix 3.	Questionnaire form and Interview guidelines	38
Appendix 4.	Summary of questionnaire responses from Thai Nguyen and Hoa Binh	48
Appendix 5.	Summary of focus group discussions in Thai Nguyen and Hoa Binh	80
Appendix 6.	Summary of interviews from Hanoi BPO, Thai Nguyen and Hoa Binh	93
Appendix 7.	Summary of focus group discussions at the National Workshop for Closing of Phase 1	114
7a	Evaluation of BPO, Provincial Directors/Deputy directors	114
7b	Evaluation of Provincial Technicians	120
7c	Evaluation of Provincial Accountants	125