

**MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT  
DEPARTMENT OF LIVESTOCK**

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# **STUDY REPORT**

***CONTENTS: STUDY “MICRO CREDIT FOR  
HOUSEHOLDS CONSTRUCTING BIOGAS  
PLANTS”***

**RESPONSIBLE AGENCY: DEPARTMENT OF LIVESTOCK**

**IMPLEMENTING AGENCY: INVESTCONSULT GROUP**

**Representative of the Implementing Agency**

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Dep. Director of Development Project Consultancy Center**

**Hanoi, April 2010**

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## **GENERAL INFORMATION ON THE SURVEY**

- 1. TASK:** Survey and identify loan needs to build household biogas plants in 2010 and 2011 and the capacity to provide loans of financial institutions in Vietnam.
- 2. RESPONSIBLE AGENCY:** DEPARTMENT OF LIVESTOCK - MINISTRY OF AGRICULTURE AND RÚAL DEVELOPMENT
- 3. IMPEMMENTING AGENCY:** INVESTCONSULT GROUP
- 4. TOTAL COSTS:** **211,000,000 VND** (In words: **Two hundred and eleven Million VND**)
- 5. IMPLEMENTATION YEAR:** September, 2009

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## **ABBREVIATIONS**

MARD	Ministry of Rural Development and Agriculture
DARD	Department of Rural Development and Agriculture
PCF	People's Credit Fund
BPD	Biogas Project Division

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## REPORT SUMMARY

Project “**Support Project to the Biogas Program for the Livestock Husbandry Sector in some Provinces of Vietnam**” is the cooperation between the Government of Vietnam and Government of Netherlands aims at developing a commercially viable and market oriented biogas industry and contribute to avoid the use of fossil fuels and biomass resource depletion. Livestock Production Department, Ministry of Agriculture and Rural Development and Netherlands Development Organization (SNV) are assigned to implement the project activities.

Project has been deployed since 2003 in 12 provinces (Phase I) and 08 provinces (proceeding period) in whole country and will ben widen to 58 provinces/cities in Phase II. The main activity of Project focus on assisting technology and providing a part of finance for households to build biogas plant with family scale.Until April 2010, 80,000 biogas plants have been installed that bring much interest of both economy and social to people, make contribution to make a market sustainable development biogas sectors as market trend and to avoid the use of biomass resource.

With the development of Project in the number of provinces participating and the number of biogas plants building, the loan demand of households for building biogas plant with family scale are increasing. Beside supporting technique and providing a part of finance for households, the Projects expects to cooperate with financial organizations and other projects in providing loans for households with the low interest rate in order to build and develop a sustainable biogas industry.

Report "Micro Credit for households constructiong biogas plant" has been implemented from Dep 2009 as contract between InvestConsult Group and Livestock Production Department, Ministry of Agriculture and Rural Development to (i) *define the households's demands for loans for construction of biogas works in 2010 and 2011*; and (ii) *the financial institutions's capacities for providing loans for constructions of biogas works*

This report comprises the main contents: following:

**Part A** generally introduces about the aim and scale of the survey. Therefore, 6 provinces were choosen including Phu Tho, Bac Giang in the North; Thanh Hoa, Binh Dinh in the Central; Tien Giang, Ben Tre in the South. We also express here the aim, method of survey and difficulties- favorable conditions while carrying out this survey.

Up to aim of research, in **Part B**: Survey result , survey team focuses on some major contents, including: (i) general information on survey households; (ii) households' demands for construction of biogas work, (iii) the households's demands for loans for construction of biogas works; (iv) the financial institutions' capacities for providing loans for constructions of biogas plant as well as the opportunity for cooperation between potential financial institutions and bio-gas project

With the increasing demand of building biogas works in the nearest future, households' demands for loans and financial support for households increase as well. So, **Part C** of the Report proposes some solutions for providing loans for constructions of biogas works.

The Central Project Office with the role of main cooperation of Biogas Program should seek possible preferential credits from internal and external countries. It is also necessary to cooperate with Woman Union, Farmers Association, etc to joint and implement communication activities about contents and benefits of Project.

Ministry of Agriculture and Rural development should study and propose with Government the policies for supporting credit for households for construction of biogas works. Building priority credit program of Vietnam Banks with interest rate support of State budget is considered the best solution in this period in order to diminish the financial burden fro households and to establish and develop sustainable Vietnam biogas industry.

## **PART I: OVERVIEW OF THE STUDY**

### **I. BACKGROUND OF THE STUDY**

#### **1.1. The Project "Biogas Program For The Animal Husbandry Sector in Vietnam"**

Project "Biogas Program for the Animal Husbandry Sector in Vietnam" is a cooperation program between Vietnam and the Netherlands to develop bio-gas technology efficiency and sustainable development biogas sectors as market trend, and contributing to the rural development and environmental protection through clean energy supply available to households, improve livelihoods and quality of life, creating many new jobs for rural workers as well as contribute to reducing greenhouse gas emissions. Department of Livestock Production (DLP) (formerly Department of Agriculture) - Ministry of Agriculture and Rural Development and the Netherlands Development Organization (SNV) is responsible for coordinating and implementing the project.

The Project started in 2003. Phase I (2003 – 2006) was successful with a result of 18,000 digesters in 12 provinces, exceeding target by 80%. Its phase II (2007 – 2010) is expanding up to 58 provinces, targeted at 140,000 digesters and with the goal of developing a viable and sustainable market.

#### **1.2. The study on micro credit for household constructing biogas plant phase 2010 - 2011**

Together with the number involved provinces development in this Project, the inflation rate each year increases up to 2 digits and the amount of constructed biogas plants each year is very high, that demand on borrowing money of households is getting increasingly.

Beside technical support and providing a part of financial support for households (before 2008 was 1 million VND and from 2009 on is 1.2 million VND), Project also consider the cooperation ability with other financial organizations and projects in order to provide loan for households with low interest rate.

To reach this target, Project needs information about loan demands of households as well as the capability of financial organizations in Vietnam.

### **II. OBJECTIVES OF THE STUDY**

The general objective is to identify demand on loan for construction of biogas plant of farmer households and capability of providing loan of financial organizations in Vietnam.

With such a general objectives, specific objectives of the Study are to:

1. Identify demand on loan of households
2. Identify providing loan resources

3. Propose solutions for the issue.

### III. METHODOLOGY

To meet objectives of the Study, after considering relevant conditions, the Consultant determines that this study has combined both quantitative and qualitative research tools with quantitative ones being the principal:

#### 3.1. Desk study

This has been done to collect and systemize available secondary data and information. The Consultant has collected and review important documents in order to: (1) reviewing basic trait of biogas use and needs of loans to construct bio-digesters; (2) preliminary identify inputs for developing the model to calculate investment capital of provinces; (3) identify credit providers in survey areas and (4) prepare and finalize the report.

#### 3.2. Questionnaire interviews

The Questionnaire has been used to collect both quantitative data (mostly) and qualitative data on research objects. Using questionnaire has helped collect various data and information and also enable controllable, easy and quick data processing. In this Study, questionnaires have been designed to survey households through direct personal interviews.

Questionnaire survey has been conducted by a group of qualified surveyors who can meet time requirements set out by the Consultant. Local people have been used as surveyors to utilize familiarity of local conditions and available relationship in the local community.

#### 3.3. Indepth interviews

In-depth interviews have been made to managers of banks, funds, social organizations etc which are capable of and intend to provide financial services to the Project. Besides, the Consultant has interviewed and discussed with staff of central and provincial office of the Project, representatives of relevant State management bodies and provincial agencies relating to activities of the Project.

The Consultant has developed in-depth interview guides for each of interviewee group. In general, contents of these guides have been similar to those of the Questionnaire but focus of comments, ideas and recommendations of interviewees. Questions has been opened and left room for further discussion.

### IV. IMPLEMENTATION PROCESS

#### 4.1 Desk study

The Consultant Team reviewed and researched relevant documents and reports to develop the survey tools and to draft the model to estimate loan needs for constructing biogas plants in he 2010 – 2011 phase.

#### ***4.1.1 The model to estimate loan needs for constructing biogas plants in the 2010 – 2011 phase***

Based on initial research, the basic input parameters for building the necessary loan calculating models total include:

- Total number of households having the potentiality to build biogas construction -year 2010;
- Total of households having decisions of building biogas construction surveyed by sample of 2010;
- Average amount of investment per household to build biogas construction- year 2010;
- The amount of money families are willing to spend to invest in biogas construction;
- The amount of money families can borrow from brothers, relatives, friends to invest in biogas construction;
- Average cost per m<sup>3</sup> of biogas plants;
- Total volume of biogas plants expected to be built in 2010 - 2011
- Expected inflation rate;
- Other relevant.

#### ***4.1.2 Survey tools***

Survey tools were developed which include:

##### *a/ Questionnaires o interview households*

There are two types of questionnaires for (1) Household who have not built biogas plants (potential users) and (2) households who are using the biogas plants (current users) (refer to **Annex 1**):

- Households who have not built biogas plants: Understanding the conditions and circumstances of the households, perceptions and needs of the households about biogas plants, especially the demand for loans for biogas plants – (for households having intention of building biogas tunnels);
- Households who are using biogas plants: Studying the advantages and disadvantages of households when building biogas plants, total construction costs, and other funding sources from households get money to invest for the biogas plants, further study the process of loans for construction of works (for those households with loans);

##### *b / In depth interview guide*

The interview guide was developed for such objects as (see more in **Annex 1**):

- The Credit Institutions (CI) including micro credit ones: Understanding credit providing network of CI at all levels; capacity to provide loans for households for purposes of biogas plants construction, other advantages, difficulties and hindering ...
- Organizations and departments related to Biogas Project: Study the current status and prospects of the project in implementing the set out objectives; orientation and support of related agencies and organizations towards loan provision, as well as the recommendations, the idea of cooperation with financial institutions, local governments in providing loans to people ...
- Organizations and individuals building biogas plants: Study the biogas construction building stages, material cost, equipment and labor to build a biogas plants; sizes of biogas plants; any difficulties in building construction...

## **4.2. Identification of survey areas and objects**

### ***4.2.1. Survey areas***

Through 3 phases, currently the Project is present in 39 provinces and cities in 8 economic areas of Vietnam. In this Research, because of limited resources and as instructed by BPD, there were 6 provinces selected for the Study with the following criterion choice (1) *representative for the North, the Central and the South of Vietnam*, (2) *representative for economic regions* and (3) *representative for 3 phases of project execution*. Specifically they are:

The North: Phu Tho, Bac Giang

The Central: Thanh Hoa, Binh Dinh

The South: Tien Giang, Ben Tre.

In each province, there were 02 districts selected. In each district, there was a commune for survey. Specific districts and communes have been selected based on discussion with provincial project offices.

Besides the mentioned 6 provinces, the Consultant has also worked with representatives of relevant organizations and State agencies in Hanoi (Central Biogas Project Office, Agriculture and Rural Development Bank, Social Policy Bank (Bank for the Poor), People's Credit Fund).

### ***4.2.2. Sampling***

Sampling for survey is implemented with households with biogas plants and households without biogas plants. The choice of the household survey was based on random sampling, using a database of the Project:

- Household has no biogas plant and has 5 pigs or more (they have the potential to build bio-digester): 25 households/commune (= 50 households/province);

- Household who has had biogas plants: minimizing sample size is 35 households (based on list of bio-digesters that have been checked and provided by Project Office).

*Note: As initially proposed, the number of households without bio-digester selected to interview is 45 households /province and households with bio-digester are 5 per province (10 households/ area). However, in order to ensure representation, the Consultant has increased sample size to 50 households/province for potential users without biodigester and 35 households/area for current users.*

The random sampling will help increase accuracy of collected data. However, from our experience in similar surveys, concentration should be a factor to be reckoned with. Therefore, the sampling has conducted on a random basis within two communes per province. Interviewee in each household was the head of that household or members aged 18 or older.

#### 4.2.3 Sample size

Surveyed objects include:

- Staff of Provincial Project Office;
- Officials of Department in Province/district/commune level;
- Team of Masons;
- Banks and Credit Funds at central and local levels;
- Household without biogas digester (current users);
- Household with bio-digester (potential users).

Specific figures are available in Table 1.

**Table 1: Interviews broken down by objects**

	Objects	Tools	Surveyed number	
			Planned	Implemented
1	Staff of Central Project Office	In-depth Interview	01	01
2	Staff of Local Project Office	In-depth Interview	12	12
3	Staff of Department at Province/district/commune level (Department of Agriculture and Rural Development; Centre for Agricultural	In-depth Interview	12	12

	Extension in district...)			
4	Team of masons	In-depth Interview	12	12
5	Banks and Credit Funds at central and local levels	In-depth Interview	22	27
6	Household without biogas plants (potential users)	Questionnaire	300	303
7	Household with biogas plants (current users)	Questionnaire	104	104

Allocation of surveyed objects are described in Table 2

**Table 2: Household questionnaire interviews broken down by province**

	Province/city	Quantity (household)	Quantity (Household)	
			Potential users	Biogas users
1	Phu Tho	70	50	20
2	Bac Giang	66	51	15
3	Thanh Hoa	63	50	13
4	Binh Dinh	73	52	21
5	Tien Giang	66	50	16
6	Ben Tre	69	50	19
<b>Total</b>		<b>407</b>	<b>303</b>	<b>104</b>

List of interviews objects are included in **Annexes 2 and 3**.

### 4.3. Field survey

#### 4.3.1 Selection and training of surveyors

Surveyors who directly interviewed households by questionnaires are local persons. On the basis of cooperation with PBPD and Departments of Agriculture and Rural Development, the Consultant Team selected appropriate surveyors to carry out the survey. Before fielding, surveyors were trained on skills as well as survey content, including:

- Information of the project: objectives, contents, methods, the results of the survey.

- Practical survey skills, particularly approaching interviewees and time management skills.

The survey was conducted under the daily supervision by InvestConsult Group's staff to ensure quality, progress and guide trainees in case problems arise.

#### **4.3.2 Collection of quantitative data**

*For current users*, interviewers contacted households in the list supplied for by BPD. During interviews, interviewers always checked the reasonableness of the answers, and asked questions if there was a contradiction.

*For potential users*, with support from provincial project staff, the surveyors had lists of households that satisfy technical requirements to use biogas and have living conditions similar to current users, and then used questionnaires to interview them.

At the end of each day, consultant team members checked filled questionnaires to see if there was any inconsistency or missing information.

#### **4.4. Data processing**

For information and data collected by questionnaires: the Consultant Team cleaned and coded data and information got from open-question, multiple choice question for easy ...) to digitalize open data for easy input and process data. Specifically:

- Check and all the questions and answers using the code table prepared;
- Code answers of open questions into digits to enable input and data processing;
- Code unanswered questions;
- A software for data input is developed on Microsoft Excel and used to input data;
- Output data including data tables are classified according to analysis criteria and made available in both absolute value and percentage to help experts to easily analyze and compare information;

For in-depth interviews, information obtained was gathered, organized and documented for easy reference.

#### **4.5. Data analysis**

Data are analyzed following such criteria as:

- Content of survey: All main contents of the survey presented in questionnaires was the basis of the analysis to have findings.

- Geographic areas: Data were analyzed according to locality (region) to find out any difference.
- Interviewed objects: Data were analyzed by groups of interviewed objects to find out any difference as well as recommendations;

Some other criteria were also considered during the analysis to obtain findings.

## PART II: RESULTS OF THE SURVEY

### I. INFORMATION ON HOUSEHOLDS UNDER SURVEY

#### 1.1. General information on surveyed households

##### 1.1.1. Number of household members

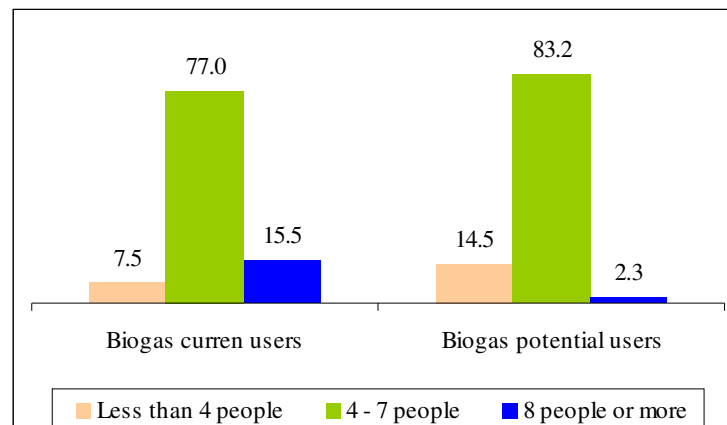
Based on data of surveyed households, researchers have classified interviewed households into the following groups:

- Small sized households: fewer than 4 people
- Medium sized households: from 4 to 7 people
- Large sized households: from 8 people or more

For current users, the majority (78%) of households are of the medium size. Households of small size are fewer (15.5%) and large sized households account for 6.5%. In particular, the proportion of large households concentrates mainly in Binh Dinh Province.

For households as potential users, the medium sized households also make a vast majority (84.2%), the small sized are 14.5% and the big sized households account for 2.3%. Large households are concentrating mainly in the provinces of Binh Dinh, Tien Giang and Ben Tre.

**Chart 1: Household scale**



##### 1.1.2. Number of income creators in households

Mostly there are 2-4 income earners in each of both non-biogas and biogas households. Households having 2 income earners account for a majority (67.3% for biogas households; and 61.7% for non-biogas households).

##### 1.1.3. Education level of household heads

The educational backgrounds of households' owners in both biogas and non-biogas households are fairly on a par with each other in the provinces, most finish lower and upper secondary education, at a rate of 73.1% for biogas households, 74% for non-biogas households. The number of householders graduating from colleges or higher education schools account for only 4.8% for biogas households, 3.9% for non-biogas households.

Because educational backgrounds of the interviewees are so limited, propaganda activities should be conducted regularly, with focus laid on direct communication, with clear and intelligible illustrations, which will help improve awareness and voluntary acceptance of the local people.

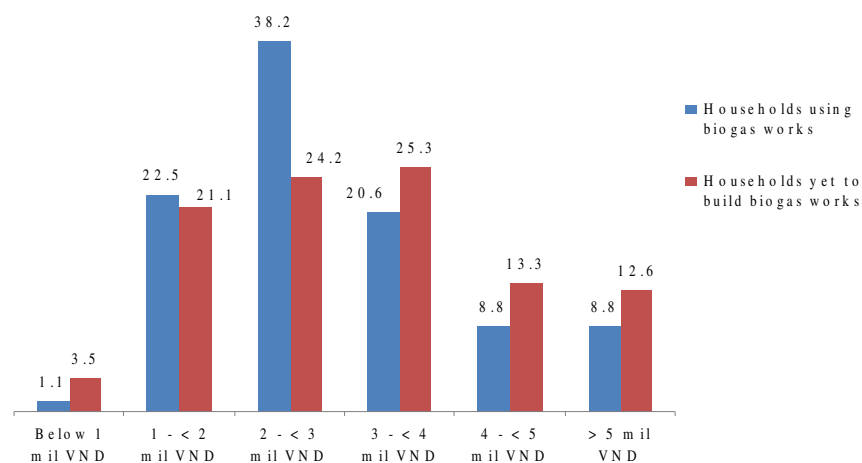
## 1.2. Incomes of surveyed households

### 1.2.1. Average monthly incomes

Monthly incomes of biogas and non-biogas households are almost of medium and low levels. Only 8.8% biogas users have a monthly income of over 5 VND million, the figure for non-biogas households is 12.6%, concentrating mainly in Bac Giang, Binh Dinh, Tien Giang and Ben Tre.

Biogas households with incomes from VND 2 million to under VND 3 million per month account for the highest rate, 38.2%, the households with incomes from VND 1 million to under VND 2 million per month account for 22.5%. For non-biogas households, the percentage of households with incomes from VND 1 million to about VND 2 million, from VND 2 million to under VND 3 million, and from VND 3 million to about 4 million are quite the same. The average incomes of households is shown in the chart below:

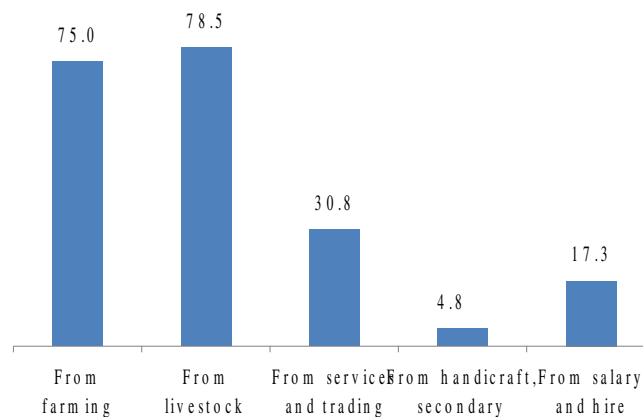
**Chart 2: Average monthly incomes of surveyed households**



### 1.2.2. Main income sources of surveyed households

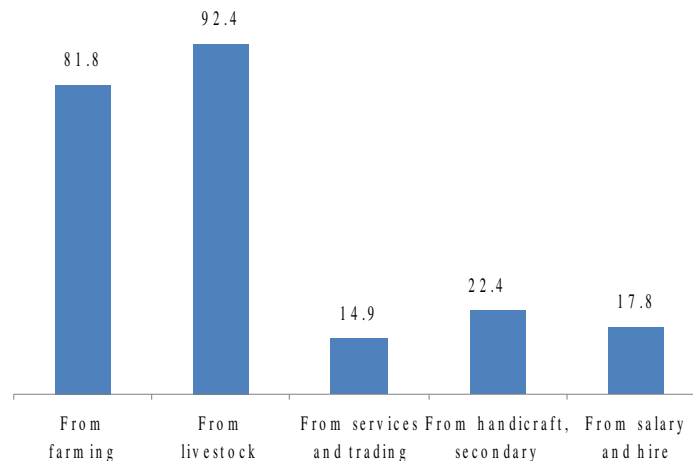
Survey results showed that incomes of the biogas households mostly come from husbandry or cultivation. Husbandry is mentioned as largest income source by 87.5% of the households, cultivation comes second (75.0% of the households). Services and trading account for only 30.8%, with concentration mainly in two provinces of Binh Dinh and Tien Giang. Handicrafts and others account for the lowest rate (4.8%), concentrating mainly in the provinces of North and the Centre of Vietnam.

**Chart 3: Income sources of current users of biogas works**



Meanwhile, 92.4% of non-biogas households have incomes from husbandry and 81.8% from cultivation. Households having incomes from crafts and trades make up 22.4%, concentrating mainly in the provinces of Phu Tho, Bac Giang and Tien Giang. Households with incomes from services and trading account for the lowest rate (14.9%), concentrating mostly in Binh Dinh province.

**Chart 4: Income sources of potential users**

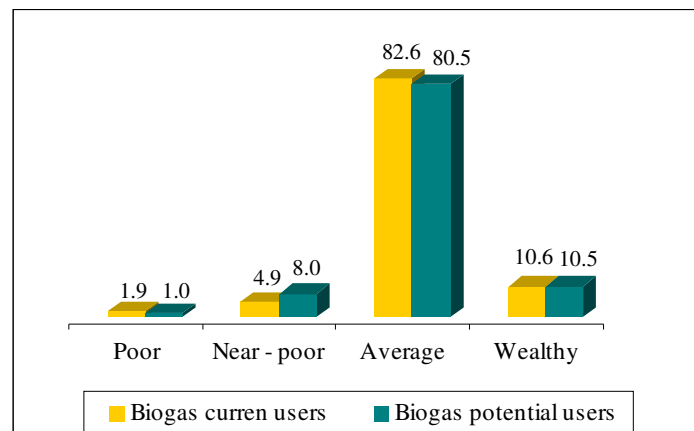


### 1.3. Rating of household incomes

Under the conventional definition of the poor household in this survey, poor households are defined by poverty criteria of Decision No 170/2005/QĐ- TTg, by the Prime Minister<sup>1</sup> (having poor household books issued by Ministry of Labour, Invalids and Social Affairs - MOLISA). Community's classification, observation, or assessment of the interviewers were also used in classification when necessary.

According to the statistics of the survey, the income rates of the biogas and the non-biogas households are not so different. Among both categories, the number of households with medium incomes makes up the highest rate (80.9% of the biogas households and 82.6% the non-biogas households), the poor households account for the lowest rate (1.0% of the former category and 1.9% of the latter category). In general terms, this income rating is in line with the average monthly incomes of the households under survey.

**Chart 5: Economic conditions of the households under survey**



### 1.4. Husbandry situation of potential users of biogas works

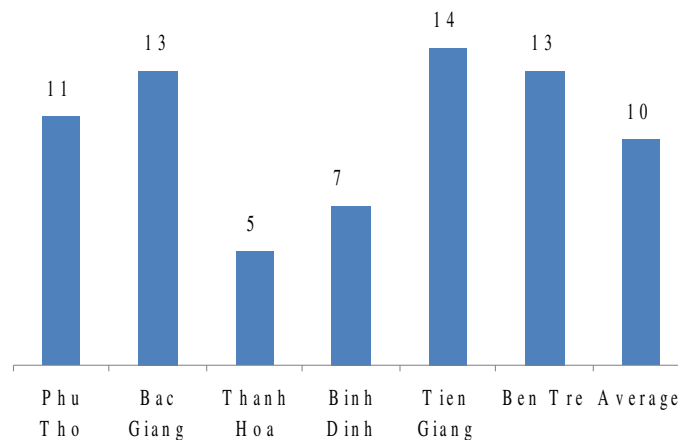
With the purpose of surveying the local households' demands for construction of biogas works, the survey team focuses on the potential households that breed pigs. In an effort to boost economic development in the direction of household-farm model as well as the materials for biogas works, pigs are the cattle that many households choose to breed with larger and larger numbers. Some households in Bac Giang and Ben Tre breed pigs on a large scale, with 80 and 90 heads. Meanwhile, in the period of industrialization and modernization of agriculture, using animals instead of ploughing machines and tractors is not so popular as before. Therefore, fewer and fewer households breed buffaloes and cows, mainly by grazing them on pastures. For poultry, virtually all the households only apply free breeding, from one to two flocks of 10 - 20 heads. Only a few households keep hundreds to thousands of poultry.

<sup>1</sup> Decision No. 170/2005/QĐ-TTg by the Prime Minister issued, dated 8-7-2005, on the poverty criteria applied to the period 2006-2010: Conditions for certification and issuance of "poor household" books are families with per capita monthly income from VND 200,000 or less for rural areas, or VND 260,000 or less for urban areas.

In 6 surveyed provinces, on average each household had about 10 pigs, in which Tien Giang had the highest average (14 pigs per household) and Thanh Hoa the lowest (5 pig per household).

**Chart 6: Raising pigs by potential users (per household)**

*Unit: Head*



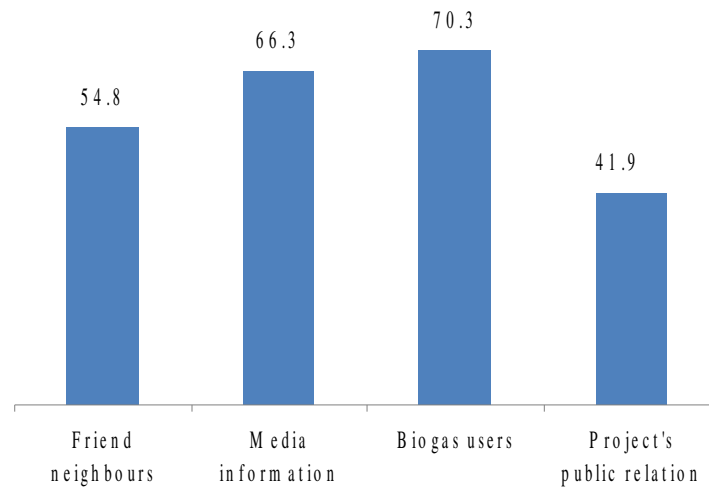
## II. FINDING AND ANALYSIS

### A. NEEDS FOR BIOGAS WORKS

#### 2.1. Understanding on biogas works

The information propaganda activities of this Project is very important because it helps the local people with a sound understanding of biogas works. With this assertion, the survey team has launched interviews and collected comments showing the understanding of households that are yet to build biogas works about their benefits as well as their information of this Project.

92.1% of the non-biogas households say that they have heard about biogas works. Their information is mainly from the massmedia (66.3%), from friends, neighbors (54.8%) and from the project's PR (41.9%). Especially, 70.3% of the households saying that they have got information on the project's contents and the biogas works' benefits from the biogas users themselves.

**Chart 7: Information sources of households**

It is obvious that the non-biogas households' information comes from friends, neighbors and particularly biogas users, or from the mass media as well as the project's PR activity which of great significance. To expand the local people's participation in the biogas project, the central and local project offices should develop and boost their PR activity via the biogas users and the local officers.

Virtually all the households, when learning of biogas works' benefits, say that biogas works may help their family in reducing the environmental pollution (82.1% of the interviewees) and cutting off fuel expenses (81.6%). Besides, they agree that the construction of biogas works also help them curtail such other expenses on lighting, fertilizers or save their time for cooking.

In the course of the survey, many households even show their profound knowledge on the long-term benefits of the biogas works to their life-sustaining cattle breeding economics in the future. Mr. Vo Van Loi from An Nhon District, Binh Dinh Province said now that his household was breeding a score of hogs, the construction of biogas works might help his family's development of a self-contained economy: if you want to have fuel, you ought to breed cattle, if you want to develop cattle breeding, you should have good sources of feeds and fuels, but the fuel and apart of the feeds come from the biogas works. So the construction of biogas works not only helps his family solve its environmental pollution and get more fuel, but boosts his cattle breeding activities as well.

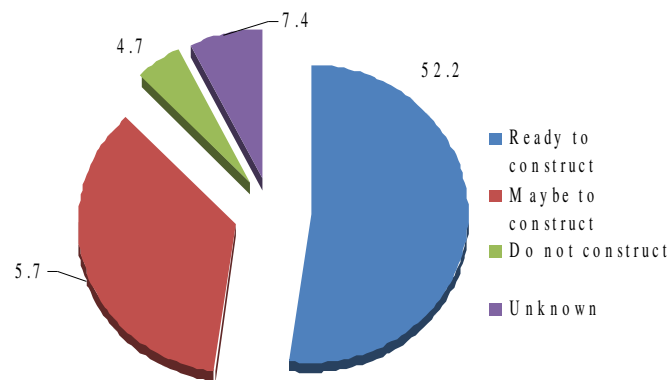
## **2.2. Local households' demands for construction of biogas works**

*\* Rate of households ready to build biogas plants*

52.2% of the households are ready to build biogas works when asked. The rate of households planning to build biogas works is quite high, at 35.7%, while the rates of households being of two minds or refusing to erect the works is quite low (7.4% and 4.7% respectively).

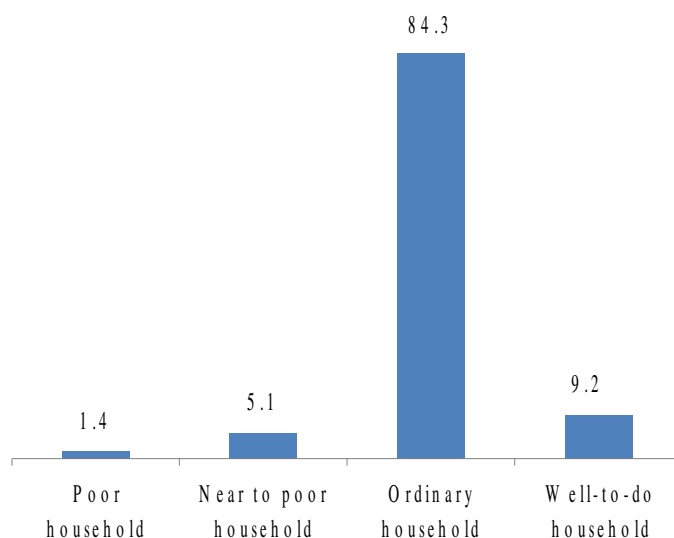
The reason for not building biogas works is that cattle breeding is but temporary activity and that they plan to switch to another economic form or they can not maintain cattle breeding with the same current herds. Some others say there is no agreement in their family on constructing biogas works. Besides, some households haven't fixed their farmsteads yet or the cattles houses are too far from their own homes.

**Chart 8: Willingness to build biogas works**



This shows the households' demand for construction of biogas works is very high. That means the households well understand and highly appreciate the biogas works' benefits. However, the households which plan to build biogas works in the future (the ones ready or possibly to build) are the ones with medium economic conditions, while very few poor or near-poor households say that they will build biogas works.

**Chart 9: Incomes of households with a wish to build biogas works**



In almost all the areas under survey, the rate of households ready to build biogas works is high. In Thanh Hoa alone, the number of households ready to build is the same as that of the households planning to build in the future (32.1%). In the 6 provinces under survey, Thanh Hoa is also the province whose rate of households planning to build biogas works in the future is the lowest (64.2%). In Phu Tho, Bac Giang, Binh Dinh, Tien Giang and Ben Tre, the rates of households planning to construct biogas works are all over 80%. Especially, the rate of households ready and planning to build biogas works is 92.3% in Bac Giang and 95.9% in Ben Tre.

**Table 3: The rates of households' readiness to build biogas works  
in provinces under survey**

*Unit: %*

Rate of readiness	Phu Tho	Bac Giang	Thanh hoa	Binh Dinh	Tien Giang	Ben Tre	Total
<b>Ready to build</b>	64.6	53.8	32.1	48.9	50.0	55.1	<b>52.2</b>
<b>Planning to build</b>	27.1	38.5	32.1	36.2	38.6	40.8	<b>35.7</b>
<b>Do not build</b>	6.3	7.7	7.1	2.1	4.5	2.0	<b>4.7</b>
<b>Do not know whether to build or not</b>	2.1	0.0	28.6	12.8	6.8	2.0	<b>7.4</b>
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

- *The year of their wish to build biogas works*

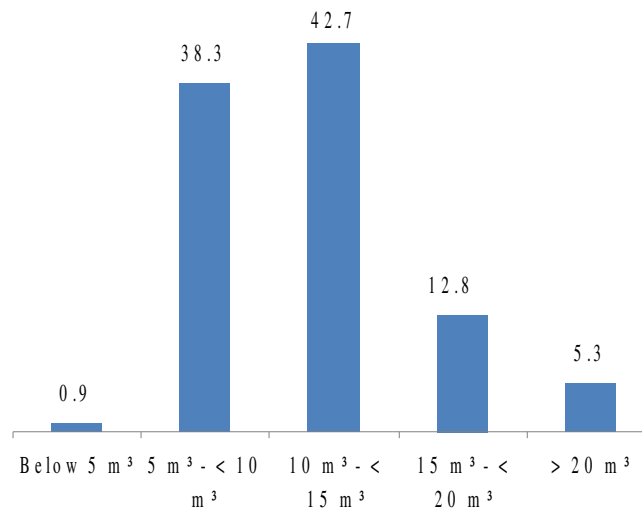
In the survey, among of the households ready and planning to construct biogas works in the future, 58% want to start the work in 2010, 20.4% in 2011, only 4.1% in 2012, the rest will do it in another year or in a non-definite year.

Phu Tho, Binh Dinh and Ben Tre are the provinces whose demands for constructing biogas works in 2010 hit very high rates, 87.8% in Ben Tre, 71.1% in Phu Tho and 60.9% in Binh Dinh .

- *Desire for scale of the works*

The most suitable construction scale is from 5 to 10 cubic meter (38.3%), from 10 to 15 m<sup>3</sup> (42.7%), from 15 to 20 m<sup>3</sup> (12.8%), over 20 cubic meter (only 5.3%), and the lowest choice is 0.9% with scale less than 5 m<sup>3</sup>.

**Chart 10: Desires for scales of biogas works**



Tien Giang is the province whose households' desire to construct biogas works with scale from 10m<sup>3</sup> to 15 m<sup>3</sup> hits the highest rate (95%) while Phu Tho is the province whose households' desire to construct biogas works with scale from 5m<sup>3</sup> to 10m<sup>3</sup> hits the highest rate (81.4%).

Many people say they choose the scale of their construction of biogas works, depending on the number of cattle at present or in the future (59.1%) or on their demands for fuel (40.6%). Many households elect to take the scale in line with their economic conditions (30.0%) and the suggestions of the biogas users (33.3%). The research team say that the number of cattle head and the demands for fuel are the initial rational grounds for the choice of the scales of the biogas works.

**Table 4: Desires for scales of biogas plants**

Unit: %

The number of cattle	Lower than 5 m <sup>3</sup>	From 5 m <sup>3</sup> to 10 m <sup>3</sup>	From 10m <sup>3</sup> to 15m <sup>3</sup> c	From 15m <sup>3</sup> to 20m <sup>3</sup>	Over 20 m <sup>3</sup>	Total
<b>5 - &lt;10 head</b>	1.5	64.7	27.0	5.1	0.7	<b>100.0</b>
<b>10 - &lt;15 head</b>	0.0	31.4	54.3	12.9	1.4	<b>100.0</b>
<b>15 - &lt;20 head</b>	0.0	30.6	50.0	16.7	2.7	<b>100.0</b>
<b>Over 20 head</b>	0.0	7.2	35.7	23.8	33.3	<b>100.0</b>

The table above shows that the demands for construction scales are always in direct proportion to the herds of animals. Most households keeping 5 to 10 hogs choose the construction scales from 5m<sup>3</sup> to 10m<sup>3</sup>, those keeping 10 to 20 hogs opt for the construction scales from 10m<sup>3</sup> to 15m<sup>3</sup> and those having over 20 hogs elect to take up the construction scales over 15m<sup>3</sup>.

### **2.3. Favorable conditions and difficulties of the households in construction of biogas works**

#### **2.3.1 Favorable conditions**

The households participating in the biogas project will be entitled to enjoy favorable conditions in their access and use of the services and products that the project provides like biogas works construction technology, operation technology, use of biogas, check of quality, maintenance of the works and price supports. In general, the households in the areas under survey are pleased with the quality of the products and services provided by the project.

- *Technology*

Today, in the biogas development market comes up a variety of biogas work construction technologies (plastic bag, composite, gutter-shaped cellar, improved KT cellar, etc). But the KT1 and KT2 biogas works in the project's design are found to be of better technology than those built by other organizations and win the users' confidence. The high effectiveness of the biogas works lies in the following points:

- Reliable construction technology;
- Safety and convenience of the works in use;
- High and stabilized biogas capacity
- Long use of the works

Mr Do Tien Huy- the technician of biogas project office in Bac Giang says most households have built their biogas works under the project's design and are satisfied with the biogas' quality, especially the abundance of the gas produced may satisfy the households' needs for

fuel, while the waste water after decomposition gives no smell, thus ensuring sanitation in the course of operation and use. Besides, the project's cellar construction technology and the utilization of biogas by-products in many communes of the province re-affirm that the biogas by-products are clean and high-quality fertilizers that may help with their cultivation and aqua-culture.

- *Quality of construction service*

The team of building workers who manage the construction of the households' biogas works in the project are the people to be recommended by the district technicians. The building workers who participate in the project must be skilled builders in the locality, with 2- year experience in building civil works, with priority given to the building workers who have got experience in building biogas works. In each district implementing project, there is 1 to 3 building worker teams, each team with a specific code fixed by the project itself. Before starting the construction of biogas works for the local households, the building worker team has to sign a construction contract, with requirements and contract forms specified by the project itself.

A technician from the biogas project office in Ben Tre says besides the objective reasons like storms and floods during the course of construction or such uncommon conditions as lack of capital, those who have their biogas works built do not meet with any technical obstacles and they are satisfied with the quality of the building workers as well as the timely supports by the project's technicians. The project's technicians have very well performed their tasks and functions. They not only make diffusion of biogas technology but engage in close cooperation with the building workers' teams during the whole course of construction of the local biogas works..

- *The quality of assistance to biogas users*

During the survey of the biogas users and in-depth interviews of organizations and individuals implementing the project, the research team finds that virtually all the local responsible strictly abide by the regulations of biogas project central office in the procedure of checking, commissioning as well as maintaining the households' biogas works. Under the regulations of the project, the district biogas technicians are the ones to commission the biogas works. The technicians work closely with the building workers in solving the problems during the construction and conduct maintenance and services of the biogas works for the households. As regards the biogas users, the project technicians show how to load materials, how to use the gas and its by-products effectively (i.e. fertilizers for the crops to bring in high economic efficiency...) as well as guide them how to apply maintenance and solve problems in their daily utilization.

The survey is conducted among the households that have participated in this project from 2003 to 2009, most of them having biogas works built in 2008 and 2009. Up to the point of

the survey, almost all the biogas works have operated well, with the exception of some cases in which the works operate sporadically, because of objective reasons as epidemics that disrupt their animal husbandry leading to a decrease in the number of cattle head. Especially, Mr Nguyen Van Tien living in Hoang Ninh Commune, Viet Yen District, Bac Giang Province said that: *“At the start of the construction of the biogas work, he had 12 hogs and the construction of the biogas cellar helped his family much in minimizing environmental pollution and cutting back fuel expenses. However, after 1 year, his hogs got mouth-and-foot disease and the herd went down to 3 head. As a family of 7 members, the demand for cooking is quite high but the light is always red, because of the lack of fertilizer to fill in and excessive water”*.

Technical failures rarely occur, mainly in the valves, gas pipes, joints, lights...because of the poor quality of the accessories. However, the households never find it difficult to buy substitutes, thanks to their not-so-high prices, normally about VND 100,000 all in all. Only one household, Mr Nguyen Van Lap living in Binh Dong Village, Thanh Nhut Commune, Go Cong District, Tien Giang Province, got gas leakage. However, after finding out the problem, the district technician got to his house to solve it and ensure a sound operation for his biogas works.

The provincial and district technicians are members of the provincial biogas project office, in which the latter perform tasks and functions to work directly with biogas users. These members help and guide the users how to make registration for their participation in the project, recommend the building workers who are trained by project, apply such techniques as preparation of fertilizers for loading, operation, maintenance of the works as well as the use of the gas devices. Besides, they are also expected to supervise and commission the works, directly check and solve any users' complaints related to the quality of the biogas works construction and the building workers' operation. The annual quality check, organization of the talks, diffusion and training, payment and drawing of the balance sheet as well as some other activities are also indispensable items of work prescribed in the regulations on the functions and responsibilities of district technicians. With such well-defined tasks and functions, the households have a chance to work with project through district technicians. Quite a few people have confidence in the professional knowledge and technical skills of the district technicians and have their minds at minds with their presence right from the start of the construction of their biogas works.

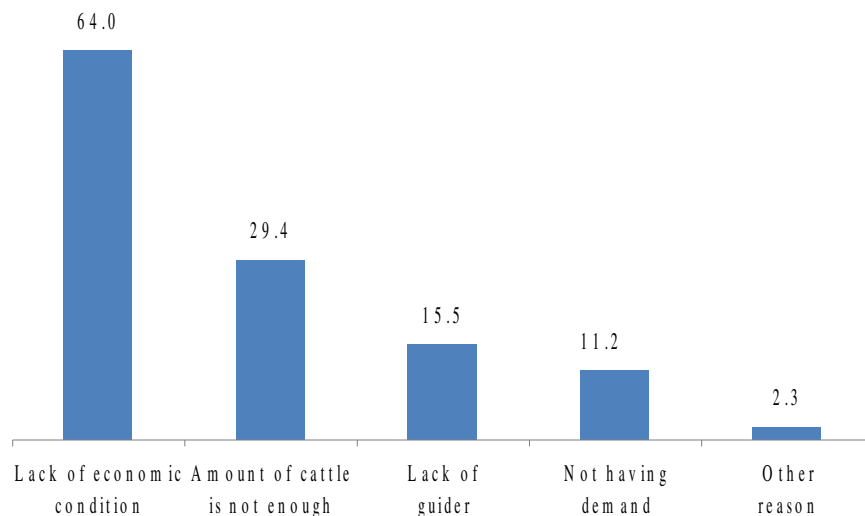
Besides the advantages that the project brings for biogas users in terms of technology, construction techniques, assistance service, the relevant households also enjoy financial assistance, training and maintenance of the works when participating in the biogas project. From 2009 on, the project renders part of its financial assistance to target households, worth VND 1.2 million per piece (against only VND 1 million before 2008 ).

### ***2.3.2. Difficulties***

Although heard and known about the benefits of the biogas works, the local people do not build them yet because of their constraints of physical conditions, among them, 64.0% of the households meeting with economic difficulties to cover the expenses of the construction of the gas tanks, 29.4% of the households saying their herds of cattle are not large enough to have sufficient fertilizer to load in the gas tanks after the construction. They are the cases in which the research team finds they have certain needs for the construction of biogas works but fail to do it because of financial difficulties or small herds (fewer than 5 hogs).

Besides the 2 main reasons mentioned above, there are some other reasons such as lack of guidance (15.5%), having no needs (11.2%). The latter category includes the households with few people, small herds of cattle scale or with no plans for long-term animal breeding no so much time and fuel expenses. They only know about their benefits to cooking but fail to see their positive benefits to the environment. This shows that the diffusion should be done better in the future in order to help the households understand more about the protection of the environment when developing cattle breeding.

**Chart 11: Reasons for not constructing biogas works**



Under the project's regulations, the rate of assistance for all households constructing biogas works is VND 1 million per piece before 2008 and VND 1.2 million per piece from 2009 on, in all provinces, not depending on the construction scales. However, after the in-depth interviews with project officers and biogas users, it is obvious that the monetary assistance is seen as small because of the increase in materials prices and slides of prices. In fact, they spent about 6 to VND 8 million on each piece, not mention the expenses on the transformation of the accessory structures or the cattle farm-houses. In this way, the financial assistance of 1 to VND 1.2 million is not significant to the households when they decide to build biogas works. They expect to get higher assistance from the Project.

In the interviews with the provincial technicians, they say that a few households withdraw from the project because of their lack of bucks to cover the construction expenses (In-depth interview with technicians of biogas project office in Tien Giang Province) or some others to pull out of the project because of decreased cattle herds for epidemics. Some households have registered to join in the project, but when finding out the risks and high expenses of cattle breeding activities, they back out and move to small industries and handicrafts (In-depth interviews with technicians of biogas project office in Thanh Hoa Province).

For households participating in the project, the fundings for the construction of biogas works come from the project's assistance or from their home budgets. As the project's financial assistance is delivered only after the commissioning of the works, virtually all the households have to pay out or borrow some to cover the costs of the construction or repairing. In this way, it is easily seen that almost all the households spend a considerable amount of money on the construction of the works compared with their incomes. It may be said that this is the biggest difficulty for them in the construction of the biogas works.

Besides the difficulty of expenses, another challenge lies in the technical assistance in the construction of the biogas works because most of the provincial technicians are part-time people, not to mention the fact that the number of technicians and builders is not on a par with the pace of construction, resulting in the fanning out of the technicians, who can hardly meet the requirements of the work and the transfer of the new technology, with a view to maximizing the effective usage of the works. Moreover, the in-depth interviews with the households and local officers show that the procedures of registration, maintenance, delivery of fundings are quite cumbersome and complicated, not in line with the knowledge and desire of the biogas users.

## B. THE HOUSEHOLDS' DEMANDS FOR LOANS FOR CONSTRUCTION OF BIOGAS WORKS

### 2.4. Financial conditions and the households' demands for loans for construction of biogas works

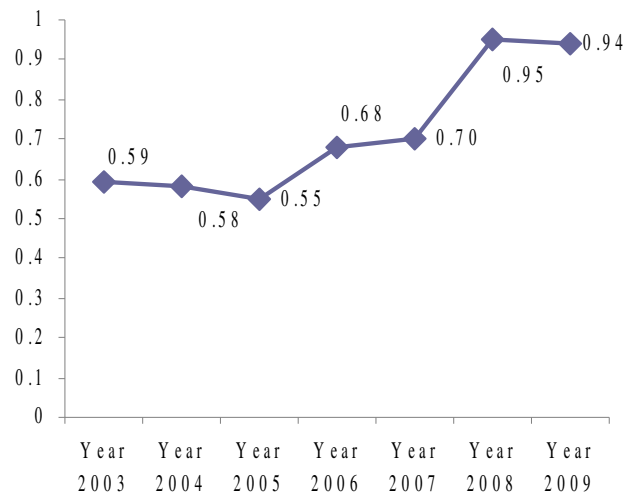
#### 2.4.1. The households' financial conditions for construction of biogas works

One of the important conditions for the households to construct their biogas works is the financial source.

##### a) Average unit cost in building biogas plants

Results of the survey on households that had their biogas plants built in 2009 show that the average unit cost (per m<sup>3</sup>, including costs on materials, equipment and labour) was VND 0.94 million. Compared to the unit cost of each year from 2003 when the Project was started, this value is mostly higher (except for the year 2008). However, the rise or fall in general is not much and value in each year does not fluctuate too much from each other.

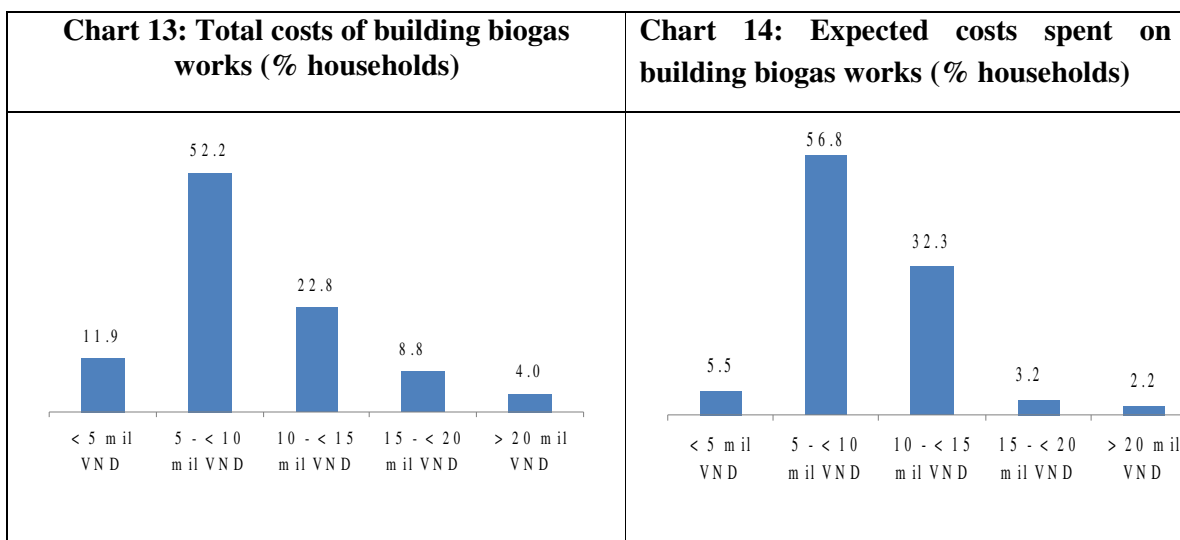
**Chart 12: Fluctuation in unit cost from year to year (VND Million)**



In 2009, Ben Tre had the highest unit cost (VND 1.06 million per m<sup>3</sup>), then came Tien Giang with VND 1.01 million, while Binh Dinh had the lowest (0.06 million). In 2008, according to data from "Biogas User Survey 2008", Tra Vinh had the highest unit cost (VND 1.16 Million per m<sup>3</sup>), while Bac Giang had the lowest (VND 0.74 Million). It can be noted that in the last 2 years, unit cost in the South is higher than in the North and Centre. The reason are higher costs of materials especially those of sand and gravel. Besides, daily wage of masons in the South is also higher.

*b/ Cost incurred to build biogas plants*

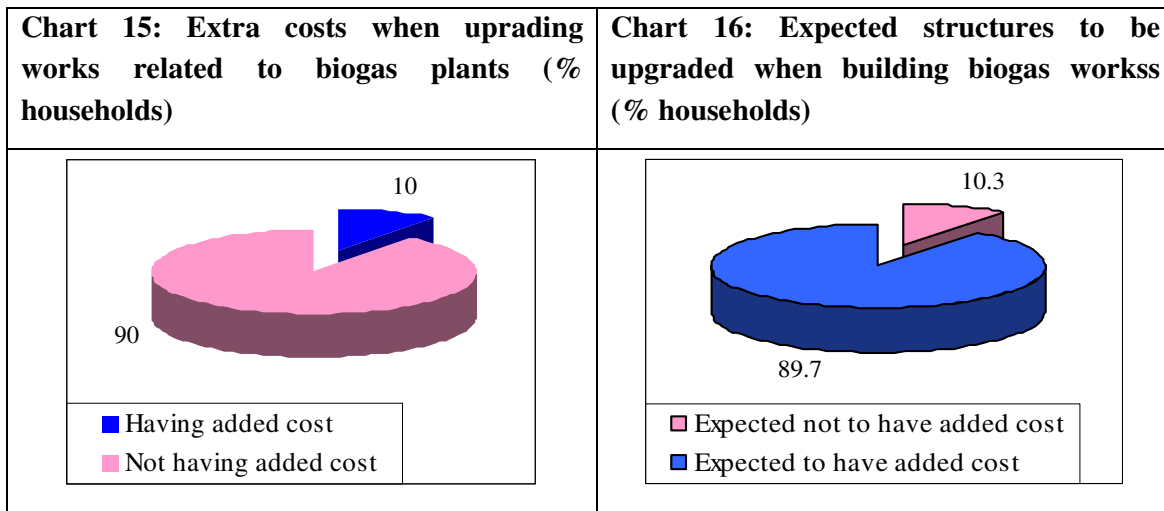
The expenses on constructing biogas works are mainly the expenses on building biogas tanks. Besides, they may include the expenses on upgrading sub-structures like stables, toilettes, farmyards, etc. The results of the survey about **the total costs of construction of biogas works of biogas users and non-biogas households** (including the expenses on construction of biogas works and on upgrading of related structures) are reflected in Charts 13 and 14. Chart 13 reflects the **actual total costs** of construction of biogas works, Chart 14 reflects the estimated total costs of construction of households who are yet to have their biogas works built. The statistics of the 2 charts show that the actual and estimated expenses for construction of biogas works fall in the range between 5 and VND 10 million (making up highest percentages with 52.5% of current users and 56.8% of potential users), then comes the range of 10 to VND 15 million (22.8% and 32.3% respectively). Very few households did spend or expecte to spend more than VND 20 million (4% and 2.2%).



During the survey on potential users, the consultant team see that most of them are planning to combine the construction of biogas plants with sub-structures such as stables, latrines, kitchens, yards etc. However, this intention only shows subjective wishes of households in view of convenience. In practice, very few households can do that when constructing biogas plants. Many current users let it be known that they did intend to build/upgrade sub structures when building biogas plants but failed to do that, mostly because of insufficient fund.

However the difference is that the estimated costs for construction of biogas works by potential users tend to be higher than the actual costs by the current users. For example, the rate of estimated expenses of over VND 15 million for construction of biogas works is 43% of the households under survey while this rate of households using biogas works is only 13%. The highest actual expenses are VND 27 million while the highest estimated expenses hit

VND 90 million. The main reason of the gap lies in the fact that quite a few households that are yet to build biogas works plan to renovate the related structures besides the construction of the biogas tanks, while the expenses for upgrading related works by the current users is quite low (Charts 15 and 16).



In the 6 provinces under this Study, Bac Giang and Thanh Hoa are the two extremes. In Bac Giang, the estimated total costs of potential users are quite high, with 25% of the households expecting the costs at 20 – VND 30 million, and 69% of the households estimating at over VND30 million .In Thanh Hoa, however, the estimated costs are low, with 62% of households having the expected amount of below VND 10 million.

#### *c/ Financial resources for constructing biogas plants*

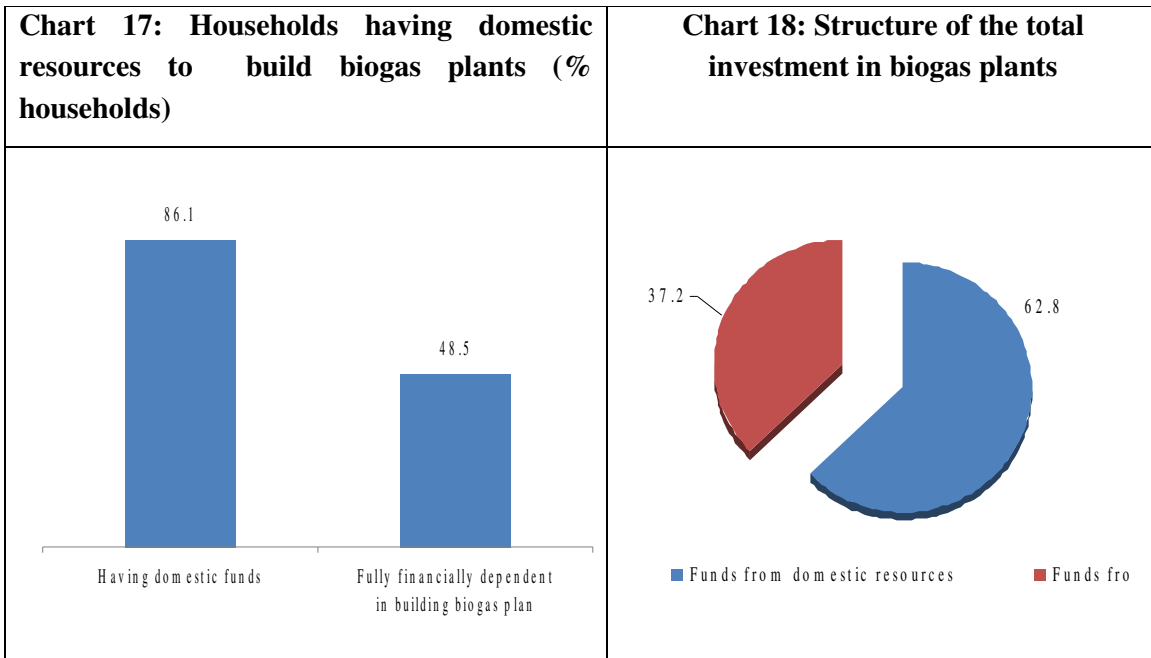
The Study also focuses on how the households find out the financial sources for the construction of their biogas works. The results of this survey show that besides the domestic financial resources, the external finances constitute a very important source for the households in the construction of biogas works.

Under this Study, **domestic financial resources** are funds from within the households themselves, which include: (i) available savings; ii) funds raised from selling agricultural products; iii) salaries/wages/subsidies; and iv) funds raised from small trading and handicraft work. Households which can financially independent in building biogas plants are those who can afford to paying all the costs from their respective internal financial resources without having to borrow from outside.

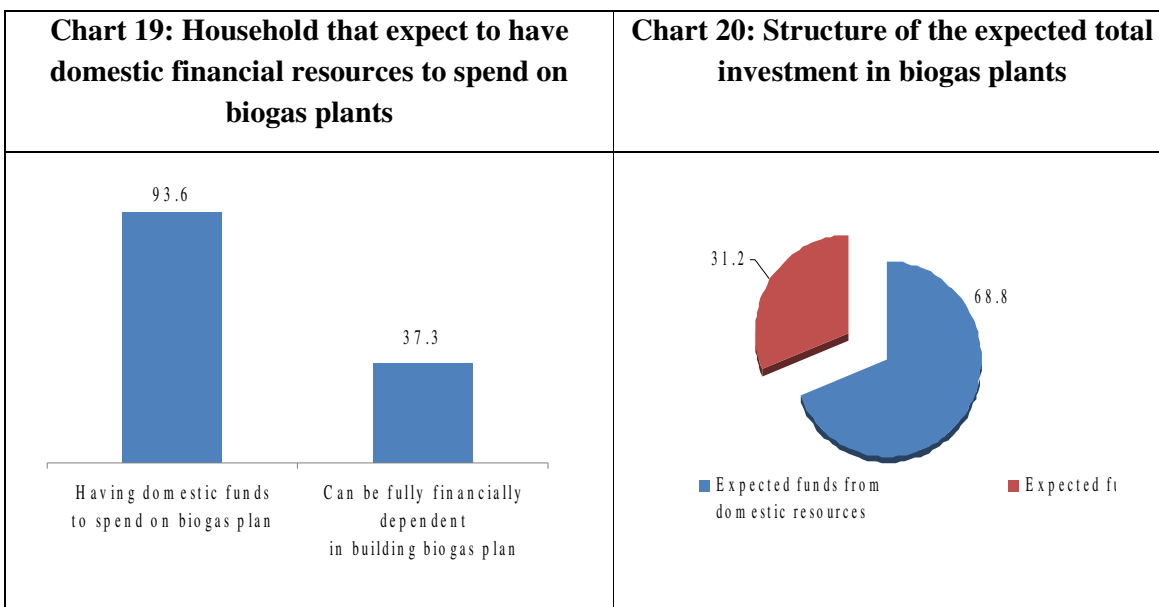
**External financial resources** (or borrowings) include funds borrowed from official sources (financial institutions) and borrowings from unofficial sources such as siblings and relations, friends and other persons. These sources may be of lower interests or interest free but are not always available.

86.1% of the current biogas users count on their domestic financial resources in the construction of their biogas works. Especially 48.5% of these households could afford to entirely cover the costs of their biogas works on their own, without any borrowings (Chart

17). All in all, within the total inputs in biogas works by the current users under survey, the domestic fundings account for a higher rate than the fundings from loans: 62.8% (Chart 18).



The survey results show that 93.6% potential users say that they will use domestic resources in building biogas plants, but only 37.3% say they will be able to fund all incurred costs (Chart 19). About structure of funds expected to be allocated to biogas plant construction, domestic resources account for much higher percentage (Chart 20).



Analysing structure of domestic resources used/to be used for biogas plant construction, we can see some similarities (Chart 21 and 22).

51.5% current users say they had to borrow funds to build biogas plants while 63% potential users intend to do so for biogas plant construction.

In the structure of domestic resources used/to be used for biogas plant construction, domestic savings play an important role: 71.3% current users say they spent part of their domestic saving on constructing biogas plants and 77.7% potential users say they will do the same. Sales of agricultural and husbandry products are also important. It is obvious because they are the main income source of surveyed households. Besides those sources, funds from such sources as salaries, wages, income from secondary jobs and trading were/are planned to be used in biogas plant construction.

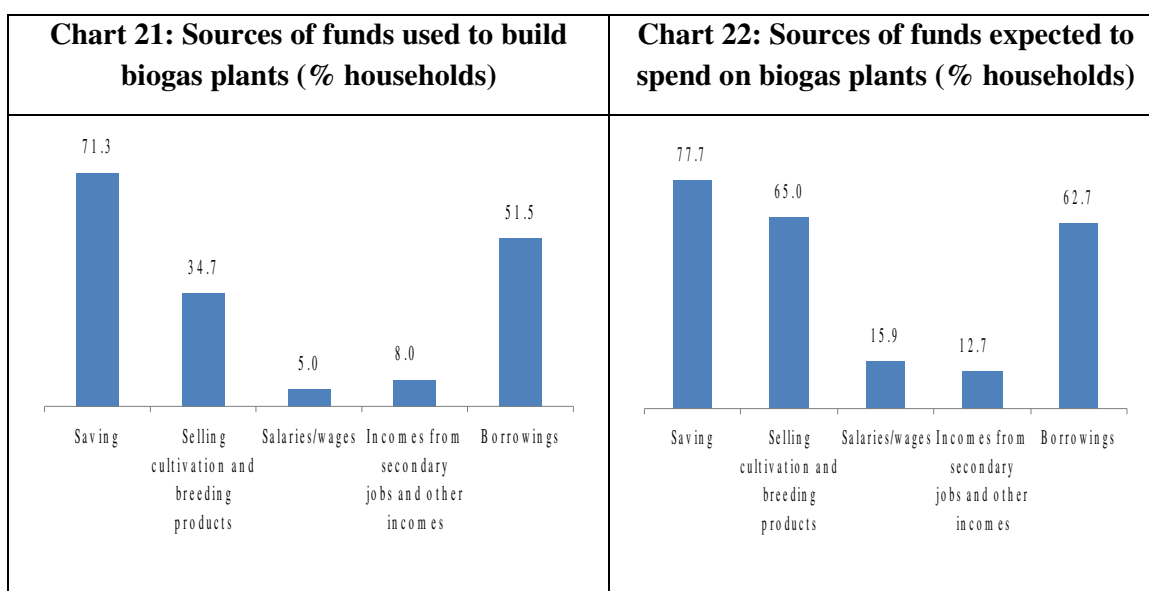
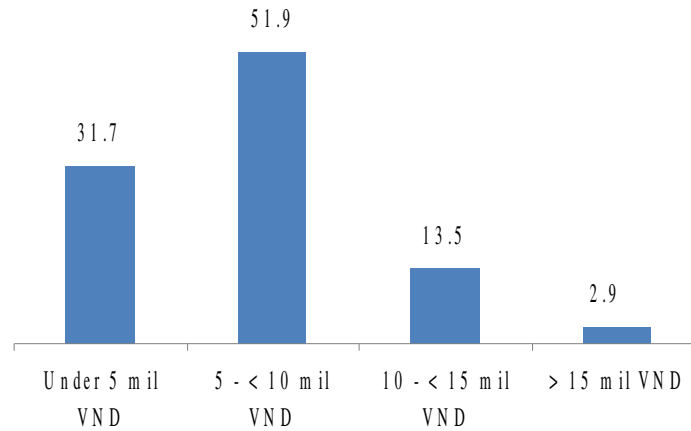


Chart 23 shows the amount of money potential users are willing to spend from domestic savings on biogas plant construction. 51.9% potential users say they can spend 5-10 million VND.

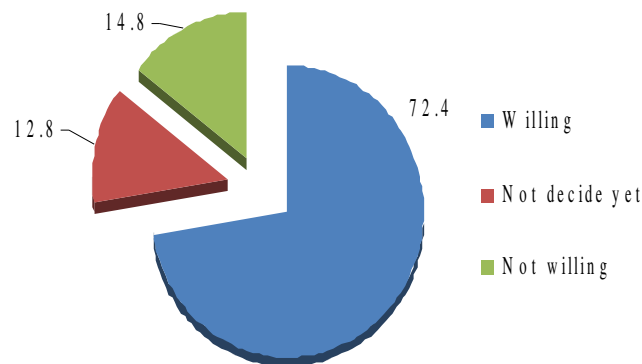
**Chart 23: Amount households willing to pay for constructing biogas plants from their own sources (%)**



#### 2.4.2. The households' demands for loans to build biogas works

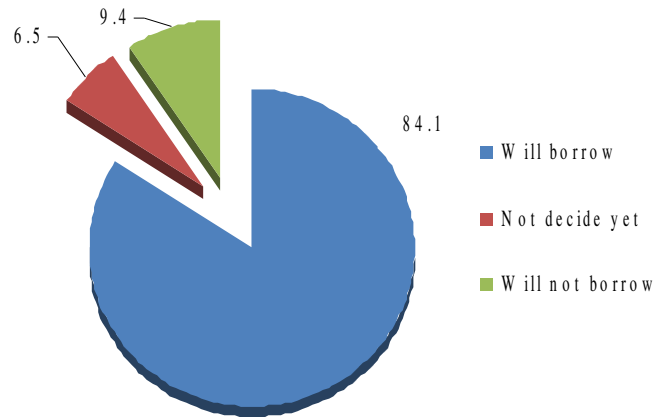
The results of the survey show that the households' demands for loans for the construction of biogas works are very high, which is reflected in Charts 24 and 25. 72.4% of the households that plan to build biogas works are willing to get borrowings for biogas works construction. This willingness varies among the provinces (93% in Ben Tre, 81% in Phu Tho, 31% in Thanh Hoa and 57% in Tien Giang).

**Chart 24: Rate of households willing to borrow loans to build biogas plants**



When a credit program destined for construction of biogas works is supposed to be available, the willingness rate becomes higher (84% for all the provinces) with Ben Tre and Phu Tho remaining the most willing (100%) and Thanh Hoa and Tien Giang being the lower (57% and 68% respectively).

**Chart 25: Rate of households wanting to borrow loans from biogas - related credit programs (if any)**



Amongst households who are not ready to take loans, 55.6% have enough financial resources for construction, 22.3 % do not want to take loans because of their complicated procedures or do not have the “red books” (i.e.land-utilization certificates) for collateral and 23.1 % have other reasons, either unwilling to be debtors, or planning to take loans for only cattle husbandry purposes, or simply not knowing the loan procedures well.

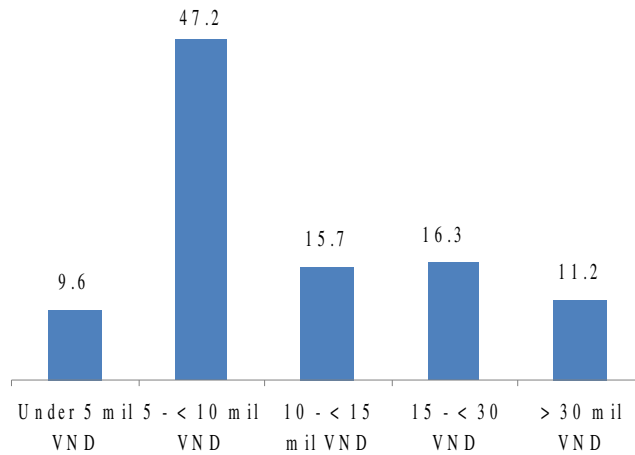
## 2.5. Households’ expectations for loan conditions

### 2.5.1 Expected amount to be borrowed of households

The survey gets the relevant households' expectation for basic conditions of providing loans for construction of biogas works.

Chart 26 reflects the households' expectations for lendings, from 5 to VND 10 million being the highest with 47.2 %, over 10 million being 43%, but the percentages for 3 categories, i.e. from 10 to 15 million, 15 to 30 million and over 30 million, are 16%, 16% and 10% respectively. The lowest amount of loan expected is VND 2 million and the highest is VND 80 million. Bac Giang is the province with 60% of surveyed potential users wanting to borrow VND 30 million or more.

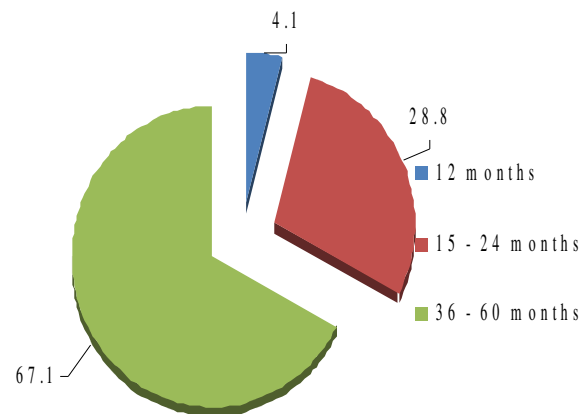
**Chart 26: The amount households want to borrows to build biogas plants (% households)**



### 2.5.2 Loan duration, interest rate and mode of payment

About the loan duration, 67.1% of the households want to get loans from 36 to 60 months, 28.8 % for the duration from 15 to 24 months, and only 4.1 % of them for 12-month loans (Chart 27). Taking long-term loans is the common mentality of the borrowers.

**Chart 27: Desired loan periods if offered loans to build biogas plants (% households)**



The desire for loans with low interest rates is also found to be the common mentality of most households in the interviews on this matter. 82.2 % of the households want to take loans with interest rates from 0.2 to 0.65%<sup>2</sup>. Only 111.4 % of the households want the interest rate of 1%/month for their construction of biogas works (Chart 28).

<sup>2</sup> Interest rate 0.65% per month interest rate is the lending of NHCSXH are applied at the time of implementation research.

**Chart 28: Desired interest rates if offered loans to build biogas plants (% households)**

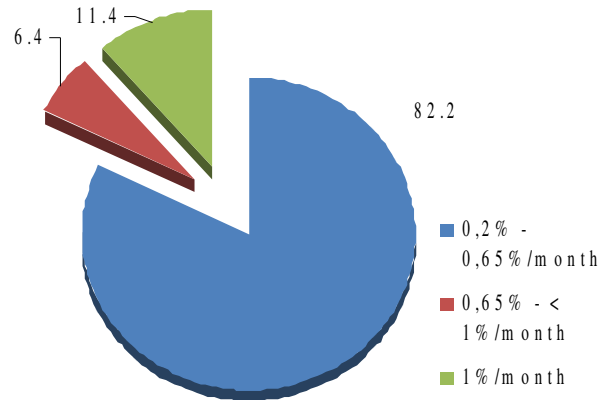
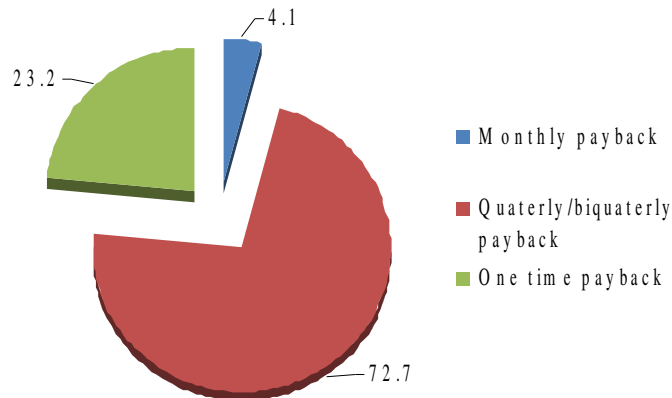


Chart 29 reflects the households’ desire for the mode of loan redemption. 72.7% of the households under survey want to pay on quarter-, 6-month or annual basis. The number of households that wish to repay the principal once for all, at the end of the duration is 23.2 % and only 4.1% of them want to pay it back monthly.

**Chart 29: Desired payback schemes if offered loans to build biogas plants (% households)**



**2.6. Esimation of needs for loans for construction of biogas works in the Period 2010-2011**

**2.6.1. Model to calculate needs for loan to build biogas works for the period 2010 - 2011**

*a/ Approach*

To identify loan demand of households in the surveyed areas, the consultant team focus on:

- Household information
  - Awareness of households on benefits and necessity of biogas plants;
  - Need to build biogas plants;
  - Expected time to build biogas plants;
  - Number of households registering to build biogas plants in 2010; expected number of households registering to build biogas plants in 2011;
  - Expected biogas plant scales;
  - Need to build related sub structures;
  - Expected average costs to build biogas plants;
  - Average unit cost per m<sup>3</sup> in building biogas plants;
  - Household available funds and willingness to spend on biogas plants;
  - Average amount of money each household is willing to spend on biogas plants in each province;
  
- Micro - finance programs and how they are operated
  - Current micro – finance programs;
  - Borrowing procedures;
  - Maximum loan amount (loans without mortgage);
  - Interest rates for each loan period;
  - Loan periods;
  - Mode of payment;
  - Special loans for vulnerable groups;
  
- Future micro - finance for biogas plant construction (if any)
  - The possibility of developing and implementing programs to provide funds to households (if any);
  - If such programs are/will be available, what are/will be forms of loans, loan duration and mode of payment?

Based on the aforementioned approach and analysis of the practical situation, we are of the opinion that the following limitations should be set out to ensure a reasonable and practical calculation model:

- The funds needed to be borrowed for biogas plant construction are not inclusive of those that can be borrowed from siblings and relations, because:

- Essentially, funds borrowed from sibilings and relations and those from financial institutions are of similar nature in the sense that they are borrowings and in most case interest must be paid. There may be cases when loans are made with lower or even without interests. However, in practice, very few rural households have funds to offer loans with such preferentials, and if any, the loans will have to be paid in very short time.
  - This sum of money is not readily available. Surveyed households only focast that this sum can be borrowed and there is no assuarance that it will be there for use when necessary.
- Considering the inclusion of the costs to build/upgrade sub structure into the total loan needs.

From the survey results, it can be seen that most potential users want to have their sub – structures (stables, yards, wells etc.) built/upgraded and the related foreseen costs are much higher than the cost foreseen for biogas plant construction (there is even a case when a household expect the sub structure costs at hundreds of million VND). In our opinion, finance for these costs are hardly available under non – production – purpose loans and would be barely available under a biogas micro finance program. However, this matter will depend on budgets othe the project and/or the future micro fiancé program (if any).

*b) Formulas to calculate the total loan nees of Phase 2010 - 2011*

From the above analysis, the consultant tam would like to propose 2 alternative formula to calculate total loan needs as follows:

**Formula 1:** Total loan need exclusive of substructure costs

$$M_{2010 - 2011} = (\bar{P} \sum_{i=1}^{n_1} V_i + k \bar{P} \sum_{i=1}^{n_2} V_i) - \sum_{i=1}^{n_1+n_2} X_i$$

Or in short:

$$M_{2010 - 2011} = \bar{P} (\sum_{i=1}^{n_1} V_i + k \sum_{i=1}^{n_2} V_i) - \sum_{i=1}^{n_1+n_2} X_i$$

In which: *M*: is the total amount that needs to be borrowed to build biogas plants in a given province in Phase 2010-2011;

$\bar{P}$ : is the average unit cost (per m<sup>3</sup>) of building biogas plants in 2010;

*V*: is the expected volume of biogas plants;

*n*<sub>1</sub>: is the expected number of households who want to build biogas plants in the given province in 2010;

$n_2$ : is the expected number of households who want to build biogas plants in the given province in 2011;

$X$ : is the total amount of money households are willing to spend on biogas plant construction (which does not include funds that can be borrowed from sibilings and relations) in 2010-2011;

$k$ : is the expected CPI (consumer price index) of 2011 against 2010.

However, to use the aforementioned formula, it is necessary to survey a certain sample of households who want to build biogas plants in 2010 – 2011 to calculate the average volume of biogas digesters and the average amount of money a household is willing to spend on biogas plants. Therefore, the formula can be shortened as follows:

$$M_{2010 - 2011} = (n_1 \cdot \overline{P} \cdot \overline{V}_i + k \cdot n_2 \cdot \overline{P} \cdot \overline{V}_i) - (n_1 + n_2) \cdot \overline{X}_i$$

**Formula 2: Total loan need inclusive of substructure costs**

$$M_{2010 - 2011} = \left[ (\overline{P} \cdot \sum_{i=1}^{n_1} V_i + k \cdot \overline{P} \cdot \sum_{i=1}^{n_2} V_i) + \sum_{i=1}^{n_1+n_2} Y_i \right] - \sum_{i=1}^{n_1+n_2} X_i$$

Trong đó:  $M$ : is the total amount that needs to be borrowed to build biogas plants in a given province in Phase 2010-2011;

$\overline{P}$ : is the average unit cost (per m<sup>3</sup>) of building biogas plants in 2010;

$V$ : is the expected volume of biogas plants;

$n_1$ : is the expected number of households who want to build biogas plants in the given province in 2010;

$n_2$ : is the expected number of households who want to build biogas plants in the given province in 2011;

$Y$ : is the expected amount of money to be invested in building/upgrading substructure;

$X$ : is the total amount of money households are willing to spend on biogas plant construction (which does not include funds that can be borrowed from sibilings and relations) in 2010-2011;

$k$ : is the expected CPI (consumer price index) of 2011 against 2010.

**Like in Formula 1**, sample surveys are needed to calculate the average volume of biogas digesters, the average amount of money a household is willing to spend on biogas plants and the average amount of money each household is willing to spend on substructure. Then we can have the shortened version below:

$$M_{2010 - 2011} = \left[ (n_1 \cdot \overline{P} \cdot \overline{V}_i + k \cdot n_2 \cdot \overline{P} \cdot \overline{V}_i) + (n_1 + n_2) \cdot \overline{Y}_i \right] - \sum_{i=1}^{n_1+n_2} X_i$$

**In those 2 formulas, for the time being, only the number of households who want to build biogas plants in 2010 is available and we will have to calculate the number of households who want to build biogas plants in 2011. From the Project, we have the data of households who built biogas plants from 2007 to 2010 broken down by year. Using statistics tools, based on annual growth rate, we have the expected number of households who will o build biogas plants in 2011 (Table 5)**

**Table 5: Expected number of households who will build biogas plants**

Year	1.Phu Tho		2.Bac Giang		3.Thanh Haa		4.Binh Dinh		5.Tien Giang		6.Ben Tre	
	House hold who build biogas plant	Growth rate	Hous ehold who build biogas plant	Growth rate	House hold who build biogas plant	Growth rate	Househ old who build biogas plant	Growth rate	Househ old who build biogas plant	Growth rate	Househ old who build biogas plant	Growth rate
2007	800		615		1100		1500		1200			
2008	800	1.00	1305	2.12	1250	1.14	1800	1.20	1250	1.04	300	
2009	1500	1.88	2250	1.72	1800	1.44	2000	1.11	1100	0.88	600	2.00
2010	1044	0.70	3000	1.33	2303	1.28	2500	1.25	1200	1.09	1000	1.67
2011	1141	1.09	5088	1.70	2946	1.28	2964	1.19	1200	1.00	1826	1.83

**Note:** *The 2 formulas have some drawbacks in applying provinces where surveys are not implemented. The identification of variable X (amount of money households are willing to spend on biogas plants and/or substructure construction) must be done through sample surveys. As such, these 2 formulas can only serve designers of micro finance programs (if any) in estimating average loan amount per household and based on which developing loan limits for potential users of biogas plants.*

*According to survey results, the total amount households can spend from their domestic sources account for 68% of total amount necessary for construction of biogas plants. Therefore, the 2 formulas, again, can be adapted to be used in calculating loan needs of a given province without having to implement a field survey:*

**Formula 1.1:** Total loan need exclusive of substructure costs

$$M_{2010-2011} = 32 / 100 \left( \overline{P} \sum_{i=1}^{n_1} V_i + k \overline{P} \sum_{i=1}^{n_2} V_i \right)$$

**Formula 2.1:** Total loan need inclusive of substructure costs

$$M_{2010-2011} = \left[ 32 / 100 \left( \overline{P} \cdot \sum_{i=1}^{n_1} V_i + k \cdot \overline{P} \cdot \sum_{i=1}^{n_2} V_i \right) + \sum_{i=1}^{n_1+n_2} Y_i \right]$$

*If field survey to provinces cannot be implemented, these 2 formulas can be applied to calculate loan needs. However, errors will be higher than when we have survey results.*

### *2.6.2. Nhu cầu vốn vay xây dựng công trình KSH giai đoạn 2010 – 2011 cho các tỉnh khảo sát*

Using the formula above, on the basis of the results of survey on households' needs for fundings to build biogas works, the demands for necessary financial resources for the construction, the expected financial resources the families can afford, and the estimated total number of households expected to build biogas works in 2010-2011 by the Project Management Units in the six provinces under the study, the research team has calculated the demands for loans to build biogas works in the 6 provinces in **Table 6**. Of the six provinces, Bac Giang is most different from the others, in terms of their demands for loans. Its total demands for loans for the 2010-2011 period are very large. Loan need of this province in 2010 – 2011 account for 47% total loan needs of all 6 provinces if substructure costs are not included and 88.8% if substructure costs are included. The reasons are that the number of households that want to build biogas plants in Bac Giang in 2010 – 2011 is high (5.000) and the average volume of expected biogas plants in Bac Giang is also higher. In particular, households in Bac Giang have very high demands in building/upgrading substructure.

Besides, Ben Tre is the province with the lowest loan needs, accounting for 0.4% of total loan needs of all 6 provinces if substructure costs are not included and 5.6% if substructure costs are included. The reason is that the amount households are willing to spend on biogas plant construction is high (8 million VND per household). Phu Tho also accounts for only 8.4% of total loan needs if substructure costs are excluded because the average volume of expected biogas plants is small and the number of households that want to build biogas plants is slow as well. If substructure costs are included, this province accounts for 3.2% of total loan needs of all 6 provinces. Regarding loan needs to build biogas plants, Bac Giang remains the province with the highest average amount each household (3.8 million VND each household if substructure costs are excluded) and nearly 35 million per household if substructure costs are included. Mean while, the average amount in Ben Tre is only 100,000 VND substructure costs are excluded and over 6 million per household if substructure costs are included.

Total loan needs specified in Table 6 expected are for both cases where substructure costs are included and excluded.

*(For more details, refer to **Annex 5**)*

**Table 6: Estimation of total investment and loan needs to build biogas plants**

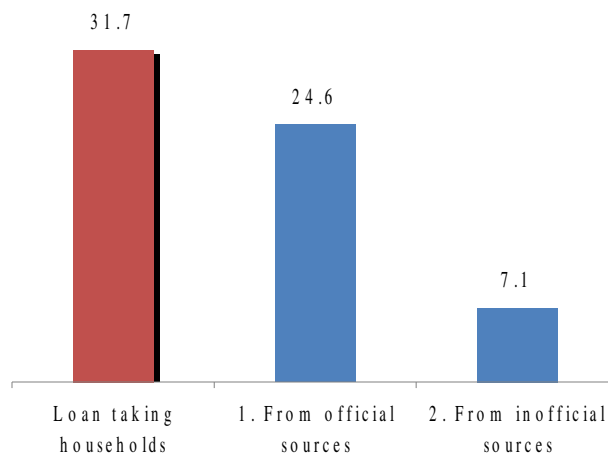
		Unit	Phu Tho	Bac Giang	Thanh Hoa	Binh Dinh	Tien Giang	Ben Tre	Total
<b>I</b>	<b>ESTIMATION OF TOTAL INVESTMENT AND LOAN NEEDS BASED ON THE SURVEYED SAMPLE</b>								
1	Total number of households which decide to or may build biogas plants	household	44	36	18	40	39	47	<b>224</b>
2	Total amount that needs investing in biogas plants	VND	276,920,000	429,680,000	145,195,000	334,087,500	339,360,000	398,062,500	<b>1,927,506,295</b>
3	Total volume of biogas plants	m <sup>3</sup>	344	524	205	378	404	483	<b>2,337</b>
4	Average unit cost (per m <sup>3</sup> ) to build biogas plants (2010, expected)	VND	805,000	820,000	710,000	885,000	840,000	825,000	<b>824,955</b>
5	Total amount needed to build/upgrade substructure	VND	95,000,000	1,119,000,000	36,900,000	233,300,000	379,000,000	290,200,000	<b>2,153,400,000</b>
6	Average amount to build/upgrade substructure	VND	2,159,091	31,083,333	2,050,000	5,832,500	9,717,949	6,174,468	<b>9,613,393</b>
7	Investment amount per household (3/2)	VND	6,293,636	11,935,556	8,066,389	8,352,188	8,701,538	8,469,415	<b>8,604,939</b>
8	Total amount from domestic sources available for building biogas plants (2010 - 2011)	VND	163,325,000	301,000,000	92,800,000	214,300,000	205,000,000	359,000,000	<b>1,335,425,000</b>
9	Number of households having money from domestic sources to spend on biogas plant construction	Household	41	35	17	38	36	41	<b>208</b>
10	Average amount each household can spend on biogas plant construction	VND	3,983,537	8,600,000	5,458,824	5,639,474	5,694,444	8,756,098	<b>6,420,313</b>
11	Rate of household having money from domestic sources to spend on biogas plant construction	%	59	70	62	66	61	85	<b>69</b>
12	Total amount borrowed from sibilings and relatives	VND	64,000,000	16,000,000	8,000,000	25,000,000	-	-	<b>113,000,000</b>
13	Total amount that need borrowing to build biogas plants (3 - 6)	VND	113,595,000	128,680,000	52,395,000	119,787,500	134,360,000	39,062,500	<b>592,081,295</b>
<b>II</b>	<b>ESTIMATION OF TOTAL INVESTMENT AND LOAN NEEDS FOR 2010 - 2011</b>								

		Unit	Phu Tho	Bac Giang	Thanh Hoa	Binh Dinh	Tien Giang	Ben Tre	Total
14	Number of households which expect to build biogas plant of the province in 2010	Household	1,044	3,000	2,303	2,500	1,200	1,000	11,047
15	Number of households which expect to build biogas plant of the province in 2011	Household	1141	5088	2,946	2,964	1,200	1,826	15,165
16	<b>Average volume of each household</b>	<i>m<sup>3</sup></i>	<b>7.8</b>	<b>14.6</b>	<b>11.4</b>	<b>9.4</b>	<b>10.4</b>	<b>10.3</b>	<b>10.4</b>
17	Total amount needed for biogas plant construction (10 x 5)	VND	14,253,413,545	100,784,174,558	44,005,581,767	47,369,959,235	21,614,621,538	25,014,787,751	234,685,036,871
18	Total amount that needs borrowings for biogas plant construction	VND	5,549,891,662	31,228,429,263	15,351,169,844	16,555,436,535	7,947,954,872	272,316,357	66,397,334,298
19	Expected amount that needs borrowing of each household		2,540,143.72	3,861,140.31	2,924,482.53	3,029,868.40	3,311,647.86	96,369.86	2,533,112.22
20	Total amount that need borrowing for biogas plant construction (including substructure costs)	VND	10,267,231,285	282,626,617,199	26,112,013,115	48,424,670,033	31,271,031,795	17,719,769,278	318,381,298,919
21	Expected amount that needs borrowing of each household (including substructure costs)		4,699,235	34,944,474	4,974,483	8,862,368	13,029,597	6,270,838	12,146,505

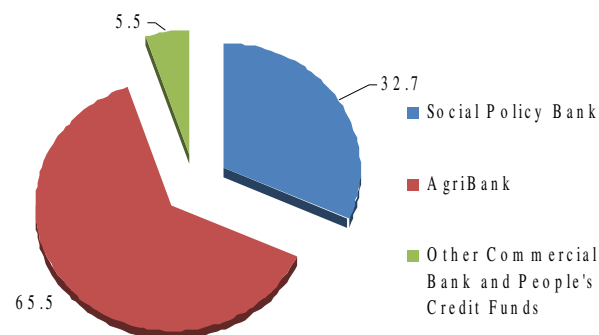
## 2.7. Local people's accessibility to loans

The Study has figured out generally the actual borrowings of the households. The data in Chart 30 show that the borrowing household rate is not high: 31.7% of surveyed potential users of biogas works. More specifically, 24.6% of potential users borrow from official sources. Within loans from official sources, 62.5% is from Bank for Agriculture and Rural Development, 32.7% from Social Policy Bank, loans from other commercial banks and People's Credit Fund account for a very small percentage (Chart 31). The unofficial loans here include borrowings from siblings, relatives and mass organizations, in which loans from siblings and relatives account for the far highest percentage.

**Chart 30: Borrowing situations of households (% households)**

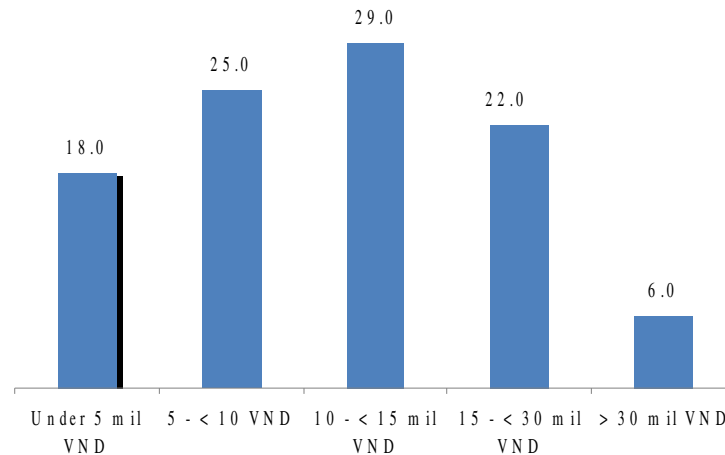


**Chart 31: Sources to borrow funds to build biogas plants (% current users)**



The borrowings from official sources are mainly from 5 to under VND 30 million (Chart 32). The lowest is VND 1 million and the highest VND 100 million. Unofficial loans are often less than 10 million. The loans, from both official and unofficial sources, are used primarily for cattle breeding: 75%. The rest are for other purposes such as farming, house repair ...

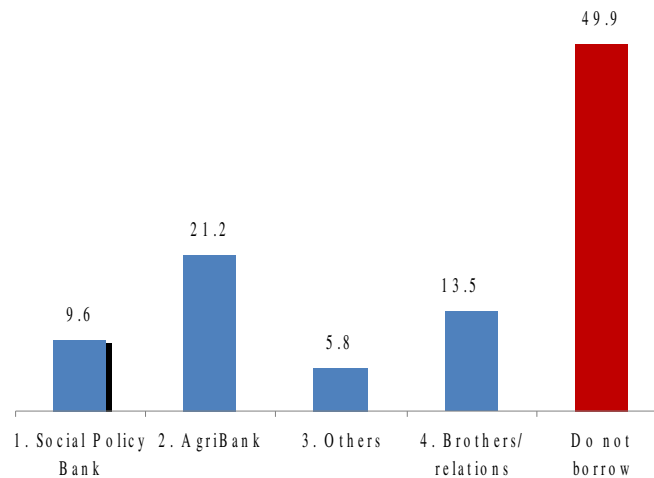
**Chart 32: Amount of loans from official sources of households (% loans)**



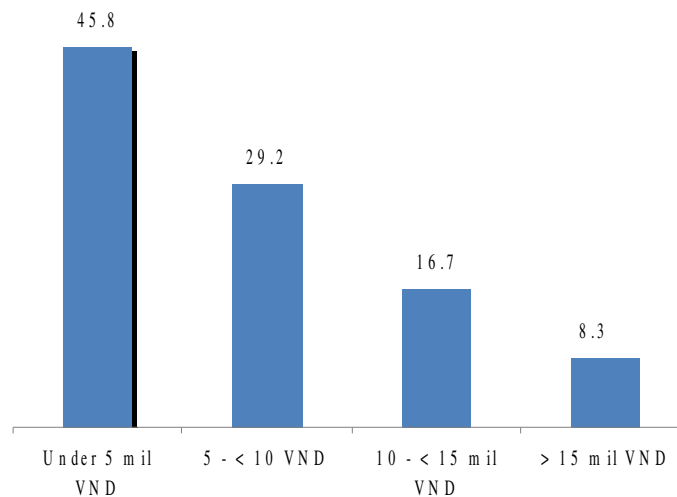
As for loans for construction of biogas works, the research has surveyed the status of the household loans for the purpose. 51% of the surveyed households take borrowings for this purpose. Charts 33 and 34 reflect the loan channels from which households are borrowing for the purpose as well as the loan scales these agencies could provide. Bank for Agriculture and Rural Development is the main source for households to borrow to build biogas plants. Though there is not any loan program exclusively for biogas purposes, local people who want to build biogas plants can have access to commercial loans or to preferential loans which are designed to help improve hygiene and sanitation conditions. The Social Policy Bank has the from "Rural safe water supply and environmental sanitation" Loan Program but very few households borrow from it to build biogas because loans from this source are mostly for building such basis substructures as latrines and water tanks and the loan amount is low.

Siblings and relatives form the second important source for borrowing. Regarding amount, 91.7% loans are 15 million VND or below. Loans under 5 million account for the highest percentage.

**Chart 33: Financial sources households expect to have access to (% households willing to borrow)**



**Chart 34: Amount borrowed to build biogas plants (% loans)**



Of the households not planning to build biogas works, those ready to start the work and those willing to take borrowings for the construction, 39.5% say they may access State-owned Bank for Agriculture and Rural Development and 34.2% to Social Policy Bank. Meanwhile the source of unofficial borrowings from brothers, sisters and friends remain important to the households, hitting the rate of 24% .

The above data show that in general the rural households may access official financial sources, especially services provided by Bank of Agriculture and Rural Development and Social Policy Bank. In general terms, the loans from official sources are sufficient to cover the projected costs of the construction of biogas works. In addition, unofficial sources, particularly borrowings from brothers and relatives are also important financial channels for quite a few households.

The research team also collect opinions of the households on the advantages and disadvantages of the three major sources of fundings, namely Social Policy Bank, Bank for Agriculture and Rural Development and borrowings from brothers/relations..

Advantages of the borrowings from Social Policy Bank are the preferential interest rates without collateral, with services available at the communes. However there are some obstacles: the limited scope of the beneficiaries, slow disbursement, small loans.

Bank for Agriculture and Rural Development is said to provide services quickly, disbursed quickly, in large amounts and with good information systems. Its disadvantages are: collateral of assets, high interest rates, the lender not adopting the policy to provide loans for the construction of biogas works.

The advantages of the borrowings from brothers and relations lie in the absence of interest, procedures, collateral, and quick, timely "disbursement". But small amounts, short durations and unavailability are their disadvantages.

## **C. THE FINANCIAL INSTITUTIONS' CAPACITIES OF PROVIDING LOANS FOR CONSTRUCTION OF BIOGAS WORKS**

### **2.8. The financial institutions' current operation and capacities of providing loans for construction of biogas works**

#### ***2.8.1 Official financial institution***

By practical experience and from the information collected during the implementation of this study, the research team has determined three most familiar and common financial institutions for the rural households, which consider opportunities to provide financial services to the construction of biogas works . They are Social Policy Bank (i.e.Bank for the Poor), Bank for Agriculture and Rural Development, and People's Credit Fund.

#### ***Social Policy Bank***

Social Policy Bank, previously known as the Bank for the Poor, was founded and operated with its goal of poverty reduction and implementation of the lending under government programs.

Organizational network is said to be one of the strengths of Social Policy Bank . The bank has branches from the central to provincial and district levels, and bureaux at districts and communes. As a result, transactions may be made at the communes, therefore the households do not have to waste time and costly travels. Moreover, the coordination of government and Social Policy Bank with local industries is very close, especially the linkage with mass organizations such as Women's and Youth's Unions, Farmers' and Veterans' Associations... as intermediary partners of the Bank. This also provides favorable conditions for its disbursement and the households' access to its financial services .

The recipients for the loans from Social Policy Bank are mostly in the rural areas, with focus on poor households. A striking feature of the regulations of the bank lies in that the borrowers are limited by each program, it requires no collateral, its interest rates are preferential, and small loans form a majority in its disbursements.

Currently, Social Policy Bank is conducting 18 loan programs, some of which are directly or indirectly related to the construction of biogas works as presented below.

*"Rural safe water supply and environmental sanitation loan program"*

This is a loan program of Social Policy Bank, directly related to the construction of biogas works. This program contains provisions on loans for the construction of latrines with biogas tanks, pigpens, waste water treatment structures... However, this program does not account for large proportion of the loan programs from the Bank because of its limited financial resource.

The Loan beneficiaries are families residing in the rural areas (including those who are not poor households), with no biogas works or their latrines' failure to meet sanitary conditions . Its maximum loan may be up to VND 4 million per piece and VND 8 million per household, without collateral of assets (each household may take loans enough to build two pieces). The tenor is up to 5 years and the current interest rate is 0.9% per month.

*The program of loans for poor households*

This is the essential program of Social Policy Bank, with poor households as its beneficiaries. The program helps the poor in their production and trading of the poor as well as their most essential demands of life, such as construction of structures for safe water, electricity, children's schooling, house repairing... The households may not take borrowings from the program to build biogas works, but they may get loans to build, renovate or expand animal houses (this is one of the contingency costs related to construction of biogas works - which many households mention in this study ). However, one of the difficulties in their access to these loans is that the households must be impoverished, while the results of the study show that the potential users of the biogas works are not counted as poor households (about 90%).

The maximum loan of this program is VND 30 million per household, with no collateral of assets, maximum five-year duration and an interest-rate of 0.65% per month.

*Program of loans for creation of jobs*

Its beneficiaries are not necessarily poor households. The purpose of this loan program is to support additional funding for household production or business establishments, to expand production and business, create more jobs... Households can also take borrowings from this program for the purpose of building or renovating animal houses.

The maximum of the loan is VND 20 million per household and VND 200 million per production and business establishment. The interest rate is 0.65% per month. Short-term or medium term loans  $\leq$  12 months (12 to 60 months) are available.

*Program of loans for household production and trading in disadvantaged areas*

The beneficiaries of this loan program are households in disadvantaged areas as stipulated by the government, in need of the loan to develop production and business (which may include households that are not so poor). In principle, the households living in these areas may take borrowings to build or, renovate animal houses as mentioned in the loan program for poor households and lending program for creation of jobs.

Loans from VND 30 million or less do not require collateral, but loans more than VND 30 million set conditions for the mortgage of assets. Their interest rate is 0.9% per month.

In general, Social Policy Bank is one of the channels that households may access to loans for the construction of biogas works. However, due to its strict regulations on the beneficiaries and the purpose of its loans, the access the bank's funding for the purpose of building biogas works is quite limited. Moreover, the limited source of the bank is also an obstacle to the provision of its financial services to the households (i.e.the number of households in access to its loans, the amount of the lendings...).

**Bank for Agriculture and Rural Development**

Bank for Agriculture and Rural Development is a commercial bank with strong activities in the rural areas. The outstanding loans of this area stand at about 70% of the total outstanding loans of the bank, keeping a leading role in inputs in agriculture, farmers and rural areas. The Bank also has the strength of its network organization, with branches from the central to provincial and district levels and centers at communes/townships. The Bank embarks on direct disbursements to its clients, rarely via credit groups like Social Policy Bank .

The clients of the bank are more diverse than Social Policy Bank, regardless of economic circumstances (rich or poor), provided they meet the regulations of the Bank, especially they can afford to ensure payback of their loans, and for loan of production, and they must have production and business feasibility when taking loans for this purpose.

The highlights of the loan provisions of Bank for Agriculture and Rural Development lie in its non-distinction of the clients' financial circumstances, with collateral of assets, its mutually-agreed interest rate, which does not exceed 150% of the basic interest rate as defined in its regulations, the amount of the loan not limited but depending on the clients' plans for production and business, needs and liability of payback, with short, medium or long terms (over 60 months), simple procedures and speedy disbursement.

The required collateral condition is one of the biggest obstacles for some households. Property often used for collateral is real estate: land, house ( red books or certificates of land utilization rights), or some other assets that the bank can manage such as cars, motorbikes... However, the Bank also provides loans of less than VND 30 million without collateral of assets, especially loans of less than VND 10 million, but these loans are often for the purpose of manufacturing and trading (with greater liability of payback by virtue of higher revenues from production and trading activities on the loans).

As mentioned above, as a commercial bank, Bank for Agriculture and Rural Development (AgriBank) applies mutually-agreed interest rates to its clients, to cover costs and ensure rational profits, thus its interest rates are generally higher than Social Policy Bank. At the time of the research, the interest rates of the loans for the purpose of manufacturing and trading stand at 10 to 10.5% a year, but enjoy 4% support by the Government (This will come to an end in December 2009). The interest rate of consumer loans is about 14-15% per year.

In addition to loans for the purpose of manufacturing and trading, AgriBank also provides lendings for the purpose of consumption. The clients of this category of lendings are often households with regular and stabilized incomes (namely officials and civil servants, teachers ... with monthly salaries ). Few farmers can afford to take these loans .

About loans for construction of biogas works, AgriBank does not have specific terms for loans serving this purpose. In principle, loans for renovation of animal houses for development of cattle husbandry (i.e. costs incurred in the construction of biogas works) are still regarded as lendings for production purposes. Thus the local households still have access to bank to take these loans on condition that they meet its conditions. However, if borrowing loans only for the construction of biogas works, they may not take these loans from the bank. It is not easy to access AgriBank for consumption loans to build biogas tanks because this category of loans for farmers' consumption is very limited.

On the basis of this analysis of the information, the households' opportunity to access AgriBank to take loans for construction of biogas works is available, and its financial resources are also large enough to meet the clients' needs for credits, but due to some specific regulations, the actual loans from this bank to the households for construction of biogas works are still limited.

### ***People's Credit Fund***

In terms of scales of operation, especially the network organization, People's Credit Fund is not on a par with Social Policy Bank and AgriBank. According to its annual reports in 2007-2008, the Fund has an active network in 54 of the total 64 provinces, towns and cities, including 24 provincial branches located in the 24 cities and provinces and the 1005 Fund's credit centers for 11,000 communes nationwide, with 1,252,150 members. (at the time of implementation of this study there are about 1,030 credit centers)<sup>3</sup>. Thus, the areas covered by People's Credit Fund are very limited, but its strengths lie in the fact that its agents are located

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<sup>3</sup> There are activities of the funds in all 6 provinces in the implementation of this research, specifically 3 provinces having branches are Phu Tho, Thanh Hoa and Binh Dinh; total fund credit facilities in six provinces are 139; province has some funds most of Thanh Hoa: 42 funds and at least is Ben Tre with 3 funds

at the communes close to the local people, which is convenient to their transactions. Regarding financial resources, according to its financial report in 2008, the total of its assets is VND 14,883,567 million, while the figure of AgriBank, in the same reporting period, is VND 396,993,075 million.

Highlights of activities and provisions of People's Credit Fund lie in that the clients must be members of the Fund<sup>4</sup>; conditions of mortgaged property are applied to most of its lendings but there are certain exceptions to the rule in the case of small lendings, with mutually-agreed interest rates, usually a bit higher than AgriBank but they must not exceed 150% of the basic interest rate for branch level and 165% for commune centers ( at Phu Tho branch, at the time of this study, the interest of People's Credit Fund lendings fluctuates between 1.1% and 1.25% per month); the amount of the lending is unlimited, but all this depends on the project, the values of the assets, the financial resource of the Fund; simple procedures, rapid disbursement...

As for credit products, People's Credit Fund provides lendings mainly for the purpose of the households' production and trading. There are also lendings for consumption, but they must comply with the provisions that the outstanding loans for consumption must not exceed 150% of the Fund's equities. In principle, the local households may access People's Credit Fund to take lendings for the construction of biogas works. But in reality, few households take lendings from the Fund for the purpose, because of its small network coverage, its limited financial resource, its high interest rates, its conditions for collateral of assets and others.

### ***2.8.2 Unofficial financial institution***

In the last 20 years, the micro credit market in Vietnam has had the participation of unofficial micro financial programs/organizations which are formed and supported by international organizations. Their activities help diversify the micro credit market in Vietnam, creating more opportunities for households, especially the poor ones, in accessing financial services. It has been long proved that these activities are effective and contribute to increased income of households and to the fight against poverty in general.

Previously, there were some researches on unofficial micro credit in Vietnam. More recently, the Vietnam Micro Fund Working Group (MFWG) has had regular updates of operation and activities of micro credit programs/organizations. However, a full database of this issue is still absent. MFGW puts the number of micro credit programs/organizations at 40, while 60 is the statement of a research called "Micro credit activities of non – governmental organizations in Vietnam" implemented by SCJ in 2003 with finance from JBIC. Under this study, the research team is not in a position to reviews activities of all, but only single out several prominent micro finance programs/organizations for research purposes.

From previous researches and reviews within this study as well as experiences of the consultant team, main traits of unofficial micro finance activities are discussed below.

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<sup>4</sup> To become a member of QTDND need to close 50,000 VND for the shares, if you want to become a frequently member to be divided income is 500,000 VND

Regarding models, the well known model of Grameen Bank from Bangladesh has huge influence on micro finance in Vietnam. Basic principle of this model are applied with proper adjustment to meet Vietnam's conditions while organization, names and the level of professionalism vary. In the initial stage of development, credit – savings programs/projects were popular. They were integrated in activities of some mass organizations notably the Women's Union. With development of the market, organization model becomes more various and professional. Besides projects/programs of mass organizations, micro finance services are also provided by separate funds and centers which operate exclusively on micro finance. After the issuance of the Government's Decree No. 28/2005/NĐ-CP in 2005, the funds/centers have moved their operation models to the one stipulated in the Decree.

Various on operation models, all micro finance programs/organizations are working on a non profit basis with a view to supporting poor households to get access to sustainable financial services to reduce poverty. Clients are poor households especially poor women. Women account for 100% clients of some organizations. Working on a small scale and small coverage is amongst the prominent characteristics of unofficial micro credit organizations/programs.

Regarding activities, the majority of unofficial micro credit organizations/programs provide 2 main products which are savings and credits. A few are working on the development and pilot of micro insurance. Some universal practices are applied: savings and credits are attached to each other, loans are made with trust/mortgage of credit groups, membership is the precondition of having access to loans, simple borrowing procedures, small loan offered and small savings called for, short loan periods, payment on a periodical basis (week/2 weeks/month), sustainable interest rate which enables payment of borrowers. In general, regulations are designed properly, creating favorable conditions for poor households to get loans.

Regarding loans for biogas plant purposes, surveyed micro credit programs/organizations let it be known that in principle, their clients/member can borrow loans to build biogas plants (except the savings – credit program of SCJ). However, in reality, there have been no clients/members that do so (except the case of TYM as the Fund does not response in this matter). There are some reasons as follows:

- Most of micro finance programs/organizations require membership as the precondition to access to loans. Besides, they focus on poor households, who generally are not potential users of biogas plants.
- They give priorities to loans for business/production purposes. Some even regulate that their loans are for these purposes only. With the others which allow non business/production loans for such activities as house repair, domestic finance, emergency etc, these loans account for very low percentages compared to business/production loans.
- The loan amount is often low, mostly under 5 million. Some survey programs/organizations are amongst big players in Vietnam's micro credit market but

- their average loan amount just vary from 4 to 7 million VND. The highest is TYM's (10 million VND).
- Funds insufficiency can be considered amongst the biggest challenges which covers all the aforementioned difficulties. It is impeding micro finance organizations in expanding their market and ranges of services.
  - Relatively high interest rates is also a challenge of households in getting loans for biogas plant construction. Some programs/organizations applied the nominal decreasing monthly interest rate of 1.5% such as SCJ, Uong Bi women development support fund. Some apply lower nominal interest rates but these rates are flat and the principals must be paid in installment, which makes the effective interest rate quite high. The table below summarize effective rates for the loan amount of 5 million VND, 12 month period, payment made in installments every week/2 weeks/month depending on individual programs/organizations.

Micro finance organizations/programs	Principal payment frequency	Nominal interest rate (%/month)	Effective interest rate (%/month)
CEP	Week	0.6-1	1.18 – 1.96
TYM	Week	1	1.96
SEDA	Week	0.97 - 1,3	1.90 – 2.55
Thanh Hoa Fund for supporting poor women	Month	1.05	1.94
Woment Development Funds of Mai Son, Dong Trieu, Ninh Phuoc	2 weeks	0,83	1.60
Dien Bien savings and credit program	2 weeks	0.75	1.44
Can Loc micro finance program	2 weeks	1.2	2.31
Ha Tinh women development fund	Month	0.7; 1 and 1.2	1.29; 1.85 và 2.22

(See Annex 7)

## **2.9. Opportunity for cooperation between potential financial institutions and bio-gas project**

### **2.9.1 Official financial institution**

The research team held working sessions with the three financial institutions mentioned above, in the central, provincial and district levels, to consider opportunities for cooperation between the financial institutions and the bio-gas project.

All the three financial institutions support the construction of households' biogas works. Because in terms of economic efficiency and the environment, these projects are beneficial to

the households and the society. However, the financial institutions' priority in their financial services in the rural areas remains their lendings for production and trading that may generate incomes for the farmers' livelihoods and capability of repayment. As for access to lendings for construction of biogas works, the institutions confirm if they may meet all their conditions for lendings under their provisions, the households will be considered for the loans; for the time being, there are no other programs / mechanisms than the current regulations, to provide credits for this purpose. However, these institutions are ready to cooperate in the disbursement of funds for the construction of biogas works, if the funds are available.

In fact, AgriBank and People's Credit Fund have cooperated in programs' disbursement for various purposes from the WB, ADB, JBIC, ICO, AFD financial resources (via the Ministry of Finance or direct cooperation). The three financial institutions knew about the information on the biogas loans from ADB and they also made their following comments related to the disbursement of these loans, if possibilities for cooperation are available:

### **AGRIBANK**

- Only market or mutually-agreed, and not subsidized, interest rates should be applied, and they must be liable to cover inputs interests + expenses + rational profits. Preferential interest rates can hardly ensure this, not to mention some possible envy on the part of the clients of other loan programs.
- The clients should not be so limited.
- The collaboration with the local governments and mass organizations is meant to effectively boost and support the disbursement that is to be done directly to the clients.
- Discussions should be held to have some clear and specific unanimity on the coordination and cooperation among the stakeholders, to ensure technical standards of the construction of biogas works and financial requirements related to the disbursement, ensuring simple procedures, quick disbursement, and economic and technical effectiveness .

### **SOCIAL POLICY BANK**

- Preferential interest rates may be applied, but they must ensure inputs and outputs interests to offset costs
- There should be a clear mechanism of risks.
- Efficient coordination should be performed between the stakeholders, to ensure that technical standards and conditions of the loans so as to ward off all possible risks.

### **PEOPLE'S CREDIT FUND**

- Cooperation in disbursement should be long, creating stability for the financial resource.
- There should be suitable mechanism for repayment of the loans for the households' construction of biogas works, which do not bring in profits.

- Training should be launched, with the Project responsible for the technical matters, and the Fund accountable for the credits.

Among the three financial institutions, AgriBank is better for its resources and financial institutions. Social Policy Bank is smart with its network organization, its familiarity with the areas, its close relations with the clients, its experience in cooperation with other organizations, engaging in a loan program for rural safe water supply and environmental sanitation, oriented towards social goals (while AgriBank looks to more commercial transactions). People's Credit Fund has the advantage in that it operates establishments located right in the localities but it has very limited network of organization, especially its coverage of activities.

*(See Annex 6.1: Basic information on organization and operation of Social Policy Bank, Bank of Agriculture and Rural Development, and People's Credit Refund; Annex 6.2: Strengths and limitations of the financial service of Social Policy Bank, Bank for Agriculture and Rural Development and People's Credit Refund )*

### **2.9.2 Unofficial micro-finance organizations**

Results of interviews with the micro-financial organizations / programs whether in the future there is ability to supply their capital to households' loans to build biogas works or not, some of Organizations / programs expressed that it is not because of insufficient capital - even loans for increasing income, including Fund to support women in Dien Bien district and Dien Bien Phu city. Or the CEP Fund (the Fund's largest microfinance unofficial at present) also said they must give priority to loans for generating income loans. If they supply loans for construction purposes of biogas works, it means they will need more supplement.

The savings-credit program of SCJ organization said they only provide loans for production and business activities to create income to improve nutrition for children. Other organizations / programs all said that at now they still have the loan non-manufacturing, so clients / households are their members can access loans for construction purposes biogas works if they meet the regulations of the organization / program and can not have a preference or dedicated policy to these loans for this purpose. Actually, loans for production purposes still accounts for major proportion of the debit balance of the organization / program. Loans for non-manufacturing are more limited. Such as the policy of the Center for supporting and development small enterprise / SEDA, today there only is the customer has completed four cycles loans of six months and one cycle of a year period will be considered a loan for construction, repair house, accessories and go to school.

In informal microfinance organizations / programs have been surveyed in this study, the Fund to support women's belong to Association of Ha Tinh Women is the most potential in providing loans for construction purposes for biogas works as The fund is providing capital for loans for the purpose of construction of clean water, hygienic latrines and bathrooms from the donation of the Denmark water supply and sanitation program

However, analyzed above, beside difficulties due to lack of capital to provide loans for the purpose of building biogas works, the another key point has showed that short potential

credits for the purpose of building biogas works are limitation of scale and scope coverage of institutions / microfinance programs.

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## **PART III: CONCLUSIONS AND RECOMMENDATIONSS**

### **I. CONCLUSIONS**

On the basis of the results of the Study, the Research Team would like to present the following conclusions:

#### **1.1. Needs for constructions of biogas works**

##### **Profiles of current and potential users**

In the case of current users of biogas works, a large majority are households of medium scale (78%). For potential users, the rate of medium scale households is even larger (84,2%).

Medium household incomes of both current and potential users of biogas works are at middle and low level (mostly lower than VND 5 million per month).

The main income sources in both categories of households are animal husbandry and cultivation. For current users, 87.5% households live on animal husbandry. For potential users, 92.4% households have part of their incomes from livestock husbandry and 81.8% earn part of their livings from cultivation.

##### **Identification of the needs for construction of biogas works**

It may be seen that this need is quite high with 87.9% of the potential users respond that they have intention to build biogas works. It helps shed light on the fact that potential users are well aware of biogas usefulness and highly appreciate its benefits. However, these "positively responding" households are mostly of middle-income class while very few lower-income households say they will adopt biogas, which raises the question of access to biogas by the poor and poorer.

Among the households planning to build biogas works, 58% want to start the work in 2010; and 20.4% in 2011.

The scales of biogas works that are most preferred are 5m<sup>3</sup> - under 10m<sup>3</sup> (with 38,3% responses) and 10m<sup>3</sup> - under 15m<sup>3</sup> (42.7%). The scale of 15m<sup>3</sup> – under 20m<sup>3</sup> is adopted by 12.8% households, 5.3% adopts the scale of over 20m<sup>3</sup> and 0.9% adopt the smallest scale of under 5m<sup>3</sup> .

##### **Easy and difficult access to biogas**

Households joining in the Biogas Project enjoy favorable conditions in accessing the project's resources: technology more advanced available, operation techniques, maintenance and

subsidies. In general, the interviewed households seem satisfied with what they have received from the Biogas Project.

The main difficulty of the potential users is affordability. Up to 64.0% of the respondents say they cannot afford to pay all the costs incurred by the construction of biogas works. Besides, the amount VND 1 million (previously) or VND 1.2 million (at present) is considered low and does not play any important role when the households decide whether or not to build biogas works. A vast majority of the households request higher subsidies.

## **1.2. Households' expectations for loans and loan conditions**

### **Household financial resources allocated for construction of biogas works**

A majority of households have spent or are willing to spend about 5 million – VND10 million on construction of biogas works. This information is noteworthy if the Biogas Project is to develop a micro-credit program to support them in this undertaking.

A majority of the current users of biogas works (86.1%) have used their domestic financial resources in constructing biogas works. In particular, 48.5% have used their own resources.

The needs for loans to build biogas works are quite high with 72.4% of the households that plan to build biogas works saying they will go out for loans. And when supposed that there would be a micro-credit program exclusive for construction of biogas works, this rate is to rise even higher (84.1%).

### **Estimation of the needs for loans**

With the parameters of surveyed results in 6 provinces, the research team calculated loan need for 2010 – 2011 to build biogas plant as follows:

\* Loan need for 2010-2011: **66,397,334,298 VND** if exclusive of substructure costs

\* Loan need for 2010-2011: **318,381,298,919 VND** if inclusive of substructure costs.

### **Households' expectations for loans**

The amount of 5 million – VND10 million is expected by 47.2% of the households, the highest rate.

The demands for longer loan periods are understandable. 67.1% of the households want to take loans for 30 – 60 months. Very few households like the 12-month period..

It is also common sense that the households prefer to take loans at lower interest-rates. 82.2% of the respondents want the monthly interest rate of 0.2 to 0.65%.

They also want to repay the loans into as few installments as possible, with 72.7% of them showing a desire to repay the lendings on a quarter or bi-annual basis. Only 4.1% want to repay every month.

### **1.3. The financial institutions' capacities of providing loans for construction of biogas works**

#### **Accessibility to loans**

In general, the households have access to official credit sources, especially AgriBank and Social Policy Bank. Besides, unofficial sources, first and foremost relations and friends, are quite important to many of them .

#### **Identification of potential partners**

3 financial institutions that are identified as most popular to rural households are Agribank, Social Policy Bank and People's Credit Fund, in which, with vast financial resources and widespread network, AgriBank represents an institution with best capability in co-operation with Biogas Project.

However, priorities of the official financial institutions are loans for production activities because of the visible liability to repayment. About possible loans for construction of biogas works, these institutions confirm that if the households are financially eligible, they will get loans and there will be no particular mechanism or priority given to biogas – related loans. They also express their willingness to co-operate in distributing biogas – related funds to the households once these funds are made available. Only social policy bank has loan program for "*Rural safe water supply and environmental sanitation loan program*", in which having loans for construction of biogas works. However, the capital resource of this program is limited compare with households' loan needs. Although the financial institutions' capacities of providing loans for constructions of biogas works is low, they are ready to cooperate to disburse their capital for construction of biogas works if having this capital resource. Related to interest rate, Bank for Agriculture and Rural Development has idea that they give loans with market interest rate with negotiation with customers. On the contrary, Social Policy Bank has idea that they can give loans with priority interest rate but to make sure to pay enough expense ( in put interest rate and loan expense)

In addition to formal financial institutions, the potentiality and opportunity to provide loans for the purpose of building Biogas works of organizations/non-formal microfinance programs is not high. In fact, these loans from these organizations for construction of biogas works is almost exist. There are some major obstacles in this area, limitation in scale, scope and coverage to the capital and lending policies of these organizations (the objects, purposes of loans, interest rates for loan). However, the methods and principles of lending organizations / programs can reference and apply to the loan program to build biogas works, if the program was implemented.

## II. RECOMMENDATIONS

From the above conclusions, the Consult group proposes some following contents:

### 1. To Centre project office

- The Biogas Project is a successful model which is highly appreciated by all stakeholders. However, coverage of the Project in the project provinces remain low and the potentialities for further development are quite high. Meanwhile, the results of this Study show that limited financial resources are the biggest difficulty of the households in the construction of their biogas works. Therefore, to fill in the current gap, the Central Project Office should seek possible preferential credits, in which the coming ADB's Project is a very optimistic possibility..
- The Biogas Project should launch co-operation with local financial institutions in the project areas to update information about current credit services relevant to construction of biogas works, and to inform households how to get access to such sources.
- At present, at provincial level, the Project Office is located in the Agricultural Extension Center of DARD. Agricultural Extension Center has its own heavy task of supporting local people in agricultural and husbandry techniques, therefore its human resource allocated for the Project's activities is limited, only to technical support to potential and current biogas users. Therefore, it is more advisable to outsource one more staff member who is to work full time for the Project( according to labour contract). This new staff member will be very useful in assessing the households' needs, co-ordination, and especially seeking information from and networking with the local credit sources, to improve the households' access to loans for construction of biogas works.
- If financially viable, the Biogas Project may consider increasing the current subsidy of VND 1.2 million per households to improve "attractiveness" of the biogas works models in the eyes of the poor. *If some increase is put in place*, , the Biogas Project should consider to change the current "flat" nature of subsidies. This amount may vary depending on who the beneficiary is. For example, vulnerable households (those classified as poor by local authorities thus having the "poor household book", ethnic minority households, households headed by women etc.) should enjoy greater subsidies while the current amount of 1.2 million is applied to the other. In development terms, such a mechanism will better ensure social equity, improve vulnerable households' access to biogas model, and act as stimulation as well. However, actual application of the mechanism should be considered carefully because any carelessness in this regard may lead to cheating.
- Propaganda activities should be intensified about Project's activities in general and the benefit of project in particular. . The Project may consider co-operation with other development projects/programs to organize visits to typical households with well - operated biogas works so that operations and benefits of biogas works may be physically better shown. Besides, it is widely acknowledged that at grassroots level, Women's Union is the best organization in the diffusion activities. Thus, the Project should have certain

co-operation with Women's Union from central to grassroots levels so that information about the project contents and benefits may be integrated into the propaganda activities of Women's Union.

## **2. To Ministry of Agriculture and Rural Development Department**

- With the purpose of stepping up the development of rural agriculture, income increasing, environment improvement for households, the Ministry of Agriculture and Rural Development should study and propose with State that the State should have policies for greater concern of encouraging the development of construction of biogas works. In order to support to loan resource for construction of biogas works, the State should have orientation to Bank of this activity and having policy for support logical interest rate.
- Step up the activities of cooperation and seeking sponsorial resource internal and external of technical assistance and financial assistance for construction of biogas works.

## **3. To Banks and financial institutions**

- Bank for Agriculture and Rural Development should have loan program from their capital resource for the purpose of development biogas works because it brings the benefit on society and economy, especially of environmental sanitation for households in specific and for society in general. Social Policy Bank should more priority capital resource for "*Rural safe water supply and environmental sanitation loan program*", in which having loan activity for construction of biogas works

## **4. Other recommendations**

In view of the possible resources from ADB for construction of biogas works, if funds from this source are available:

- AgriBank and Social Policy Bank are institutions, capable and appropriate, to assume the role of disbursing the funds.
- The results of the Survey show that households have financial resources to spend on biogas works, therefore there should be a mechanism to utilize these resources. The contribution of the stakeholders in a given biogas work should be made clear.
- Rational interest rates should be applied, without subsidies but lower than the interest rates of the consumption loans provided by the financial institutions (normally the interest rates of the consumption loans are higher than the rates applied to the loans for production purposes, while lendings for construction of biogas works are considered as "consumption" loans by the financial institutions).
- Stable interest rate should be applied, because this ensures the stability of finance. However, rational profits should not be extra calculated for micro-finance, which implement disbursement of this source of capital, as opinion of Agribank, because it will make interest rate higher and can't encourage the households to borrow for biogas plant development purpose. Specific interest rate level will be calculated based on actual conditions.

- Phased loan repayment should be applied based on trading cycle of hog raising, because the loans are often for hog rearing.
- Loans should be made on short-term or medium-term, rather than long-term, according to loan level.

## ANNEXES

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| <b>Annex 1</b> | Survey tools  |
| <b>Annex 2</b> | List of indepth interviews  |
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| <b>Annex 5</b> | Details of loan need calculation  |
| <b>Annex 6</b> | <p><b>Annex 6.1:</b> Basic information on organization and operation of Social Policy Bank, Bank of Agriculture and Rural Development, and People's Credit Refund;</p> <p><b>Annex 6.2:</b> Strengths and limitations of the financial service of Social Policy Bank, Bank for Agriculture and Rural Development and People's Credit Refund</p> |
| <b>Annex 7</b> | Information on some micro-credit organizations  |

**ANNEX 6-Appendix 7: Basic information on organization and operation of Social Policy Bank, Bank of Agriculture and Rural Development, and People's Credit Refund**

	<b>Social Policy Bank</b>	<b>Bank of Agriculture and Rural Development</b>	<b>People's credit Refund</b>
<b>Organization Network</b>	Branches from central to provincial and district levels, transaction offices at districts and transaction centers at communes	Branch network from the central to provincial, district levels and transaction centers at communes	Networks operating in 54/64 provinces and cities, including 24 provincial branches and 1005 communal credit funds/ 11,000 communes
<b>Principles</b>	Operating with the goal of poverty reduction and implementation of lending from the government's programs	Commercial bank operating under the trading principles	Activities under trading principles
<b>Beneficiaries</b>	<ul style="list-style-type: none"> <li>- Depending on the loan program</li> <li>- Focus on poor households and particular beneficiaries</li> </ul>	<ul style="list-style-type: none"> <li>- Depending on loan products.</li> <li>- No distinction of economic backgrounds.</li> </ul>	<ul style="list-style-type: none"> <li>- No distinction of economic backgrounds</li> <li>- Compulsory membership of the fund for individual clients.</li> </ul>
<b>Mode of Disbursement</b>	<ul style="list-style-type: none"> <li>- Mostly through microcredit groups (organized by such partners as Women's Union, Farmers' Assoc., Youth's Union, Veterans' Assoc.) -Rarely for direct personal loans (large amounts)</li> </ul>	<ul style="list-style-type: none"> <li>- Mainly direct personal loans</li> <li>- Through groups</li> </ul>	<ul style="list-style-type: none"> <li>- Direct Personal Loans</li> </ul>
<b>Loan Conditions</b>	<ul style="list-style-type: none"> <li>- Having the civil legal capability and capacity of civil acts and civil liability under the provisions of the law;</li> <li>- Having the financial conditions to ensure repayment within the terms of commitment;</li> <li>- Having investment projects, plans for production &amp; trading in service of social life, feasible, effective and consistent services under the provisions of the law.</li> <li>- Legitimate utilization of the loans</li> <li>- Implementing the provisions on loan security under the regulations (if the loans are secured by assets)</li> </ul>		
<b>Loan Guarantee</b>	<ul style="list-style-type: none"> <li>- Credit by groups</li> <li>- Loans under VND 30 million without collaterals..</li> <li>- Mostly small credit loans</li> </ul>	<ul style="list-style-type: none"> <li>- Loans under VND 30 million without collaterals.</li> <li>- Mostly mortgage loans, for the bank's large loans</li> </ul>	<ul style="list-style-type: none"> <li>- Most of the loans requires collateral of assets</li> <li>- Credit loans of small amounts - usually less than VND 10 million (largely depending on each fund)</li> </ul>
<b>Procedures for</b>	<ul style="list-style-type: none"> <li>- Registration at microcredit groups</li> </ul>	<ul style="list-style-type: none"> <li>- Client's lending documents</li> </ul>	<ul style="list-style-type: none"> <li>- Customer's lending dossier</li> </ul>

	<b>Social Policy Bank</b>	<b>Bank of Agriculture and Rural Development</b>	<b>People's credit Refund</b>
<b>loans</b>	<ul style="list-style-type: none"> <li>- Filling in clients' lending documents</li> <li>- Lists to People's Committee by the groups after review.</li> <li>- The CPC's approval of lists to the bank.</li> <li>- Notice of disbursement</li> <li>- Disbursement</li> </ul>	<ul style="list-style-type: none"> <li>- Evaluation and approval by the Bank</li> <li>- Preparing credit contract, loan security contract (for mortgage loans)</li> <li>- Disbursement</li> </ul>	<ul style="list-style-type: none"> <li>- Inform customers about the assessment results.</li> <li>- The two sides signed a credit contract, mortgage contract (for asset secured loans)</li> <li>- Disbursement</li> </ul>
<b>Loan amount</b>	- Small, dependent on specific loan programs, average loan amount of 7-8 VND million	- Based on the borrowers' needs , incomes, repayment ability, values of collaterals...	- Based on the needs of the borrowers, income, repayment ability, the value of collaterals
<b>Duration</b>	<ul style="list-style-type: none"> <li>- Short term: up to 12 months (accounting for one third of total loans)</li> <li>- Middle-term: 12 to 60 months (most of total loans)</li> <li>- Long term: over 60 months</li> </ul>	<ul style="list-style-type: none"> <li>- Short term</li> <li>- Middle term (majority)</li> <li>- Long term</li> </ul>	<ul style="list-style-type: none"> <li>- Short term</li> <li>- Middle term</li> <li>- Long term (minority)</li> </ul>
<b>Interest rate</b>	Preferential interest rates, depending on loan programs, two most popular rates: 0.65% per month and 0.9% per month	<ul style="list-style-type: none"> <li>- The market's interest rate agreed with clients</li> <li>- At the time of study: for business: 10 to 10.5% per year (with 4% support), for consumption: 14-15% per year.</li> </ul>	<ul style="list-style-type: none"> <li>- The market's interest rate agreed with clients</li> <li>- At the time of study: from 13.2 to 15% per year.</li> <li>, may borrow to build biogas works.</li> </ul>
<b>Programs / products for biogas construction</b>	<ul style="list-style-type: none"> <li>- Loans for rural safe water supply and environmental sanitation; possibly for construction of biogas works</li> <li>- Possibly for construction and improvement of cattle houses: <ul style="list-style-type: none"> <li>+ Loans for poor households</li> <li>+ Loans for creation of jobs</li> <li>+ Loans for trading households in disadvantaged regions</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- The loans for trading purposes may be used for construction or renovation of farmhouses or animal sheds</li> </ul>	<ul style="list-style-type: none"> <li>- The loans for trading purposes may be used for construction or renovation of farmhouses or animal sheds</li> </ul>

**ANNEX 6-Appendix 2: Strengths and limitations of the financial service of Social Policy Bank, Bank for Agriculture and Rural Development and People’s Credit Refund**

	<b>Strengths</b>	<b>Limitations</b>
<b>Social Policy Bank</b>	<ul style="list-style-type: none"> <li>- Broad activity coverage</li> <li>- The network of organizations from Center to Provinces, Districts, Communes.</li> <li>- Experience in coordination with government, the corporate sectors.</li> <li>- Focusing on social- economic objectives</li> <li>- No collateral required for majority of the loans.</li> </ul>	<ul style="list-style-type: none"> <li>- Limited categories of clientele</li> <li>- Resources limited to the loan programs of the Government.</li> <li>- Small loan amounts</li> <li>- Not meeting the demands in time sometimes (loans usually considered in drives)</li> </ul>
<b>Bank for Agriculture and Rural Development</b>	<ul style="list-style-type: none"> <li>- Broad activity coverage</li> <li>- The network of organizations from Center to Provinces, Districts, Communes</li> <li>- Strong financial institutions</li> <li>- Abundant capital resource</li> <li>- Large loan amounts</li> </ul>	<ul style="list-style-type: none"> <li>- No available services in the community.</li> <li>- Collateral required for loans are obstacles for many households, especially poor households, to access to the Bank</li> </ul>
<b>People’s Credit Refund</b>	<ul style="list-style-type: none"> <li>- The network of credit funds at commune establishments.</li> <li>- Available and closer-to-people services in the community,</li> <li>- Simple procedures, quick process of lending and disbursement.</li> </ul>	<ul style="list-style-type: none"> <li>- Limited operation coverage</li> <li>- Limited network organizations</li> <li>- Limited funding resource</li> </ul>