

Assessment of the possible institutional set-up for the proposed biogas project in Lao PDR

Final report



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It was a pleasure to conduct this mission on the possible institutional set-up for the proposed biogas project in Lao PDR. There was excellent cooperation by the respondents for the interviews and great facilitation by SNV/Lao PDR, especially Mr. Thong Xaysombath and Mr. Auke Koopmans. I like to extend our gratitude to all respondents and informants for their constructive contributions and hope the outcome of this assessment will serve its purpose.

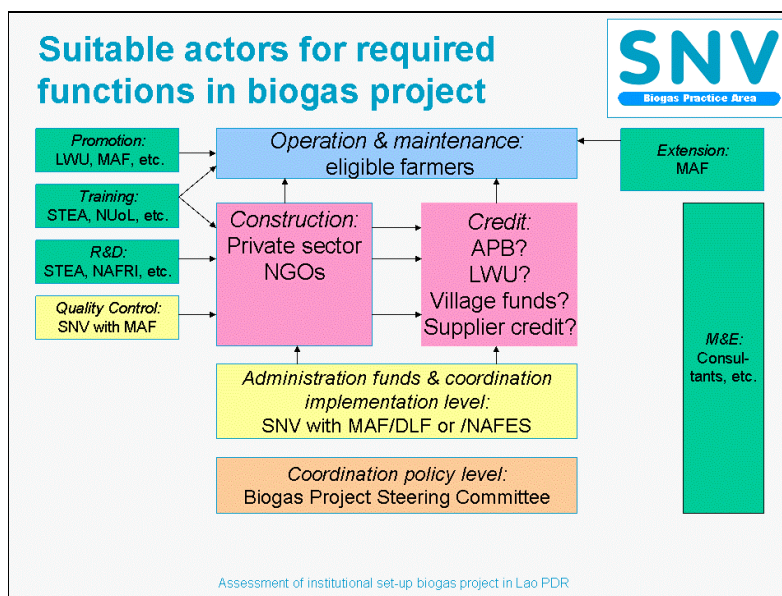


Executive summary

This report presents the findings of a mission conducted by the Biogas Practice Team (BPT) Coordinator of the Netherlands Development Organisation (SNV) to assess the possible institutional set-up for the proposed biogas project in Lao PDR. This mission was conducted from 11 to 18 January 2006 and made use of the following methodologies:

- Field visit to Ban Sork village in Sangthong district, facilitated by Sunlabob.
- Interviews with (potential) stakeholders for the proposed project on domestic biogas.
- A half-day Workshop to present the findings of the interviews and to generate discussion among the stakeholders on a number of key-issues.

The main conclusion of the mission is that the available institutional context of Lao PDR has sufficient potential to execute the required functions of the proposed biogas project (see the figure below), except for the provision of micro-credits. Experiences with latter function through Agriculture Promotion Bank (APB), Lao Women's Union (LWU) or village funds failed so far to demonstrate the required sustainability of the fund. The Ministry of Agriculture and Forestry (MAF) is to be considered as the most appropriate implementing partner for SNV, but not sure is yet whether the Department of Livestock and Fisheries (DLF) or National Agriculture and Forestry Extension Services (NAFES) should be considered as the best placed unit within MAF.



The following are the main recommendations resulting from this mission:

- To SNV/Lao PDR in consultation with MAF: To formulate a detailed implementation plan before the 1st of March 2006, coordinated by a senior advisor from SNV/Lao PDR, supported by the Biogas Practice Team of SNV.
- To SNV/Lao PDR and MAF: To determine in February 2006 which unit within MAF (DLF or NAFES) will be best placed as the implementing partner for SNV. The Biogas Project Coordination Office should not (yet) follow the rather restrictive administrative guidelines of MAF.

- To SNV/Lao PDR: To submit in March 2006 the implementation plan to the Lao Ministry of Foreign Affairs (MFA) for approval.
- To BPT Coordinator of SNV: To submit in March 2006 the implementation plan to the Directorate General for International Cooperation (DGIS) of the Netherlands Ministry of Foreign Affairs for endorsement.
- To SNV/Lao PDR: To commission in the 1st half of 2006 a separate study on possible biogas micro-credit facilities in Laos.



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Abbreviations

ABEST	Asian Bank for Energy, Science and Technology
ABP	Asia Biogas Programme
ADB	Asian Development Bank
APB	Agricultural Promotion Bank (Lao PDR)
BPT	Biogas Practice Team (SNV)
BSP	Biogas Support Programme (Nepal)
CDM	Clean Development Mechanism (under the Kyoto protocol)
CIAT	International Center for Tropical Agriculture
DAFEO	District Agriculture & Forestry Extension Office
DGIS	Directorate General for International Cooperation (Netherlands)
DLF	Department of Livestock and Fisheries (under MAF)
DE	Department of Electricity (under MIH)
ESCO	Electricity Service Company
EU	European Union
GoL	Government of Lao PDR
ILRI	International Livestock Research Institute
LEAP	Laos Extension for Agriculture Project
LWU	Lao Women's Union
MAF	Ministry of Agriculture and Forestry (GoL)
MCTPC	Ministry of Communications, Transport, Post and Construction (GoL)
MFI	Micro Finance Institute
MIH	Ministry of Industry and Handicraft (GoL)
MFA	Ministry of Foreign Affairs (GoL)
MPH	Ministry of Public Health (GoL)
MoU	Memorandum of Understanding
NAFES	National Agriculture & Forestry Extension Service (under MAF)
NAFRI	National Agriculture & Forestry Research Institute (under MAF)
NGO	Non Governmental Organisation
NUoL	National University of Laos
PAFEC	Provincial Agricultural & Forestry Extension Centre
PAFO	Provincial Agricultural & Forestry Office
PDR	People's Democratic Republic
PSD	Private Sector Development
RE	Renewable Energy
RESDALAO	Renewable Energy for Sustainable Energy Development Association
SCU	Saving and Credit Union
SNV	Netherlands Development Organisation
STEA	Science Technology and Environment Agency (GoL)
TA	Technical Assistance
ToR	Terms of Reference
TRI	Technology Research Institute (GoL)
UNDP	United Nations Development Programme
USD	United States Dollar
VEW	Village Extension Worker
VVW	Village Veterinary Worker
WB	World Bank

Exchange rate: 1 Euro = 13,000 Lao Kip
(January 2006) 1 USD = 10,800 Lao Kip

CHAPTER 1: Introduction and background

Based on positive experiences with the dissemination of domestic biogas in Nepal and Vietnam, the Board of Directors of SNV Netherlands Development Organisation decided in June 2004 to launch an initiative for up-scaling of domestic biogas in a number of Asian countries. This initiative received in 2005 financial support by the Directorate-General for International Cooperation (DGIS) of the Dutch Ministry of Foreign Affairs in the framework of the Asia Biogas Programme (ABP). The Lao People's Democratic Republic (PDR) was identified as one of the potential countries to participate in the ABP with a project aiming to install 6,600 biogas units in the period from 2006 up to 2009 and to make a meaningful start with the development of a sustainable biogas sector in the country. The DGIS budget available for co-financing of the project amounts to about Euro 1.0 million [1].

A number of studies, missions and investigations on biogas in Lao PDR did take place over the past three years: A first fact-finding mission conducted by Felix ter Heegde, reported in February 2003 [2]; a second fact-finding mission conducted by Willem Boers and Prakash Ghimire, reported in September 2003 [3]; an appraisal of the programme design and of second fact-finding mission conducted by Adam Harvey and Earth Systems Lao, reported in June 2004 [4]; a survey of potential users of biogas in some districts of Vientiane Capital conducted by Technology Research Institute of Science, Technology and Environment Agency (TRI/STEA) and SNV, reported in September 2005 [5]; and a mission undertaken by Wim van Nes to look into some basic questions related to the setting-up of the project, reported in November 2005 [6]. In October 2005, SNV/Lao PDR also prepared an annual plan and budget 2006 to be co-financed by DGIS in the framework of the ABP [7].

SNV/Lao PDR does realise that the potential market for domestic biogas in Lao PDR on the short term is not very big, but assumes that in certain areas, for example in Vientiane Capital, a modest demand could be tapped in the short term. Still required is an assessment of the possible institutional set-up of the biogas project including the selection of the most appropriate Lao partner for the project. For this assessment, the Coordinator of the Biogas Practice Team (BPT) of SNV was requested to conduct a mission to Lao PDR. The Terms of Reference (ToR) for this mission are provided as Annex 1.



This report presents the findings of the mission conducted from 11 to 18 January 2006. Chapter 2 describes the objective, methodology and limitations of the mission. An overview of the organisations represented by the respondents is provided in Chapter 3, while Chapter 4 covers both the functions required for the biogas project as well as the suitable actors to execute these functions. Some other findings are reported in Chapter 5. Main conclusions and recommendations of the assessment are mentioned in Chapter 6. The references, finally, are included as Chapter 7.

CHAPTER 2: Objective, methodology and limitations

2.1 Objective

The objective of the mission is to assess the possible institutional set-up for the biogas project in Lao PDR as proposed in the Asia Biogas Programme.

2.2 Methodology and limitations

The following methodologies were used to achieve the objective of the study:

- Preparation of the mission in consultation with SNV/ Lao PDR. This was done through meetings with relevant staff on 10 and 12 January 2006. The programme of the mission is added as Annex 2.
- Field visit to Ban Sork village in Sangthong district, facilitated by Sunlabob, to get an impression on various PV applications (water pumping, lighting, powering of TV) and to see a biogas plant of 6 m³ in its final stage of construction.
- Interviews with (potential) stakeholders for the proposed project on domestic biogas. The contact details of the respondents are included in Annex 3, while the main findings of the interviews are summarised in Annex 4. To structure these interviews, five basic questions were formulated. The most important question was focussed on the various functions required in the proposed biogas project, see Figure 1.

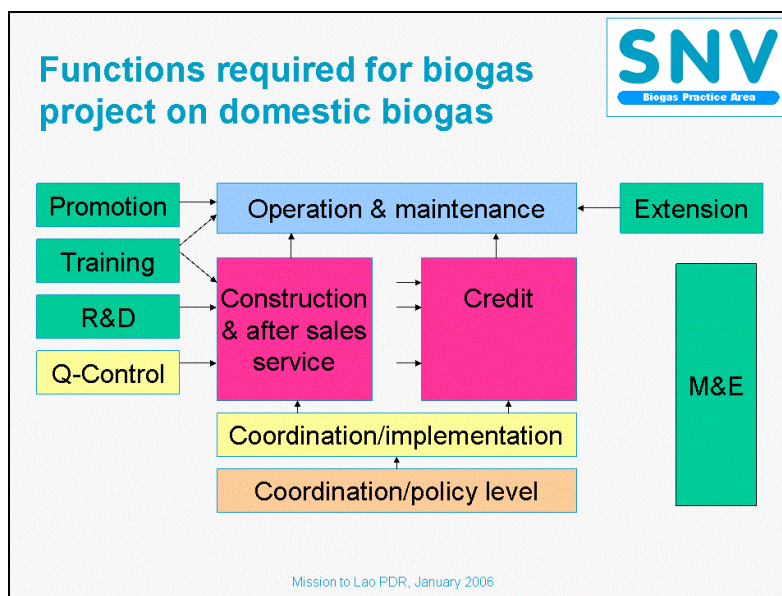


Figure 1 Functions required to be executed in the biogas project

- A half-day Consultative Workshop on 18 January 2006 to present the findings of the mission and to generate discussion among the stakeholders on a limited number of key-issues. A brief report on this Workshop including the list of participants is included as Annex 5.

- Writing of the draft report, incorporating comments received from SNV/Lao PDR and submission of the final report on the mission.

The mission received very good cooperation from the stakeholders and facilitation by SNV/Lao PDR, making it possible to implement the programme without any problem.



CHAPTER 3: Overview of (potential) stakeholders

This Chapter provides a brief overview of the main (potential) stakeholders for the proposed biogas project in Laos, divided into government, civil sector and private sector organisations.

3.1 Government organisations

3.1.1 Ministry of Foreign Affairs

The Department of International Organisations of the Ministry of Foreign Affairs (MFA) has the responsibility for central liaison between the government and other organisations of the Lao PDR with international organisations, including the State organisation and non government organisations. This liaison is provided for the political interests and to share the assistance and the cultural economic cooperation in accordance with the foreign policy of Lao PDR.

MFA plays an important, coordinating role in the approval of project proposals like for domestic biogas as such proposals will have to be channelled through this Ministry.

3.1.2 STEA/TRI

The Technology Research Institute (TRI) under Science Technology and Environment Agency (STEA) is part of the Prime Minister's Office (PMO) and has the responsibility to study and manage technological development. TRI has been working as a research institute since the Prime Minister's decree in 1999 although it operated as a department with a slightly different brief for some years before that. Its mandate is to conduct research and development, contributing particularly to local and regional development, and to disseminate its findings for the benefit of the country. TRI is organised around five areas of activity: renewable energy technology, mechanical engineering, new materials technology, technology transfer and technology information (www.stea.gov.la). Near Km. 14 in Vientiane, STEA/TRI owns a Renewable Energy Technology Center which could provide accommodation for training activities. STEA/TRI does not employ staff at district level.

3.1.3 Ministry of Agriculture and Forestry

The Ministry of Agriculture and Forestry (MAF) has the responsibility for the overall management of agriculture, forestry and water resources throughout the country. At national level, the Department of Livestock and Fisheries (DLF) or the National Agriculture and Forestry Extension Service (NAFES) seem the most appropriate units to be engaged in the biogas project. In addition, use can be made of the MAF staff at the field offices in the provinces, municipalities, special zones and districts, see Annex 6 for the organisation chart of MAF.

Recently, NAFES with support from the Laos Extension for Agriculture Project (LEAP) issued a document to promote the consolidation of extension in Lao PDR [11]. This document introduces the Lao Extension Approach consisting of two sub-systems, the Government Extension Service and the Village Extension System. The Government Service has three strata, being NAFES, the Provincial Agricultural and Forestry Extension Centre (PAFEC) and the District Agricultural and Forestry Extension Office (DAFEO). The Village System is jointly managed by villagers and village authorities. Activities are facilitated by Village Extension

Workers (VEWs) who are appointed and compensated by the community, while receiving technical support through the Government Service. This document does not mention the Village Veterinary Workers (VWVs) who were technically supported in certain villages to improve animal health.

3.1.4 Ministry of Industry and Handicrafts

The Ministry of Industry and Handicrafts (MIH) has the responsibility for laying the plans, the implementation and the supervision of the sectors concerning the industry and handicraft works of the country. The most to biogas related department is the Department of Electricity (DE). The amounts of gas produced by domestic biogas plants (say up to 3 m³ per day) will be too small for the generation of electricity, however.

MIH was much involved in phase I of the Lao Off-Grid Programme funded by the World Bank and a Global Environmental Facility Grant. Over the period 1999 up to 2004, this programme has provided 5,300 families with solar home systems, 115 families with hydro power and 94 families with power from a generator. Small companies were trained to become Electricity Services Companies (ESCOs) at provincial level offering solar home systems on a hire to purchase basis: End-users buy the equipment from the ESCO by monthly payment over a period of several years. At village level, Village Electricity Managers are selected by the end-users to provide technical support. A second phase of the Programme aiming to reach an additional 30,000 families has been planned for the period up to 2010.

The ESCOs might be able and willing to diversify into technologies such as biogas plants. However, the financing and administration structure might not be adequate in cases when the end-user fails to raise the monthly payment. In case of solar home systems, equipment can be easily taken back by the ESCO; this is not the case for a biogas plant.

3.1.5 Agricultural Promotion Bank

The Agricultural Promotion Bank (APB) was established in 1993 as a state-owned policy bank, and has since been considered as the country development bank, focusing on the agricultural sector. APB is the main public instrument in rural finance, with 50% of total lending directed towards policy lending. The Bank operates 40 service units, one unit covering two or three districts. Most of the business takes place in the Mekong Corridor.

About 120,000 households (15% of the population) have access to the APB. Among them, 40,000 (5%) have access to its microfinance initiatives. APB provides mostly commercial credit. In microfinance, it uses group lending techniques, targeting rice production and livestock. With a maximum of 3 years term, APB loans have a subsidized interest rate of 12% per year; the cost price of lending is about 18% per year. This low interest rate attracts the interest of non-poor groups, which in turn restrict the access to the poor, and increase improper allocation. For individual loans, land, motor-bike and cattle can be taken as collateral. Alternatively, group lending could be practiced.

The government of Lao PDR has developed over the recent period six microfinance initiatives, mostly funded by UNDP, Agence Française de Développement (AFD) and the Asian Development Bank (ADB), and all involving APB participation. After an initial assessment undertaken in 2003, and funding for technical assistance provided by the ADB, APB supports the development of three pilot commercially-oriented Savings and Credit Unions, which are member-owned. Also funded by ADB, a microfinance fund will be established to support start-up and growth of MFIs (www.bwtp.org/laos).

3.1.6 National University of Laos

Between 1975 and 1995, there were three institutions in Lao PDR providing university-level programs, namely the Pedagogical Institute of Vientiane, the National Polytechnic Institute, and the University of Health Sciences. In order to harmonize and to rationalise the higher education system, the GoL decided to merge three institutions to establish the National University of Laos (NUoL) in June 1995, and the academic year of NUoL started in October 1996 (www.nuol.edu.la). A total of 11 faculties have been formed over the years, the Faculty of Agriculture and the Faculty of Engineering being the faculties most relevant for domestic biogas.

Within the Faculty of Engineering, a small project has been started with a small fund from the Asia Pro Eco Programme (www.dgs.de/asiaproeco) to measure the gas production from different kinds of biomass.

3.1.7 Lao Women's Union

The Lao Women's Union (LWU) is one of the four mass organisations in Lao PDR, the others being the Lao Front for National Construction (commonly referred to as the Lao Front), the Lao Youth Organisation (LYO) and the Lao Federation of Trade Unions. They are constitutionally mandated to unite and mobilise all strata of all ethnic groups in order to take part in the tasks of national defence and development and are present at all levels – national, provincial, district and village.

The LWU was established on 20 July, 1955, and is by now represented in 90% of all villages in Lao PDR.



3.2 Civil sector organisations

It is rather typical for the poor presence of civil sector organisations in Lao PDR that in this paragraph reference is made only to international institutes and organisations including the UNDP.

3.2.1 Netherlands Development Organisation

Netherlands Development Organisation, SNV, is a Netherlands-based international development organisation providing advice to local organisations in more than 25 developing countries in Africa, Latin America, Asia and Eastern Europe to harness their own solutions for development. SNV/Lao PDR is engaged in the following practice areas: responsive and accountable local government, collaborative forest management, biogas and renewable energy, pro-poor sustainable tourism, and market access for the poor (www.snv.org.la). About 35 advisors are employed, among which two are involved in renewable energy and one in Clean Development Mechanism (CDM). In addition, SNV/Asia has established a Biogas Practice Team of about 10 advisors who are engaged in setting-up and implementing large-scale programmes for domestic biogas in Nepal, Vietnam, Cambodia, Bangladesh and even Rwanda.

3.2.2 International Center for Tropical Agriculture

The International Center for Tropical Agriculture (CIAT) operates from its regional office at Vientiane, Lao PDR, and from other offices in Bangkok, Thailand, and Los Baños, the Philippines. The members of the Asia team of CIAT offer expertise in cassava and forage agronomy, soil science, farming systems, land management, participatory research and extension, anthropology, resource economics, impact assessment, spatial analysis, and agro-enterprise development (www.ciat.cgiar.org).

The Forages and Livestock Systems Project (FLSP) focuses on livestock production in Northern Laos where shifting cultivation is the dominant agricultural system. In recent times it has become a risky and time-consuming activity, prompting farmers to opt for diversifying rather than intensifying their livelihood systems. Increasingly they are relying on livestock (poultry, pigs, goats, cattle and buffalo) to ensure their livelihood security. By 2005, the project aims to be working with over 1500 farmers in more than 100 villages in each of four northern districts.

3.2.3 UNDP

UNDP supports the GoL's overarching national goal of lifting the country from the ranks of the least developed countries by 2020. To establish an appropriate network for meeting the Millennium Development Goals (MDGs), UNDP is partnering with the national government, bilateral and multilateral partners, the private sector and civil society. UNDP works by strengthening national capacities, fostering an enabling policy environment, seeking innovative local solutions and promoting gender equality in five practice areas: MDGs and poverty reduction, democratic governance, energy and environment for sustainable development, crisis prevention and recovery, and HIV/AIDS (www.undplao.org).

3.3 Private sector organisations

3.3.1 Sunlabob

Sunlabob is a commercial company, licensed in Lao PDR since August 2001, providing renewable energy to remote areas that are off the grid. Solar energy systems are delivered on a contract basis through a network of independent entrepreneurs all over the country. After being trained, these entrepreneurs install the equipment and ensure after-sales services. Over the period 2000 up to November 2005, Sunlabob has and installed over 5,600 systems in more than 450 villages. Sunlabob also administers a special rental fund enabling the company to rent out energy systems. Up to 2005, almost 1,000 solar energy systems with a minimum capacity of 20 Watt have been installed and a fee for service is collected on a monthly basis.

Sunlabob has also shown interest to get involved in the dissemination of domestic biogas plants. A first unit of 6 m³ was constructed in the village of Ban Sorg in Sangthong district intending to explore the reactions of villagers to the benefits of this technology (www.sunlabob.com). This unit was installed under the supervision of a man involved in the construction of 30 Chinese biogas plants in the village of Ban Nongphouviang in 2005. Also the construction moulds were brought from that village. A total of 1,150 kg of cement (23 bags), 2.25 m³ of gravel and 1.5 m³ of sand were required for the construction of this unit.

3.3.2 Sengsavang Company

Sengsavang Company is a relatively new company established in August 2005. Its Chairman was part of the Off-Grid Promotion and Support Office located within MIH for the execution of phase I of the Lao Off-Grid Programme.

CHAPTER 4: Required functions and suitable actors

During the interviews, selected stakeholders proposed suitable actors to conduct the various functions required for the proposed biogas project, see Annex 4. In this chapter, a provisional match between required functions and suitable actors is presented. Some of the functions are supposed to be conducted by one actor only; others by multiple actors only, with a third category of functions that could be executed by both single or multiple actors, see Figure 2.

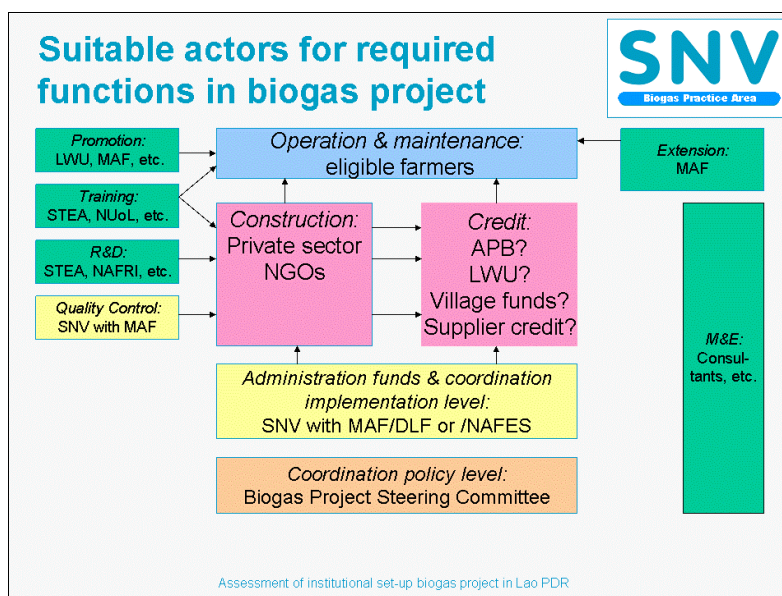


Figure 2 Suitable actors for required functions in the proposed biogas project

Eligible farmers will operate and maintain biogas plants constructed and serviced by private sector and NGOs, while appropriate organisations for micro-credit still have to be identified. Promotion, training, R&D, extension and M&E are functions that will be conducted by various institutes on the basis of ToRs. MAF is identified as the most appropriate partner for SNV to coordinate the programme at implementation level, to administer public funds and also to arrange for strict quality control. However, still it needs to be decided whether DLF or NAFES will be the best unit within MAF. A separate Biogas Project Steering Committee will need to be established to coordinate the programme at policy level and to provide a meeting platform for all actors to be involved in the project. More explanation is provided in Table 1.

Table 1 Suitable actors to execute functions in a national biogas programme

Function	Suitable actor(s)
Operation & maintenance (multiple actor)	Eligible farmers having sufficient cattle dung at their disposal will operate and maintain the biogas plants.
Promotion (multiple actor)	Various actors from the government and civil society sector at central and local level will be able to promote the use of biogas plants including the dissemination of reliable information on the costs and benefits of biogas plants towards eligible

	farmers. Many respondents propose LWU and MAF which are indeed very potential organisations. Promotional activities could be combined with marketing activities to be conducted by providers of construction & after sales service and micro-credit. One respondent proposed to use schools.
Construction & after sales service (multiple actor)	Based on a level playing field enabling fair competition, different kind of actors could very well construct and service biogas plants like private companies and NGOs. It is not recommended to involve government organisations in conducting this function.
Provision of credit (multiple actor)	The question marks in Figure 2 indicate that the track record of existing organisations like ABP, LWU and Village Governments (village funds) in lending is too poor. It is therefore doubtful whether they can be regarded as suitable actors for the provision of biogas loans. Suppliers' credit is rather complex as the biogas plant is not movable in case of repayment errors by the borrower. A collateral or group loan could provide securities, but make this function rather complicated. Further investigation is required.
Training (single/multiple actor)	Various actors could be involved in conducting training activities, depending on the kind of training and the availability of appropriate trainers. Some of the required trainings are (female) user training, mason training, supervisor training, business development training and loan officer training. Possible actors most often mentioned by respondents were STEA/TRI, NUoL and MAF. For the (female) users' training, the construction companies were often suggested.
Applied R&D (single/multiple actor)	Also with applied R&D, various actors could be involved in executing activities based on ToRs, depending on the nature of the R&D. STEA/TRI and NAFRI were most often mentioned, but also NUoL and consultants were proposed.
Quality control (single actor)	Quality control is closely related to the administration of investment subsidy which was perhaps the reasons that for this function the Biogas Project Coordination Office was most often suggested. Also STEA/TRI was mentioned by some respondents.
Extension on use of bio-slurry (single/multiple actor)	Proper use of bio-slurry needs to be promoted through extension programmes to be executed at local level. Extension agents from MAF could be well placed to provide these services. In addition, farmers groups and model farmers were mentioned as possible extension channels.
Monitoring & evaluation (single/multiple actor)	Multiple actors could qualify for execution of monitoring & evaluation activities based on ToRs on the condition that they are independent. Private consultants and independent NGOs were most often mentioned as potential actors.
Coordination at implementation level (single actor)	Only one single actor could be involved for the day-to-day coordination or management of the biogas project. Most often mentioned was an office to be established in collaboration between SNV and MAF. It remains to be investigated whether MAF/DLF or MAF/NAFES would be the most appropriate unit for SNV.
Coordination at policy level (single actor)	For the coordination at policy level, the establishment of a newly to be established Biogas Project Steering Committee with broad representation from various stakeholders was proposed most often. Respondents differed in opinion whether private and civil sector organisations need also to be represented in such Committee. The committee could be facilitated by the coordinating body at implementation level.



CHAPTER 5: Other findings

Apart from the main question about suitable actors for execution of the required functions in the proposed biogas project, the mission took the opportunity of the interviews to pose a few other important questions. The replies on these questions are presented in Annex 4 and summarised in this chapter. All 14 respondents were of the opinion that – despite various doubts - domestic biogas is right now relevant for Lao PDR. As main reasons were mentioned: The savings on the costs of cooking fuel (9x), benefits for the environment (5x) and benefits for the household, especially for women (3x).

5.1 Constraints for domestic biogas

Though domestic biogas was felt relevant by the respondents, so far there has been made very little headway with the dissemination of this technology in Laos. This raised the next question about the main constraints for dissemination, see Table 2. This table also provides possible manners to address these constraints in the proposed project. Most of the constraints can be effectively addressed through properly designing and implementing the project.

Table 2 Constraints for a biogas project mentioned by the respondents and possible manners to address these constraints

Type of constraint	Constraint (number of times mentioned by respondents)	Possible manners to address this constraint
Technical	Insufficient dung available as livestock ranges freely (6x)	The project shall ensure that only farmers with a sufficient amount of dung will be eligible to install a biogas plant
	Firewood as cooking fuel is amply available (6x)	The project can focus on areas where the availability of firewood has become problematic
	Lack of trained manpower (2x)	The project shall cater for properly trained manpower
Financial	Lack of income to invest in biogas (4X)	The project can initially focus on well to do farmers. In addition, the project can provide an investment subsidy for the promotion of biogas
	Lack of appropriate micro-credit facilities (4x)	The project shall investigate the possibilities to introduce appropriate, sustainable micro-credit facilities
Social	Hesitation among farmers to handle dung and to use biogas (3x)	Farmers shall be provided with reliable information, but should never be forced to install a biogas plant
Promotional	Lack of awareness and promotion (7x)	The project shall create awareness and cater for effective promotional activities
Institutional	Lack of proper coordination between institutions (2x)	The project shall establish the proper institutional arrangements and also ensure that such arrangements will be adhered to
Political	Lack of supportive government policies & strategies (3x)	The project shall be appropriately linked to the government, create success and use this success to claim for supportive policies and strategies

5.2 Potential areas to start the project

Respondents were asked to mention the most important criteria for the selection of an area to start the project. Criteria mentioned more than once were:

- Availability of dung, livestock (8x)
- Farmers with cash income (4x)

- Scarcity of firewood (4x)
- Accessibility, close to Vientiane (4x)
- Possible waste reduction: smell, water pollution (2x)

In addition, the respondents were encouraged to name the most potential provinces to start the project:

- Savannakhet (8x)
- Vientiane Capital (7x)
- Khammouane (6x)
- Vientiane Province (5x)
- Champassak (4x)
- Xieng Khouang (3x)
- Luang Prabang (2x)

5.3 Best technology to be applied in Laos

The last question was related to the biogas technology best to be applied in Lao PDR. The following criteria were mentioned by some of the respondents, as the others expressed not to be able to respond to this question:

- Low cost (4x)
- Easy construction (3x)
- Long life (2x)
- Exclude brick domes (2x)
- Easy to operate and maintain (1x)
- Based on local construction materials (1x)

CHAPTER 6: Main conclusions and recommendations

This Chapter presents the main conclusions and recommendations.

6.1 Main conclusions

The main conclusion of the mission is that the available institutional context of Lao PDR has sufficient potential to execute the required functions of the proposed biogas project, except for the provision of micro-credits. Experiences with latter function through ABP, LWU and/or village funds failed so far to demonstrate the required sustainability of the fund. MAF is to be considered as the most appropriate implementing partner for SNV, but not sure is yet whether DLF or NAFES should be considered as the best placed unit within MAF.

6.2 Main recommendations

The following are the main recommendations resulting from this mission:

- To SNV/Lao PDR in consultation with MAF: To formulate a detailed implementation plan before the 1st of March 2006, coordinated by a senior advisor from SNV/Lao PDR, supported by the Biogas Practice Team of SNV.
- To SNV/Lao PDR and MAF: To determine in February 2006 which unit within MAF (DLF or NAFES) will be best placed as the implementing partner for SNV. The Biogas Project Coordination Office should not (yet) follow the rather restrictive administrative guidelines of MAF.
- To SNV/Lao PDR: To submit in March 2006 the implementation plan to MFA for approval.
- To BPT Coordinator of SNV: To submit in March 2006 the implementation plan to DGIS for endorsement.
- To SNV/Lao PDR: To commission in the 1st half of 2006 a separate study on possible biogas micro-credit facilities in Laos.

CHAPTER 7: References

- [1] SNV, *Asia Biogas Programme: Access to sustainable energy for 1,300,000 people. A proposal (draft) prepared for DGIS/DMW*. Den Haag, 22 November 2004.
- [2] Felix ter Heegde, *The feasibility of a Support Programme for Domestic Biogas Plants for rural households in the Lao People's Democratic Republic. Report on the first fact-finding mission*. SNV, February 2003.
- [3] Prakash Ghimire and Willem Boers, *Domestic Biogas in Lao Peoples Democratic Republic. Report on the second fact-finding mission*. September 2003.
- [4] Adam Harvey and Earth Systems Lao, *Appraisal of Programme Design and of Second Fact-Finding Mission Reports*. June 2004.
- [5] TRI/STEa and SNV Lao PDR, *Survey of potential users of biogas in some districts of Vientiane Capital*. Vientiane, September 2005.
- [6] Wim J. van Nes, *Questions on setting-up a biogas plant pilot project in Lao PDR*. SNV (for internal use only), November 2005.
- [7] TRI/STEa and SNV/Lao PDR, *2006 Annual Plan and Budget Biogas Pilot Project Lao PDR*. Vientiane, October 2005.
- [8] Mike Winter, *Lao PDR – Fact-Finding Mission Report*. UNCDF, March 2002.
- [9] Werner Stür et al, *Review of the Livestock Sector in the Lao People's Democratic Republic*. International Livestock Research Institute, Philippines, 17 July 2002.
- [10] Brett E. Coleman, *The Role of the Asian Development Bank in Promoting the Development of Microfinance in Lao PDR and Viet Nam*. Asian Development Bank, 17 November 2003.
- [11] National Agricultural and Forestry Extension Services (NAFES) with support from the Laos Extension for Agriculture Project (LEAP), *Consolidating Extension in the Lao PDR*. Vientiane, June 2005.
- [12] SNV/Lao PDR, *Micro Finance and Lao Women's Union. Study on the possibilities to assist entrepreneurs gaining access to financial services*. Vientiane, February 2005.
- [13] SNV/Lao PDR, *Money matters and more. Supply and demand for financial services in Luang Prabang and Savannakhet. Scope for PSD advisory services*. Vientiane, June 2004.
- [14] SNV/Lao PDR, *Gender profile of Lao PDR (work in progress)*. Vientiane, June 2004.

Annex 1: Terms of Reference

Assessment of the possible institutional set-up for the proposed biogas project in Lao PDR

1. Introduction and background

In the framework of its Asia Biogas Programme (ABP) [1], the Netherlands Development Organisation, SNV, aims to support the setting-up of a project on domestic biogas in Lao People's Democratic Republic (PDR). The project aims to produce 6,600 biogas units in the period from 2006 up to 2009 and to make a meaningful start with the development of a sustainable biogas sector in the country. The DGIS budget available for co-financing of the project amounts to about Euro 1.0 million.

A number of studies, missions and investigations did take place in the past three years: A first fact-finding mission conducted by Felix ter Heegde, reported in February 2003 [2]; a second fact-finding mission conducted by Willem Boers and Prakash Ghimire, reported in September 2003 [3]; an appraisal of the programme design and of second fact-finding mission conducted by Adam Harvey and Earth Systems Lao, reported in June 2004 [4]; a survey of potential users of biogas in some districts of Vientiane Capital conducted by Technology Research Institute of Science, Technology and Environment Agency (TRI/STEA) and SNV, reported in September 2005 [5]; and a mission undertaken by Wim van Nes to look into some basic questions related to the setting-up of the project, reported in November 2005 [6]. In October 2005, SNV/Lao PDR also prepared an annual plan and budget 2006 to be co-financed by DGIS in the framework of the ABP [7].

SNV/Lao PDR does realise that the potential market for domestic biogas in Lao PDR on the short term is not very big, but assumes that in certain areas, for example in Vientiane Capital, demand could be tapped. The biogas plant model to be used in the proposed project can be identified by comparing the pros and cons of proven technologies applied in the country and abroad. What still is required, is an assessment of the possible institutional set-up of the biogas project, also because STEA/TRI was not considered any longer the most appropriate partner for the project. For this assessment, the Biogas Practice Team (BPT) Coordinator of SNV, Mr. Wim van Nes, was requested to conduct a mission to Lao PDR. This paper provides the Terms of Reference (ToR) for this mission.

2. Objective of the mission

The objective of the mission by the BPT Coordinator to Lao PDR is to assess the possible institutional set-up for the biogas project proposed in the Asia Biogas Programme.

3. Activities and methodologies

The following activities and methodologies are proposed:

- A. Preparation of the mission in consultation with SNV/ Lao PDR;
- B. Interviews with the most relevant stakeholders for the proposed biogas project, see Annex A for a list of organisations;

- C. A workshop with all interviewees to present and discuss the findings of the interviews and the preliminary conclusions and recommendations of the mission;
- D. Formulation of the draft mission report and submission for comment to SNV/Lao PDR and the members of the BPT;
- E. Submission of the final mission report by incorporating the comment from SNV/Lao PDR and members of the BPT.

4. Time schedule

The mission to Lao PDR shall be undertaken from 11 to 18 January 2006. The draft report shall be submitted before 28 January 2006. SNV/Lao PDR and members of the BPT will provide within five working days comment on the draft report. After that, the final mission report will be presented within five working days.

5. Costs and financing

The costs of this mission will mainly consist of expenses for travelling and DSA of the BPT Coordinator (to be borne by SNV/Asia) and some other local expenses for a field visit and the workshop (to be borne by SNV/Lao PDR).

6. Expected output

The report on the mission shall be well-structured and clearly written not exceeding 10 pages excluding annexes and provide informed recommendations to SNV/Lao PDR on whether to proceed the proposed biogas project, and if yes, how.

7. Assistance to the BPT Coordinator

The BPT Coordinator will be assisted by the Senior Renewable Energy Advisor of SNV/Lao PDR, Mr. Auke Koopmans, and the National Renewable Energy Advisor, Mr. Thong Xaysombath.

8. Further arrangements

The BPT Coordinator is free to discuss various matters concerning the assignment with institutions or individuals, but is not authorised to make any official commitments on behalf of SNV/Lao PDR.

Annex A: Relevant stakeholders to be interviewed

- Ministry of Agriculture and Forestry (DLF, NAFES)
- Science Technology and Environment Agency
- Ministry of Industry and Handicraft
- Agriculture Promotion Bank
- Lao Women's Union
- Sunlabob
- Sengsavang Company Ltd.
- National University
- UNDP
- SNV/Lao PDR
- Ministry of Foreign Affairs
- International Livestock Research Institute

Annex 2: Programme of the mission

Wednesday, 11 January 2006:		
	Arrival of Wim van Nes in Vientiane by air	
13.00-17.00	Meeting with Mr. Thong Xaysombath, Mr. Auke Koopmans and Mr. Eelco Baan	SNV/Lao PDR, National Advisor RE SNV/Lao PDR, Senior Advisor RE SNV/Lao PDR, Senior Advisor PSD
Thursday, 12 January 2006:		
08.00-17.00	Field visit to Ban Sork village in Sangthong district facilitated by Mr. Andy Schroeter	Sunlabob Rural Energy Systems,
Friday, 13 January 2006:		
09.00-10.30	Meeting with Dr. Khamphone Nanthavong	NUoL, Faculty of Engineering, Associate Professor RE Technology
11.00-12.15	Meeting with Ms. Sirikit Bouppa and Ms. Sonealy Phanouvong	LWU, Dep. of Development, Deputy Director LWU, Dep. Of Development
14.00-16.30	Meeting with Mr. Sompahanh Chanphenexay and Mr. Douangchanh Sirivongsa	MAF/DFL, Planning and Cooperation Division, Director MAF/DFL, Planning and Cooperation Division, Cooperation and Investment Unit
Saturday, 14 January 2006:		
	Study and reporting	
17.00-18.00	Meeting with Mr. Auke Koopmans	SNV/Lao PDR, Senior Advisor RE
Sunday, 15 January 2006:		
	Study and reporting	
Monday, 16 January 2006:		
08.15-09.00	Meeting with Mr. Thong Xaysombath	SNV/Lao PDR, National Advisor RE
09.40-10.30	Meeting with Mr. Maydom Chanthanasinh	STEA, Vice President as well as RESDALAO, President
11.15-12.15	Meeting with Mrs. Esther van Hoeve	CIAT/ILRI, Livelihood Specialist
13.50-14.45	Meeting with Mr. Bouathep Malaykham and Mr. Syvang Xayyavong	MIH/DE, Rural Electrification Division, Head, respectively Electrical Engineer
15.00-15.40	Meeting with Mr. Phonesavanh Chanthavilay and Mr. Soukhanxay Archkhanong	MFA, Department of International Organisations, Deputy Director General, respectively Desk Officer of NGO Division
17.15-18.00	Meeting with Dr. Bounthanong Phonethipasa	Sengsavang Company Ltd., Chairman
Tuesday 17 January 2006:		
09.30-10.15	Meeting with Mr. Phanthaboun Sayaphet	APB, Deputy General Director
11.00-12.30	Meeting with Dr. Tienne Vannasouk	NAFES, Deputy Director General
15.10-16.00	Meeting with Ms. Katihanna Ilomaki	UNDP, Environment Unit, Manager
Wednesday, 18 January 2006:		
10.00-13.00	Consultative Stakeholders Workshop at SNV/Lao PDR	See Annex 5 for brief report and list of participants
13.30-14.15	Meeting with Mr. Jack Cortenraad	SNV/Lao PDR, Director
15.00-15.30	Meeting with Mr. Eelco Baan	SNV/Lao PDR, Senior Advisor PSD
Thursday, 19 January 2006:		
	Departure of Wim van Nes from Vientiane by air	

Annex 3: Contact details of respondents

Name	Organisation	Phone and E-mail
Mr. Jack Cortenraad	SNV/Lao PDR	021-413290 (o), 020-5511175 (m), jcortenraad@snvworld.org
Mr. Thong Xaysombath	SNV/Lao PDR	021-218711 (o), 020-5606668 (m), pxaysombath@snvworld.org
Mr. Auke Koopmans	SNV/Lao PDR	021-218711 (o), 020-5990759 (m), akoopmans@snvworld.org
Mr. Eelco Baan	SNV/Lao PDR	021-413290 (o) ebaan@snvworld.org
Mr. Andy Schroeter	Sunlabob Rural Energy Systems	021-313874 (o), 020-5518016 (m), andy.schroeter@sunlabob.com
Mr. Jacob Rietzler	University of Amsbach	jacobrietzler@hotmail.com
Dr. Bounthanong Phonethipasa	Sengsavang Company	030-5200269 (o), 020-5618825 (m), phonethipasa@yahoo.com
Dr. Khamphone Nanthavong	NUoL	021-312090 (o), 020-55414347 (m), khamphonenan@yahoo.com
Ms. Sirikit Bouppa	LWU	021-223543 (o), 020-5610932 (m),
Ms. Sonenaly Phanouvong	LWU	021-214306 (o), 020-5618070 (m),
Mr. Somphanh Chanphenexay	MAF/DLF	021-5685248 (o), somphana2003@yahoo.com
Mr. Douangchanh Sirivongsa	MAF/DLF	021-5101008 (o), d_sirivongsa@yahoo.com
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Mr. Soukhanxay Archkhanong	MFA	021-414026 (o), Archkhanong30@hotmail.com
Mr. Bouathep Malaykham	MIH	021-450966 (o), 020-5629676 (m), bouathepmlk@yahoo.com
Mr. Syvang Xayyavong	MIH	021-415388 (o), 020-5897484 (m), x_syvang@yahoo.com
Ms. Esther van Hoeve	CIAT/ILRI	021-770090 (o), 020-7811165 (m), evanhoeve@gmail.com
Mr. John G. Connell	CIAT/CGIAR	021-770090 (o), 020-2212612, j.connell@cgiar.org
Mr. Phanthaboun Sayaphet	APB	021-212024 (o),
Mr. Andrew Bartlett	NAFES/LEAP	021-732162 (o), 020-5509001 (m), leap@laoex.org
Dr. Tienne Vannasouk	NAFES	021-732072 (o), 020-5507641 (m), tienne1954@yahoo.com
Ms. Katihanna Ilomaki	UNDP	021-213390 (o), 020-5555336 (m), katihanna.ilomaki@undp.org
Mr. Phouthasinh Phimmachanh	MAF/NAFES	021-732162/740253 (o), 021-5611716 (m), phouthanasinh@yahoo.com
Mrs. Sengmayoulin Sysaykeo	SNV/Lao PDR	021-413290 (o), 020-5799755 (m), sssaykeo@snvworld.org

Annex 4: Findings of interviews with stakeholders

Relevance of domestic biogas for Lao PDR:
<p>Yes or no:</p> <ul style="list-style-type: none"> • Yes (14x) • No (0x) <p>Reasons:</p> <ul style="list-style-type: none"> • Firewood is getting more scarce and farmers can save on the costs of cooking fuel like firewood and charcoal (9x) • Benefits for the environment by reducing cutting of trees, slash & burn, waste, bad smell (5x) • Benefits for women (reduction workload, time saving, easy and clean cooking, lighting) (3x) • Supports agricultural production (2x) • Supports improved livestock keeping like zero-grazing (2x) • Laos has no own sources of fossil energy (2x) • Important health benefits • Technology needs to be demonstrated • Demand is available in sub-urban areas <p>Remarks:</p> <ul style="list-style-type: none"> • Large promotion efforts required including installation of demonstration plants • Maintenance services will be very much important • Expertise from SNV is required to start • Biogas sector in Laos will remain (comparatively) small • Pigs are kept by women, cattle are sold by men • Demand for meat for export to Vietnam is quickly growing • Relevance is there, but how to start the introduction of biogas?

Main constraints for domestic biogas in Lao PDR:
<p>Technical:</p> <ul style="list-style-type: none"> • Limited dung available due to free ranging of livestock practiced by 80% of the households (6x) • Firewood as cooking fuel is amply available (6x) • Lack of trained manpower like biogas technicians (2x) • Lack of maintenance systems <p>Financial and economic:</p> <ul style="list-style-type: none"> • Farmers lack cash income to invest in biogas (4x) • Lack of appropriate micro-credit facility (4x) <p>Social:</p> <ul style="list-style-type: none"> • Hesitation among farmers to handle dung and to use biogas produced from dung (3x) <p>Promotional:</p> <ul style="list-style-type: none"> • Lack of awareness and information about the benefits of biogas (7x) <p>Institutional:</p> <ul style="list-style-type: none"> • Lack of proper coordination between institutions (2x) <p>Political:</p> <ul style="list-style-type: none"> • Lack of supportive government policies and strategies (3x) • Farmers in resettlement areas may not feel home and therefore not invest in a biogas plant • Lack of enforcement of regulations protecting natural resources <p>Programmatic:</p> <ul style="list-style-type: none"> • Lack of programmatic approach

Possible suitable actors for functions (excluding operation & maintenance) in biogas project:	
1. Promotion	<ul style="list-style-type: none"> • Mass organisations (9x): LWU (9x), LYU (2x), Lao Front for Construction • MAF/DLF/PAFO/DAFEO/VWV (6x) • STEA/TRI (4x) • Biogas construction companies (2x) • Village government (2x) • Model farmers (2x) • NUoL • Biogas Project Coordinating Office • RESDALAO • Provincial and district governments • Divisions of Education and schools • Village extension workers • Mass media
2. Construction & after sales service	<ul style="list-style-type: none"> • Private sector organisations like Sunlabob, ESCOs, local construction companies (12x) • NGOs like PADEC, Quacker, Concern (3x) • STEA/TRI • MAF/NAFES • Provincial and District Field Offices of Communication, Transport, Post and Construction • Village-based biogas construction teams <p>Remark:</p> <ul style="list-style-type: none"> • Government organisation should not be involved (6x)
3. Provision of credit	<ul style="list-style-type: none"> • Agricultural Promotion Bank (9x) • LWU and related projects (6x) • Village funds (6x) • Commercial banks (2x) • Saving & Credit Unions in pilot areas (2x) • Community Development & Environment Association (Vientiane Province) • Projects • Asian Bank for Energy, Science & Technology • Credit system through suppliers (biogas construction companies) • Irrigation Users Groups • Informal credit providers (money lenders) <p>Remarks:</p> <ul style="list-style-type: none"> • No State Banks (reputation, difficult procedure) • Sustainability of many previous funds has been quite poor
4. Training	<p>Users' training:</p> <ul style="list-style-type: none"> • Biogas construction companies (3x) • NGOs: PADEC • Biogas Project Coordination Office • STEA/TRI <p>Other training:</p> <ul style="list-style-type: none"> • STEA/TRI (9x) • NUoL (6x) • MAF/DLF/NAFRES/NAFRI (4x) • Private companies (2x) • Biogas Project Coordination Office • LWU (on credit) • Technical colleges • MPH • Lao-Japan training centre • SNV • Lao Front for Construction <p>Remarks:</p> <ul style="list-style-type: none"> • Project will need to train capable trainers
5. Applied R&D	<ul style="list-style-type: none"> • STEA/TRI (8x) • MAF/NAFRI (7x) • NUoL (6x)

	<ul style="list-style-type: none"> • Private sector organisations, consultants, external experts (4x) • SNV (2x) • NGOs • CIAT • MIH/DE • LWU
6. Q-Control	<ul style="list-style-type: none"> • Biogas Project Coordination Office (5x) • STEA/TRI (3x) • SNV/MAF • Q-Control Committee supported by external experts • Consultants
7. Extension (use of bio-slurry)	<ul style="list-style-type: none"> • MAF/DLF/NAFES/NAFRI/PAFO/DAFEO/VVW (9x) • NUoL • STEA • LWU • PADEC • MPH • RESDALAO • Farmers groups • VVWs • Model farmer <p>Remark:</p> <ul style="list-style-type: none"> • Slurry could also be traded
8. External monitoring & evaluation	<ul style="list-style-type: none"> • Consultancies (9x): Earth Systems Lao • NGOs (3x) • NUoL • STEA/TRI • LWU
9. Coordination at implementation level	<ul style="list-style-type: none"> • Biogas Project Coordination Office (9x) linking SNV with MAF/DLF/NAFES • MAF/DLF (3x) • STEA/TRI • MIH • Private sector organisation, loosely linked with GoL <p>Remark:</p> <ul style="list-style-type: none"> • Better to separate coordination (by STEA and MAF) from implementation (by private sector organisation)
10. Coordination at stakeholder/policy level	<ul style="list-style-type: none"> • Biogas Project Steering Committee (12x): under MAF (9x) or STEA (2x) • Appropriate existing Committee? <p>Remarks:</p> <ul style="list-style-type: none"> • Governors from provinces to be member of the Committee • Different views on membership of private and civil sector organisations in the Committee

<p>Most potential area for domestic biogas in Lao PDR:</p> <p>Criteria:</p> <ul style="list-style-type: none"> • Availability of dung at the place of living of the household (8x) • Higher income for farmers (4x) • Scarcity of firewood (4x) • Close to Vientiane, at least for the starting phase (2x) • Accessibility (2x) • Potential for sanitation and waste reduction (2x) • Agriculture is practiced • Lack of facilities <p>Provinces:</p> <ul style="list-style-type: none"> • Savannakhet (8x) • Vientiane Capital (7x) • Khammouane (6x) • Vientiane Province (5x)

- Champassak (4x)
- Xieng Khouang (3x)
- Luang Prabang (2x)
- Luang Namtha
- Oudomsay
- Sayaboury
- Bolikhamxay
- Houaphanh

Most suitable design for domestic biogas plant in Lao PDR:

Criteria:

- Low-cost (4x)
- Easy construction (3x)
- Design needs to exclude bricks as these are normally not available in the required quality (2x)
- Good quality, durable (2x)
- Easy to operate
- Based on availability of local materials
- Appropriate for Laos

Suitable designs:

- GGC model (Nepal)
- Modified Chinese model (inlet with mixer)

Annex 5: Brief report on the Consultative Stakeholders Workshop

Date : 18 January 2006, 10.00-13.00h

Place : SNV/Lao PDR, Vientiane

Mr. Jack Cortenraad, Director of SNV/Lao PDR, officially opened the Workshop. He briefly explained the background of the mission on the possible institutional for the proposed biogas project in Laos. Fits the proposed project in the existing Lao institutional structure? The objective of the Workshop is to present the findings of the interviews with the main stakeholders and to reach as much as possible consensus about the most appropriate institutional set-up. Mr. Cortenraad requested the participants to introduce themselves.

After the introduction, Mr. Wim van Nes delivered the presentation on the findings of the interviews with 14 representatives from 13 stakeholders covering five different issues:

- Relevance of domestic biogas for Lao PDR;
- Main constraints for domestic biogas in Lao PDR;
- Potential areas to start the proposed project;
- Best technology to be used in Lao PDR; and, the main issue of the mission,
- Possible institutional set-up for the proposed project by distinguishing the various required functions.

At the end, Mr. Van Nes presented a proposal for a possible institutional set-up of the proposed biogas project indicating that for all functions suitable actors in Lao PDR would be available as of today, except for the provision of micro-credit. As facilitator, Mr. Cortenraad invited the participants to raise questions for further information and next to start the discussion on the proposed set-up.

The following questions were raised:

- Mrs. Esther van Hoeve asked whether the farmer could construct the plant him/herself (no, the biogas company needs to provide a trained, certified technician);
- Mr. Bouathep Malaykham wanted more information about the biogas activities in Ban Nongphouviang village (was provided by Mr. Phouthasinh Phimmachanh and Mr. Auke Koopmans);
- Mr. Andy Schroeter doubted whether the total cost of the biogas plant could be in the range of US 300-350 (detailed calculations have not been made yet);
- Mr. Bouathep wondered whether biogas produced from waste of large pig farms and municipalities could be converted in electricity (yes, but such applications will be beyond the domestic biogas project);
- Mr. Schroeter put the question on how to attract the end-users? For sure, also mass media need to be used. Demonstration plants need to be construction free of cost to make the neighbouring villagers (potential users) aware about the benefits of domestic biogas.

Mr. Douangchanh Sirivongsa started the discussion suggesting that the ABP could channel a biogas fund to the villages covered by the project. Dr. Khamphone Nanthavong thought about a Biogas Promotion Fund to be put in the APB as this is the only bank having branches in the provinces. Mr. Schroeter indicated that suppliers' credit will not be feasible for biogas plants as these plants are not movable. What to do as the farmer will not repay the loan? Mr. Douangchanh suggested providing the biogas loan to a group of farmers which could

generate a warranty for repayment. Mr. Van Nes explained that the project fund will not cater for a micro-credit fund, but that such fund could be mobilised once an effective and sustainable rural financial service could be established. Ms. Sonenaly Phanouvong explained that LWU can play a vital role in micro-financing as they have a strong network down to village level.

With respect to the coordination at implementing level, the proposal to work with MAF (DLF or NAFES) was supported by Mrs. Van Hoeve as this Ministry has the mandate for agriculture (slurry) and livestock development. Mr. Bouatthep suggested that MIH could also be part as biogas is related to energy. On this, Mr. Schroeter was of the opinion that MIH is only involved in rural electrification, not in the production of energy for cooking. Dr. Bounthanong Phonethipasa was of the same opinion, indicating that MIH could be member of the proposed steering committee. Dr. Bounthanong suggested including the LWU in the project coordination office as biogas is strongly related to women. This idea was supported by Ms. Sonenaly. Mr. Douangchanh, however, was of the opinion that LWU could become a member of the steering committee, but would not be the most appropriate organisation for the coordination at implementation level. Mr. Soukanh Vannapho said that STEA could execute various functions, but not in the project implementation. Mr. Schroeter explained that MAF theoretically could be perhaps the best partner for SNV, but as MAF is a big organisation, it will be difficult to move the project. He preferred to contract a private sector organisation to manage the project outside of the bureaucratic government machineries.

At the end of the Workshop, Mr. Van Nes provided some recommendations on the possible way forward. A small team from SNV/Lao PDR supported by MAF and the Biogas Practice Team of SNV could formulate a detailed implementation plan before the 1st of March of 2006. This plan should include a best technology to be used for Lao PDR and the definition of the area to start the project in 2006 (Vientiane Capital and one other potential area). Credit facilities need to be considered from 2007 onwards.

Mr. Cortenraad indicated that the project has to be launched soon as further delay would disqualify it for being part of the Asia Biogas Programme. He closed the Workshop by thanking the participants for their presence and inputs and invited all for the lunch.

List of participants:

SN	Name	Organisation
1.	Mr. Jack Cortenraad	SNV/Lao PDR, Director
2.	Mr. Wim J. van Nes	SNV, Biogas Practice Team Coordinator
3.	Mrs. Esther van Hoeve	CIAT/ILRI, Livelihood Specialist
4.	Mr. Douangchanh Sirivongsa	MAF/DLF, Cooperation/Investment Unit
5.	Dr. Bounthanong Phonethipasa	Sengsavang Company Ltd., Chairman
6.	Mr. Bouatthep Malaykham	MIH/DE, Head of Rural Electrification Division
7.	Mr. Andy Schroeter	Sunlabob
8.	Mr. Jacob Rietzler	Sunlabob
9.	Ms. Sonenaly Phanouvong	LWU, Department of Development
10.	Mr. Auke Koopmans	SNV/Lao PDR, Senior Advisor RE
11.	Mr. Thong Xaysombath	SNV/Lao PDR, National Advisor RE
12.	Dr. Khamphone Nanthavong	NUoL, Associate Professor RET
13.	Mr. Soukanh Vannapho	STEA/TRI, Director RET Center
14.	Mr. Soukhanxay Archkhanong	MFA, Dep. of International Organisations, NGO Division
15.	Mr. Phoutthasinh Phimmachanh	MAF/NAFES, Knowledge Management Assistant
16.	Mrs. Sengmayoulin Sysaykeo	SNV/Lao PDR, Programme Assistant

Annex 6: Organisation chart of the Ministry of Agriculture and Forestry

Organization Chart of the Ministry of Agriculture and Forestry (As of November 22, 2005)

