

# Internal assessment of phase IV of the Biogas Support Programme, Nepal

## Final Report



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## Acknowledgement

It was a pleasure for the team to get involved in this assignment as it provided a great opportunity to meet (again) with the major stakeholders of the Biogas Support Programme in Nepal. The time was short, but nevertheless we were provided with a lot of valuable opinions and knowledge. We like to extend our gratitude to all respondents and informants for their constructive contributions and hope the conclusions and recommendations of this assessment will serve their purpose. A special word of thanks goes to SNV/Nepal and BSP-N for arranging all required logistics.



## Executive summary

This report provides the findings, conclusions and recommendations of a quick internal assessment of phase IV of the Biogas Support Programme (BSP-IV) in Nepal, conducted by two members of the Biogas Practice Team of the Netherlands Development Organisation (SNV). SNV/Nepal requested such assessment as a preparation of the planned Mid Term Review of the Renewable Energy Sector Support (RESS) programme scheduled for the second quarter of 2005.

The overall objective of BSP-IV is to further develop and disseminate biogas as a mainstream Renewable Energy Technology (RET) in rural areas of Nepal. The specific objectives contributing to its overall objective are:

- To develop a commercially viable, market oriented biogas industry;
- To further strengthen institutions for sustainable development of the biogas sector;
- To stimulate internalisation of all benefits of the biogas plant, focusing on gender related impacts of the technology;
- To implement the Clean Development Mechanisms (CDM) arrangements for the biogas sector in Nepal;
- To increase the number of quality biogas plants by 200,000;
- To ensure the continued operation of all biogas plants installed under the biogas programme;
- To conduct applied Research and Development (R&D) in order to optimise plant operation.



The assessment analysed a number of documents, interviewed most relevant actors in the biogas sector and facilitated a group discussion with the main actors on the main challenges and major problems. To structure the interviews with the respondents, the team decided to focus on the following four areas of review: Assessment of the possible achievement of the seven specific objectives of BSP-IV, of the functioning of the main actors, of the risk factors mentioned in the RESS proposal and of the advisory services delivered by SNV/Nepal.

The conclusions and recommendations of this internal assessment are as follows:

<p>Overall conclusion: Amidst growing insecurity throughout the country, BSP-IV has succeeded to deliver quality biogas plants to farmers, though the numbers are lower than the assumed targets in the RESS proposal</p>
<p>Overall recommendation: BSP-IV deserves full support by all involved actors, but may need to reduce for the time being the annual installation targets to these of the BSP-N implementation plan or the KfW agreement</p>
<p>Conclusion on the effects of the insecurity on BSP-IV: BSP-IV has proven to be rather insecurity-proof, but needs some adjustments as a number of actors like ADB/N, line agencies, DDCs and VDCs are not able to play their role as foreseen in the RESS proposal</p>
<p>Recommendation: For promotion and provision of credit to potential biogas farmers, BSP-IV could make use of neutral</p>

<p>community-based organisations and groups, while biogas companies could recruit more local staff. National campaigns and promotion programmes may be useful as long as the message is presented neutrally</p>
<p>Conclusion on the possible achievement of objective 5 of BSP-IV: Achievement of the objective 5 has become difficult because of the insecurity, collapse of credit facilities, lack of working capital for biogas companies, increased cost of biogas plants, reduced levels of investment subsidy for farmers and unawareness among increasingly poorer farmers about the costs and benefits of biogas</p> <p>Recommendations: To increase the installation rate of biogas plants, it is recommended to:</p> <ul style="list-style-type: none"> <li>• Mainstream the insecurity in the programme (see paragraph 4.2)</li> <li>• Engage more MFIs, the SFCB and other appropriate micro-financing institutes in the provision of credit to biogas farmers using the available KfW fund and to further simplify and ease the terms and conditions for lending</li> <li>• Increase the amount of working capital to biogas companies for the pre-financing of investment subsidies under the conditions already applied by BSP-N</li> <li>• Reintroduce in the quotation the mixer device, GI pipes, original number of bags of cement, previous rate of participation fee (NPR 500) and to increase the fee for three years maintenance to NPR 900</li> <li>• Increase the subsidy rates with NPR 1,500 to compensate for the increased cost of biogas plants and simplify the scheme to one flat rate for each region. Fix the subsidy rates for a period of three years and evaluate by that time whether the micro-credit facilities under the KfW have become fully operational</li> <li>• Continuation of the increase of the number of potentially viable biogas companies in a rather controlled manner</li> <li>• Cooperate and coordinate stronger with (I)NGOs for the promotion of biogas plants in their working area</li> <li>• Launch neutral mass-scale campaigns to create awareness and knowledge among potential biogas farmers on the biogas technology, its benefits and the available subsidy</li> <li>• Execute effective programmes for the proper use of slurry by biogas farmers</li> </ul>
<p>Conclusion on the possible achievement of specific objective 1 of BSP-IV: Achievement of objective 1 has become difficult due to lack of resources for investment, lack of long-term and corporate thinking among companies and lack of sector thinking within NBPG and RCCBs</p> <p>Recommendations: To further develop a commercially viable, market oriented biogas industry, it is recommended to:</p> <ul style="list-style-type: none"> <li>• Avoid unhealthy competition through enforcement of a code of conduct by NBPG</li> <li>• Offer a combination of training and coaching services and capital to a selected group of companies willing to undertake genuine business development efforts</li> <li>• Facilitate the NBPG to develop and execute a business plan that might lead to handing over of promotion and (bio-slurry) extension activities from BSP-N to NBPG from FY 2006/07 onwards</li> </ul>
<p>Conclusions on the functioning of the main actors in BSP-IV:</p> <ul style="list-style-type: none"> <li>• Functioning of NPC, MoF, MoST, KfW, SNV/Nepal (with respect to financial assistance), biogas companies and some (I)NGOs has been as foreseen</li> <li>• Functioning of HMG/N line agencies, SNV/Nepal (with respect to advisory services), NBPG, ADB/N, RBB, NBL, MFIs, DDCs, VDCs and some other (I)NGOs has been less than foreseen</li> <li>• Functioning of AEPC and BSP-N has been more than foreseen</li> <li>• Functioning of RBCCs has been different than foreseen</li> </ul> <p>Recommendations:</p> <ul style="list-style-type: none"> <li>• For MoST, to allow AEPC to continue its operations autonomously</li> <li>• For AEPC, to fully utilise the KfW fund for micro-financing of biogas plants</li> <li>• For BSP-N, to continuously capacitating other suitable actors to take up and play their assumed role in the biogas sector rather than implementing activities on one's own</li> <li>• For NBPG and RBCCs, to define their role in the biogas sector and provide the secretariat with the required delegated powers like budget control on the basis of approved annual plans and representation in the CBCC</li> </ul>
<p>Conclusion on the advisory services provided by SNV/Nepal: The advisory services of SNV/Nepal have been to a large extent ineffective as they were too much focussed at only one actor in the programme, delivered out of the office of SNV rather than the client's office, not felt practical by the client and sometimes even provided unsolicited</p> <p>Recommendation: SNV/Nepal should consider the entire sector for the delivery of advisory services and provide the permanent advisor with a desk in the office of the client rather than in its own office. In addition, advisory services should remain fully unlinked from financial assistance as the quality of the advice needs to be based on client satisfaction rather than on the (financial) authority of SNV/Nepal</p>

Conclusions on other findings:	Recommendations:
<p>Participation fee:</p> <ul style="list-style-type: none"> <li>• AEPC failed to present proper physical and financial reports on the use of the participation fees collected during BSP-III and the first year of BSP-IV</li> </ul>	<ul style="list-style-type: none"> <li>• AEPC needs to present as soon as possible a more detailed physical and financial report on the use of the spent participation fees</li> <li>• In addition, the remaining amount needs to be provided to BSP-N on the basis of approved annual plans or to be spent on other purposes with the approval of the CBCC</li> </ul>
<p>Quality control:</p> <ul style="list-style-type: none"> <li>• Strict quality control has resulted in increased quality of construction and maintenance of biogas plants, but needs to be adapted to cope with the insecurity and to be strengthened to be able to deal with more companies and at a later stage the implementation of CDM</li> </ul>	<ul style="list-style-type: none"> <li>• BSP-N might need to revise its ISO standards on quality control sampling to make them proof for the growing insecurity in the country</li> <li>• In case BSP-N is not able to check the quality of biogas plants in certain areas, the provision of subsidy should be frozen immediately and resumed only after control has become possible again</li> </ul>
<p>Erosion of plant quality:</p> <ul style="list-style-type: none"> <li>• In the general quotation of FY 2004/05, the cost of the biogas plants has been reduced by elimination and erosion of vital parts</li> <li>• Since March 1997, the fee for three years maintenance has remained to be NPR 600</li> </ul>	<ul style="list-style-type: none"> <li>• Mixer device, GI pipe, participation fee of NPR 500 and the original numbers of bags of cement shall be reinserted in the general quotation</li> <li>• Fee for three years maintenance might be increased to NPR 900</li> </ul>
<p>HRM at BSP-N:</p> <ul style="list-style-type: none"> <li>• After the transformation from SNV/BSP programme office to an independent Nepalese NGO, the employees of BSP-N including the management and executive committee need to be prepared for their new role under different employment conditions</li> </ul>	<ul style="list-style-type: none"> <li>• SNV/Nepal and BSP-N shall consider to avail additional guidance for the change process including the mandate and functioning of its executive committee, for example through the services of a professional HRM coach</li> </ul>
<p>Handing over of review and monitoring role from DGIS to SNV/Nepal:</p> <ul style="list-style-type: none"> <li>• SNV/Nepal has been requested by DGIS to take over the review and monitoring role for BSP-IV with effect of the 1<sup>st</sup> of January 2005</li> </ul>	<ul style="list-style-type: none"> <li>• SNV/Nepal shall commission an independent technical audit on annual basis including a survey of biogas users sampled by its own preference</li> </ul>
<p>Communication between main actors:</p> <ul style="list-style-type: none"> <li>• Many actors do need to play their role and to work together in BSP-IV and might sometimes feel excluded or insufficient encouraged to solve their problems</li> </ul>	<ul style="list-style-type: none"> <li>• SNV/Nepal and BSP-N might take extra responsibility to periodically bring together the main actors for sharing of information and discussion</li> </ul>



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## Abbreviations

AEPC	Alternative Energy Promotion Centre
ADB/N	Agricultural Development Bank of Nepal
BBI	Biogas Bistar Company Pvt. Ltd.
BC	Biogas Company
BPT	Biogas Practice Team
BSP	Biogas Support Programme
BSP-N	Biogas Sector Partnership – Nepal
CBCC	Central Biogas Coordination Committee
CDM	Clean Development Mechanism
CPN	Communist Party Nepal
CRT	Centre for Rural Technology
CSU	Central Support Unit
DDC	District Development Committee
DGIS	Directorate General for International Cooperation (Netherlands)
FY	Fiscal Year
GGC	Gobar Gas Tatha Krishi Yantra Bikash Pvt. Ltd.
GI	Galvanised Iron
GPS	Global Positioning System
HMG/N	His Majesty's Government of Nepal
HRM	Human Resource Management
INGO	International Non Governmental Organisation
ISO	International Standard Organisation
KfW	Kreditanstalt für Wiederaufbau (German Development Bank)
LA	Line Agency
MFI	Micro Finance Institute
MoF	Ministry of Finance (HMG/N)
MoPE	Ministry of Population & Environment
MoST	Ministry of Science & Technology (HMG/N)
MTR	Mid Term Review
NARC	Nepal Agricultural Research Council
NBL	Nepal Bank Limited
NBPG	Nepal Biogas Promotion Group
NGO	Non Governmental Organisation
NPC	National Planning Commission
NRM	Natural Resource Management
QC	Quality Control
R&D	Research & Development
RBB	Rastriya Banijya Bank
RBCC	Regional Biogas Coordination Committee
RESS	Renewable Energy Sector Support
RET	Renewable Energy Technology
RGG	Rastriya Gobar Gas Nirman Tatha Sewa Pvt. Ltd.
RNA	Royal Nepalese Army
RNE	Royal Netherlands Embassy
SFCB	Small Farmers Cooperative Bank
SNV	Netherlands Development Organisation
SNV/BSP	Programme office of SNV for BSP phase I, II and III
VDC	Village Development Committee
UNDP	United Nations Development Programme
WTLBP	Western Terai Landscape Building Programme
WWF	World Wildlife Foundation

## CHAPTER 1: Introduction and background

In November 1992, His Majesty's Government of Nepal (HMG/N) entered into an agreement with the Netherlands Development Organisation (SNV/Nepal) and the Directorate General for International Cooperation (DGIS) for the implementation of the Biogas Support Programme (BSP). This programme was implemented in three phases from July 1992 to June 2003 under the guidance of a project office of SNV for BSP (SNV/BSP). Kreditanstalt für Wiederaufbau (KfW) entered into partnership (co-financing) in the third phase of the BSP. At the end of phase III, in total 111,395 plants were installed in 65 out of 75 districts in the country. HMG/N, DGIS and KfW agreed to further support the programme into its fourth phase from July 2003 to June 2009. At the start of BSP-IV, SNV/BSP became independent and was officially registered as a Non-Governmental Organisation (NGO) under the name of Biogas Sector Partnership, Nepal (BSP-N). SNV/Nepal agreed to provide managerial, technical and advisory services in the framework of BSP-IV.

The overall objective of BSP-IV is to further develop and disseminate biogas as a mainstream Renewable Energy Technology (RET) in rural areas of Nepal. The specific objectives contributing to its overall objective are:

1. To develop a commercially viable, market oriented biogas industry;
2. To further strengthen institutions for sustainable development of the biogas sector;
3. To stimulate internalisation of all benefits of the biogas plant, focusing on gender related impacts of the technology;
4. To implement the Clean Development Mechanisms (CDM) arrangements for the biogas sector in Nepal;
5. To increase the number of quality biogas plants by 200,000;
6. To ensure the continued operation of all biogas plants installed under the biogas programme;
7. To conduct applied Research and Development (R&D) in order to optimise plant operation.



As a preparation to the planned Mid Term Review (MTR) of the Renewable Energy Sector Support (RESS) Programme<sup>1</sup> in April or May 2005, an internal assessment of BSP-IV has been requested by SNV/Nepal. Also BSP-N recognised the need for such a review and agreed that a few members from the Biogas Practice Team (BPT) of SNV would be mobilised to carry out the assessment. The assessment would need to reflect on the current progress, the opportunities to meet the programme objectives as well as the possible problems or causes of the reduced output. The reflection also could focus on a number of critical issues related to the approved programme proposal like the changed role for SNV/BSP after being transformed to

<sup>1</sup> BSP-IV is by far the largest component of the RESS programme



BSP-N in July 2003, the changed role for SNV after moving away from direct implementation towards providing advisory services, and the handover of the role of review and monitoring from the Royal Netherlands Embassy in New Delhi to SNV as per January 2005. The Terms of Reference for the internal assessment is provided as Annex 1.

This report presents the findings of the internal assessment of BSP-IV by two members of the BPT, Jan Lam and Wim van Nes. They executed this assessment in four working days in the period from 14 to 21 January 2005. After receiving the comments of the draft report from SNV/Nepal, the final report was submitted in the beginning of March. Chapter 2 describes the objective, methodology and limitations of the assessment, Chapter 3 the findings and Chapter 4 the discussion, conclusions and recommendations. The references, finally, are included as Chapter 5.



## CHAPTER 2: Objective, methodology and limitations

The objective of the internal assessment is described in paragraph 2.1, while methodology and limitations are dealt with in paragraph 2.2.

### 2.1 Objective

The objective of the internal assessment is to review the progress of phase IV of the Biogas Support Programme versus the approved proposal and annual plans.

### 2.2 Methodology and limitations

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

- Analysis of a number of documents, see Chapter 5 for the references.
- Interviews with most relevant actors being HMG/N-MoF, -MoST, -MoPE, KfW, SNV/Nepal, AEPC, BSP-N, ADB/N, NBPG, BCs, (I)NGOs, biodiversity programmes and consultants, see Annex 2 for the programme. A visit was made to some companies (RGG, BBI, GGC) and one MFI (Aggraj Women Development Saving & Credit Cooperative Ltd.) in Chitwan district.
- Presentation of main constraints to and discussion with the main actors, see Annex 3 for the list of participants.



To structure the interviews with the respondents, the team decided to focus on the following four areas of review:

- Assessment of the progress with the seven specific objectives of BSP-IV as mentioned in Chapter 1 of this report<sup>2</sup>. Respondents were specifically requested to express worries about the achievement of these objectives by distributing ten tokens over the seven objectives: more tokens meant more worries.
- Assessment of the functioning of the main actors as mentioned on page 37 of the final RESS proposal. Respondents were explicitly invited to qualify their statements.
- Assessment of the risk factors as mentioned on page 42 of the final RESS proposal, being the insecurity, lack of growth in the agricultural sector and lack of capacity of HMG/N to contribute to the subsidy component of the programme.
- Assessment of the advisory services delivered by SNV/Nepal.

<sup>2</sup> In the BSP-IV log frame included as Annex 2.7 of the RESS proposal, six programme purposes are mentioned. The team, however, decided to follow the specific objectives mentioned on page 30 of the proposal.

Respondents were encouraged not only to assess the current situation, but also to look forward and indicate proposals and suggestions for improvements. Dependent on time limitations and the background of the respondents, the team in some cases decided not to address all review areas.

The main limitation towards the internal assessment was the little time (four days) available for the assignment in Nepal. In addition, both members of the assessment team had quite a history in BSP. On one hand, this may have been an advantage in terms of knowledge about the biogas sector and relationships with the actors. The disadvantage, however, may have been the “baby-effect”, a lack of openness towards developments and ideas that differ from “the olden days”.



## CHAPTER 3: Findings

This Chapter provides a general summary of the main opinions and knowledge acquired through the interviews. The reader might observe inconsistency as - in line with expectations - opinions and knowledge differed among the respondents.

### 3.1 Objectives worrying respondents

In total 12 respondents were given the chance to distribute their worries over the achievement of the seven specific objectives. The result is provided in Table 3-1.

Table 3-1 *Relative level of worries expressed by respondents on the achievement of the specific objectives of Biogas Support Programme phase IV*

No.	Specific objective	Relative level of worries (%)
1.	To develop a commercially viable, market oriented biogas industry	21
2.	To further strengthen institutions for sustained development of the biogas sector	12
3.	To stimulate internalisation of all benefits of the biogas plant	11
4.	To implement Clean Development Mechanisms arrangements	6
5.	To increase number of quality biogas plants with 200,000	38
6.	To ensure the continued operation of all biogas plants installed under BSP	2
7.	To conduct applied R&D in order to optimise plant operation	10

Most worries were related to the achievement of objective 5 (38%) and 1 (21%), while very little worries were expressed with regard to the achievement of objective 6 (2%) and 4 (6%).



#### 3.1.1 Increase number of quality biogas plants with 200,000

The RESS proposal assumed a total of 200,000 biogas plants to be installed over the period July 2003 up to June 2009, divided over the years as shown in Table 3-2. This Table also provides the targets as per the implementation plan of BSP-N and the agreement of KfW with HMG/N.

Table 3-2 *Number of biogas plants to be installed in BSP-IV as per the RESS proposal, BSP-N implementation plan and KfW agreement with HMG/N*

	FY 2003/04	FY 2004/05	FY 2005/06	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009/10 <sup>3</sup>	Total
RESS proposal	27,101	30,218	33,693	34,978	36,312	37,697	-	200,000
BSP-N Plan	22,000	24,000	26,000	28,000	30,000	32,000	-	162,000
KfW-HMG/N agreement	-	22,000	24,000	26,000	28,000	30,000	25,000	155,000

<sup>3</sup> Only the first half of this FY.

The number of biogas plants actually constructed in FY 2003/04 amounted to 11,259, much lower than the targeted numbers as per RESS proposal and BSP-N implementation plan for this FY and also lower than the number of installed plants in the previous FY 2002/03 (16,340). FY 2003/04 was the first year of BSP-IV characterised by a problematic start: Late signing of agreements related to BSP-IV, the late decision-making and announcement on the level of investment subsidy and the transformation of the SNV/BSP project office to BSP-N, an independent Nepalese NGO.

Respondents mentioned the following problems related to the achievement of objective 5, see Table 3-3. This Table contains also possible solutions, if any, mentioned by them.

*Table 3-3 Problems with possible solutions for the achievement of objective 5 as expressed by the respondents*

Problems	Possible solutions
Insecurity: • See paragraph 3.4	• See paragraph 3.4
Collapse of credit facilities: • Number of loan plants (ADB/N, NBL, RBB, MFIs) has gradually decreased from 62% in 1997 to about 15% in 2004	• Allow more MFIs, SFCB and other appropriate micro-financing institutes to provide credit to biogas farmers
Lack of working capital for BCs: • Number of cash plants has gradually increased from 38% in 1997 to about 85% in 2004, urging BCs to pre-finance the investment subsidy	• Increase the working capital provided by BSP-N to BCs from NPR 400 per plant at present to NPR 3,500 per plant
Increased costs of biogas plants: • Cost of biogas plants have increased with 6-10% if corrected for cosmetic price reductions and even with 18-28% after deduction of the applicable subsidy rate, see Annex 4. It is worth to note that cost of the items to be managed by the farmer has increased, while the cost of items to be supplied by the company has decreased	• As it is unlikely to reduce the cost of the biogas plants on short term, give more emphasis to the internalisation of all benefits of the biogas plant, especially the proper use of bio-slurry, to increase the return on investment
Reduction of investment subsidy: • Subsidy was reduced as per FY 2003/04, however less than assumed in the RESS proposal. Further reduction will jeopardise the much required link between subsidy and quality control as biogas plants will be constructed without subsidy beyond the quality control system	• Increase the investment subsidy or at least do not decrease subsidy further
Reaching financially weaker farmers: • After installation of more than 120,000 biogas plants, BSP increasingly has to capture the market of less-privileged strata of farmers	• Increase the cooperation at community level with other projects, programmes, (I)NGOs and groups
Lack of awareness among potential farmers: • Many potential biogas farmers are not aware about the basics of the technology, its benefits and the available subsidy scheme	• Make potential farmers aware through neutral mass campaigns

### **3.1.2 Commercially viable, market oriented biogas industry**

The biogas industry consists of biogas companies constructing and maintaining biogas plants and workshops manufacturing biogas appliances like mixer and gas tap. The number of BSP recognised companies and workshops are varying over the years, meandering around 40<sup>4</sup> for companies and 15 for workshops. All companies are member of the branch organisation of

<sup>4</sup> In the last months of 2004, about 20 new companies were pre-qualified

biogas companies, the Nepal Biogas Promotion Group (NBPG). In five high potential biogas areas (Itahari, Bharatpur, Butwal, Pokhara and Kavre), Regional Biogas Coordination Committees (RBCCs) have been established. These committees consist of representatives of biogas companies and can thus be regarded as sub-branch offices of the NBPG. Also credit institutions form part of the biogas industry.



The problems related to the achievement of objective 1 as mentioned by the respondents along with possible solutions are provided in Table 3-4.

*Table 3-4 Problems with possible solutions for the achievement of objective 1 as expressed by the respondents*

Problems	Possible solutions
Lack of resources for investments: <ul style="list-style-type: none"> <li>• In addition to the lack of working capital (see Table 3-3), companies face difficulties to acquire investment for expansion of their business</li> <li>• Companies do get less financial incentives from BSP-IV for the training of their manpower</li> </ul>	<ul style="list-style-type: none"> <li>• Increase the financial incentives from BSP-IV for the training of manpower</li> </ul>
Lack of long-term and corporate thinking among companies: <ul style="list-style-type: none"> <li>• To attain short-term profits, companies conduct unhealthy competition and save on extension services to farmers required to optimise the benefits of the biogas, notably proper use of slurry.</li> <li>• Companies do not undertake genuine efforts to develop business and management skills of their core staff</li> </ul>	<ul style="list-style-type: none"> <li>• Enforce the discouragement of unhealthy competition through code of conduct</li> <li>• Train, facilitate the making of action plans and coach companies on business management</li> </ul>
Lack of sector thinking within NBPG and RBCCs: <ul style="list-style-type: none"> <li>• NBPG to a large extent failed to assume its proposed promotional role in the biogas sector, is against the entrance of more suppliers and may not oppose the formation of cartels</li> <li>• Insufficient results have been achieved with respect to enforcement of a code of conduct among companies, general promotion and extension</li> </ul>	

The problems and possible solutions for credit institutions have been included already in Table 3-3.

### **3.2 Functioning of main actors**

The assessment made by the majority of the respondents about the main actors against the background of their proposed functions in the biogas sector as foreseen in the RESS proposal is provided in Table 3-5.

Table 3-5 *Functioning of main actors in the biogas sector as judged by the majority of the respondents*

Main actor	Judgement	Explanation
NPC	As foreseen	The NPC continued to promote biogas within the framework of its five year plans
MoF	As foreseen	The MoF has disbursed without default its share to the subsidy fund (up to 20% at the end of BSP-III) and committed itself in the financing agreement with KfW even more (up to 26%) for BSP-IV
MoST	As foreseen	MoST has allowed the AEPC to operate autonomously in line with its mandate. However, the recent change of regulations with respect of the AEPC Board as decided by the Cabinet on 20 December 2004 undermines this mandate and might form a serious threat to the proposed functioning of AEPC
HMG/N-LAs	Less than foreseen	Apart from the Department of Women & Development, other ministries and departments like agriculture and health failed to play any role in promotion, extension and training
KfW	As foreseen	KfW as co-financer of BSP-III has been a reliable and responsible partner and signed the financing agreement on BSP-IV in January 2005
SNV/Nepal	Partly as foreseen	In line with the RESS proposal, the role of SNV/Nepal significantly changed at the beginning of phase IV when it has transformed its programme office into an independent Nepali NGO under the name of BSP-N. Remaining functions are the delivery of financial assistance to BSP-IV on behalf of DGIS and advisory services to relevant actors in the biogas sector. The financial assistance has been delivered as foreseen; however, the advisory services have been to a large extent ineffective, see paragraph 3.4
AEPC	More than foreseen	After its establishment in 1996, the AEPC has truly developed into a semi-autonomous organisation promoting the use of alternate energy including biogas and facilitating the implementation of programmes by other actors like the private sector. Concerns are with the recent change of regulations with respect of its Board by MoST. Not foreseen was the direct involvement of AEPC in the roll-out of the micro-finance institutions (MFIs), see below
CBCC	As foreseen	This Committee has been meeting four to six times per year and has been functional in discussion on key issues in the biogas sector like the subsidy scheme, recognition of biogas companies, use of participation fee and provision of credit through MFIs
BSP-Nepal	More than foreseen	BSP-N was transformed in the beginning of BSP-IV out of the programme office of SNV/Nepal and continued to play its role with respect to subsidy administration and quality control. In addition, BSP-N has been functioning as implementer of activities in the areas of promotion, training, extension, credit facilities (working capital to companies, MFIs under AEPC) and R&D. Likely due to lack of capacities with other actors (NBPG and AEPC as far as MFIs are concerned), BSP-N has taken up (too) many functions
NBPG	Less than foreseen	Though all biogas companies are member of the NBPG through which they purchase the main gas valve from Thailand, this branch organisation failed to assume the many envisaged functions like promotion, quality management and extension on proper use of slurry. The Board has been struggling with the proper definition of the role of NBPG, while its secretariat headed by the programme manager has not yet been provided with the necessary delegated powers
RBCCs	Not like foreseen	The current five RBCCs consist of representatives of biogas companies only and can be regarded in this respect as sub-branches of the NBPG. The RESS proposal assumed a much wider membership of RBCCs including representatives of the government, credit institutes and (I)NGOs
Biogas companies	As foreseen	Despite the insecurity situation, biogas companies have been successful in construction and maintaining quality biogas plants throughout the country. As explained in Table 3-4, most of the companies yet have been short in long-term and corporate thinking
ADB/N	Less than foreseen	Due to the insecurity situation and the ADB/N becoming more a

		commercial than a development bank, its functioning in the biogas sector has been far less than anticipated with only 981 biogas plants financed in FY 2003/04 (less than 10% of all installed plants)
RBB	Less than foreseen	Like ADB/N, the functioning of RBB in the biogas sector has been far less than anticipated with only 165 biogas plants financed in FY 2003/04 (about 1.5% of all installed plants)
NBL	Less than foreseen	Under its new management, the NBL has become non-functional for the biogas sector as no single biogas plant was financed in FY 2003/04
MFIs	Less than foreseen	Only about 25% of the fund provided by KfW to AEPC to be used by MFIs for the financing of biogas plants at local level has been made effective. In FY 2003/04, only 424 plants were financed (about 4% of all installed plants)
DDCs	Less than foreseen	Due to the insecurity situation, all DDCs except in one or two cases like Kavre district have failed to play any role with respect to planning, promotion and monitoring & evaluation
VDCs	Less than foreseen	Even more than for DDCs, the functioning of the VDCs in the biogas sector has been ceased due to the insecurity situation
(I)NGOs	Mixed	A general judgement is difficult to provide as some (I)NGOs have been really supportive to the biogas sector while others have been too much awaiting. A general concern was raised with the level of additional subsidy provided by (I)NGOs in addition to the HMG/N subsidy in some areas disturbing the market of those farmers that reside closely outside of these areas

### 3.3 Risk factors

The RESS proposal mentions three risks factors for BSP-IV being insecurity, lack of growth in the agricultural sector and lack of capacity of HMG/N to contribute to the subsidy fund. The last factor turned out not to be a risk at all, as MoF has made disbursements to the subsidy fund as per the agreed amounts. Most respondents mentioned the first factor as the main problem for the biogas sector, even affecting also the growth in the agricultural sector. Therefore, this paragraph will focus on the effect of the insecurity situation on the biogas programme.

Since the CPN (Maoist) declared a "people's war" in February 1996, aimed at the de facto abolition of the constitutional monarchy and establishment of a people's republic, Nepal has been gripped by a nationwide conflict and human rights crisis in which it is estimated that over 11,000 people have died. The fighting has largely taken the form of attacks by the CPN (Maoist) on army and police posts and personnel, government buildings and other infrastructure. The government initially responded to the conflict as a law and order problem, through deploying large numbers of police. However, on 26 November 2001, a state of emergency was declared under which the Royal Nepal Army (RNA) was deployed throughout the country. Although this state of emergency lapsed on 28 August 2002, the RNA remains deployed across Nepal. Government forces have lost control of the majority of the countryside.

Against this background, the assessment team put the question whether the continuation of BSP-IV was still possible and justified. Most of the respondents, however, assured that the biogas programme unlike other development programmes is quite immune to the insecurity situation as it is perceived as neutral and appreciated by both CPN (Maoist) and HMG/N. Tentative estimates confirmed by information gathered at the visit of the team to Chitwan district suggested that the number of installed plants could be increased from 9,860 in FY 2003/04 to minimum 16,000 in this FY 2004/05. However, a large number of problems along with possible solutions were communicated to the team, see Table 3-6.



Table 3-6 Problems related to the insecurity in the country with possible solutions as mentioned by the respondents

Problems	Possible solutions
Demand side: <ul style="list-style-type: none"> <li>• Farmers feel unsafe and postpone investments</li> <li>• Farmers migrate to more safe areas</li> </ul>	<ul style="list-style-type: none"> <li>• Focus the programme on safe areas</li> <li>• Provide bonus to disclose new areas and pre-qualify more companies in the safe areas</li> </ul>
Supply side: <ul style="list-style-type: none"> <li>• Company staff have to pay donations to CPN (Maoist); feel not safe to stay overnight in the villages; are not allowed by RNA to transport GI pipe; face regular transport strikes</li> <li>• Banks like ADB/N and RBB close their offices in the rural areas; are reluctant to send their staff for the loan process in the field</li> </ul>	<ul style="list-style-type: none"> <li>• Hire local company staff familiar to the area</li> <li>• Increase involvement of MFIs in the provision of credit to biogas farmers</li> </ul>
Quality control: <ul style="list-style-type: none"> <li>• BSP-N had to abandon the plant identification and location system as the use of GPS was forbidden by RNA</li> <li>• BSP-N is not able in 25% of all trips to visit the sampled biogas plants for quality control and has to return to the area once the safety situation is restored. In 2004, no visits were made to the districts of Bhojpur, Arghakhanchi, Pyuthan and Darchula</li> </ul>	<ul style="list-style-type: none"> <li>• Use of red number plates by BSP-N for motorcycles used for quality control</li> <li>• Execute QC in all districts or if not possible freeze provision of subsidy to these districts</li> </ul>

### 3.4 Advisory services by SNV/Nepal

Apart from the delivery of financial assistance<sup>5</sup> on behalf of DGIS, SNV/Nepal also aimed to provide advisory services to relevant actors in the biogas sector. Table 3-7 provides an overview of the formal assignments conducted by various advisors since the start of phase IV in July 2003.

Table 3-7 Overview of advisory services delivered by SNV/Nepal since July 2003

Client	Objective of the assignment	Number of days
BSP-N	To advice and assist the BSP-IV programme by providing advice and feedback to activities related to the implementation of the implementation of the programme and its components	50
BSP-N	To assist BSP for the efficient implementation of ISO and marketing as well as arrange for handing over	60
BSP-N	To develop and assist in the preparation of innovative research proposals related to biogas support in Nepal and assure coordination and follow-up ensuring quality control	88
BSP-N	To advice and assist BSP-N in strengthening the construction companies	30
BSP-N	To advice BSP-N on risk management	21
BSP-N	To advice BSP-N on gender training	21
BSP-N	To assist in the editing of the biogas best practice book and in the development of working methods for increased penetration of biogas into rural and remote areas	20

What strikes one most is that BSP-N has been the sole client of the advisory services by SNV/Nepal, even when the assignment was much more related to other actors in the sector like NBPG and/or biogas companies. Quite some of the advices were felt inconsistent with each other or not practical for implementation, while others were even provided unsolicited. Within SNV/Nepal, complaints were made about the vagueness of the ToRs related to the advisory

<sup>5</sup> Financial assistance among others includes planning, reporting, auditing, management meetings and lobbying.

services, unclear division of tasks between the different advisors and failure by the SNV management to force the client to implement the advices.

As the contracts with the current two permanent renewable energy/biogas advisors will expire soon, SNV/Nepal has initiated the process in consultation with main actors in the sector to identify the profile of a new permanent advisor. This advisor will have her/his desk at the office of the clients and not any longer at the office of SNV/Nepal.

### 3.5 Other findings

During the assignment, the team became aware of some additional challenges that were found important for reporting. These challenges are presented in Table 3-8.

Table 3-8 Additional challenges expressed by the respondents or found by the team during the execution of the assignment

Problem	Possible solution
<p>Participation fee:</p> <ul style="list-style-type: none"> <li>Participation fees (@ NPR 500 per plant) were collected by AEPC from 91,196 plants of phase III (total NPR 45,598,000) and from 11,259 plants in the first FY of phase IV (total NPR 5,629,500). By statement of March 2004 (2060/12/06), AEPC roughly claimed to have spent NPR 20,765,839 out of the phase III fees. The remaining amount still remains unspent with the AEPC. This situation is highly undesirable as it affects the principle of transparency and withholds the programme with much required funds</li> </ul>	<ul style="list-style-type: none"> <li>AEPC needs to present as soon as possible a more detailed physical and financial report on the use of the spent participation fees</li> <li>In addition, the remaining amount needs to be provided to BSP-N on the basis of approved annual plans or to be spent on other purposes with the approval of the CBCC</li> </ul>
<p>Quality control:</p> <ul style="list-style-type: none"> <li>Based on various reports and respondents, the quality of the constructed biogas plants seems to be improving. However, the growing insecurity and the pre-qualification of an increasing number of companies makes adequate control of the quality of construction and maintenance even more required, especially on the eve of the introduction of CDM in the programme</li> </ul>	<ul style="list-style-type: none"> <li>BSP-N might need to revise its ISO standards on quality control sampling to make them proof for the growing insecurity in the country</li> <li>In case BSP-N is not able to check the quality of biogas plants in certain areas, the provision of subsidy should be frozen immediately and resumed only after control has become possible again</li> </ul>
<p>Erosion of plant quality:</p> <ul style="list-style-type: none"> <li>The mixing device (for 4 and 6 m<sup>3</sup>), GI pipe, participation fee<sup>6</sup> and number of bags of cement have been eliminated or eroded in the general quotation of FY 2004/05 in order to reduce the cost of the plant. This pure cosmetic operation will negatively effect the quality of the biogas plants and reduce the annual gas production</li> <li>Since March 1997, the fee for three years maintenance being NPR 600 has not been increased</li> </ul>	<ul style="list-style-type: none"> <li>Mixer device, GI pipe, participation fee of NPR 500 and the original numbers of bags of cement needs to be reinserted in the general quotation to maintain quality and lower the annual operation cost</li> <li>Fee for three years maintenance might be increased to NPR 900</li> </ul>
<p>HRM at BSP-N:</p> <ul style="list-style-type: none"> <li>After the transformation from SNV/BSP programme office to an independent Nepalese NGO, the employees of BSP-N including the management and executive committee need to be prepared for their new role under different employment conditions</li> </ul>	<ul style="list-style-type: none"> <li>SNV/Nepal and BSP-N might consider to avail additional guidance for the change process including the mandate and functioning of its executive committee, for example through the services of a professional HRM coach</li> </ul>
<p>Handing over of review and monitoring role from DGIS to SNV/Nepal:</p> <ul style="list-style-type: none"> <li>As DGIS terminated its bilateral assistance to HMG/N as per 31 December 2004, SNV/Nepal has been requested to take over the review and</li> </ul>	<ul style="list-style-type: none"> <li>SNV/Nepal shall commission an independent technical audit on annual basis including a survey of biogas users sampled by its own preference</li> </ul>

<sup>6</sup> In the RESS proposal, the participation fee form not less 46% of the financing of the programme support costs. Erosion of this fee will thus strip BSP-IV from its programme activities.

<p>monitoring role from DGIS for BSP-IV. Independent audit reports might be sufficient to cover the financial side of this role, but in addition something might be required to cover the technical side of the review and monitoring role</p>	
<p>Communication between main actors:</p> <ul style="list-style-type: none"> <li>• Many actors do need to play their role and work together in BSP-IV and might sometimes feel excluded or insufficient encouraged to solve their problems</li> </ul>	<ul style="list-style-type: none"> <li>• SNV/Nepal and BSP-N might take extra responsibility to periodically bring together the main actors for sharing of information and discussion</li> </ul>

## CHAPTER 4: Discussion, main conclusions and recommendations

In this Chapter, the opinions and knowledge provided by the respondents and reported in Chapter 3 have been used to arrive at a consistent set of conclusions and recommendations which are the sole responsibility of the assessment team.

### 4.1 Overall

Since its start in July 2003, BSP-IV has been confronted with a variety of problems internal and external to the programme. Internal problems to the programme were the late signing of the agreements related to BSP-IV, the late announcement of the subsidy scheme and the transformation of the SNV/BSP programme office to BSP-N, an independent Nepalese NGO. In addition, the NBPG to a large extent failed to assume its envisaged role in the biogas sector. The growing insecurity has been the main problem external to the programme and has created a great number of set-backs: Reluctance among farmers to invest, collapse of credit facilities by the ADB/N, donations to be paid by company staff to the Maoists, restrictions in lodging and travelling including manifold strikes, ban on construction materials (GI pipe), and difficulties to execute quality control on construction and maintenance by BSP-N and NBPG. Despite all these problems, the programme succeeded to construct 11,259 quality biogas plants in FY 2003/04. Preliminary estimates for FY 2004/05 indicate that a minimum of 16,000 biogas plants could be installed. Ambiguity with respect to roles and responsibilities of the various actors has come to an end with the signing of the last agreement related to BSP-IV between KfW and HMG/N in January 2005. Table 4-1 provides the overall conclusion and recommendation.

Table 4-1 Overall conclusion and recommendation on the progress of BSP-IV

<p>Overall conclusion: Amidst growing insecurity throughout the country, BSP-IV has succeeded to deliver quality biogas plants to farmers, though the numbers are lower than the assumed targets in the RESS proposal</p> <p>Overall recommendation: BSP-IV deserves full support by all involved actors, but may need to reduce for the time being the annual installation targets to these of the BSP-N implementation plan or the KfW agreement</p>
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### 4.2 Insecurity

Unlike other development programmes, BSP-IV has been less affected by the insecurity. The programme is rather neutral and transparent, implemented at farmers' level by staff of private biogas companies, provides clear, short-term benefits to the farmers and is appreciated by farmers, HMG/N and Maoists. Nevertheless, the conflict has created a great number of problems at both demand and supply side. Some of these problems can not be solved, but others might be addressed through adjustments in the programme, see Table 4-2 for the conclusion and recommendation.

Table 4-2 Conclusion and recommendation on the effects of the insecurity

<p>Conclusion: BSP-IV has proven to be rather insecurity-proof, but needs some adjustments as a number of actors like ADB/N, line agencies, DDCs and VDCs are not able to play their role as foreseen in the RESS proposal</p>
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**Recommendation:**

For promotion and provision of credit to potential biogas farmers, BSP-IV could make use of neutral community-based organisations and groups, while biogas companies could recruit more local staff. National campaigns and promotion programmes may be useful as long as the message is presented neutrally

### 4.3 Specific objective 5

As already concluded above, it might be impossible due to various reasons to achieve specific objective 5 of BSP-IV, being the increase of the number of quality biogas plants with 200,000. However, a number of actions could be initiated to enhance the installation rate, see Table 4-3 for the conclusion and recommendation.

*Table 4-3 Conclusion and recommendations on the possible achievement of specific objective 5 of BSP-IV*

**Conclusion:**

Achievement of the objective 5 has become difficult because of the insecurity, collapse of credit facilities, lack of working capital for biogas companies, increased cost of biogas plants, reduced levels of investment subsidy for farmers and unawareness among increasingly poorer farmers about the costs and benefits of biogas

**Recommendations:**

To increase the installation rate of biogas plants, it is recommended to:

- Mainstream the insecurity in the programme (see paragraph 4.2)
- Engage more MFIs, the SFCB and other appropriate micro-financing institutes in the provision of credit to biogas farmers using the available KfW fund and to further simplify and ease the terms and conditions for lending
- Increase the amount of working capital to biogas companies for the pre-financing of investment subsidies under the conditions already applied by BSP-N
- Reintroduce in the quotation the mixer device, GI pipes, original number of bags of cement, previous rate of participation fee (NPR 500) and to increase the fee for three years maintenance to NPR 900
- Increase the subsidy rates with NPR 1,500 to compensate for the increased cost of biogas plants and simplify the scheme to one flat rate for each region. Fix the subsidy rates for a period of three years and evaluate by that time whether the micro-credit facilities under the KfW have become fully operational
- Continuation of the increase of the number of potentially viable biogas companies in a controlled manner
- Cooperate and coordinate stronger with (I)NGOs for the promotion of biogas plants in their working area
- Launch neutral mass-scale campaigns to create awareness and knowledge among potential biogas farmers on the biogas technology, its benefits and the available subsidy
- Execute effective programmes for the proper use of slurry by biogas farmers

### 4.4 Specific objective 1

Worries also exist with respect to the achievement of specific objective 1, the development of a commercially viable, market oriented biogas industry. Only few companies are managing to grow and to generate resources for investments in buildings, manpower and additional services to farmers. Other companies still are struggling to survive and seem to be unable or unwilling to further develop. NBPG has not yet been able to properly define its role within BSP-IV and lacked the required sector thinking, see Table 4-4 for the conclusion and recommendations.

*Table 4-4 Conclusion and recommendations on the possible achievement of specific objective 1 of BSP-IV*

**Conclusion:**

Achievement of objective 1 has become difficult due to lack of resources for investment, lack of long-term and corporate thinking among companies and lack of sector thinking within NBPG and RCCBs

**Recommendations:**

To further develop a commercially viable, market oriented biogas industry, it is recommended to:

- Avoid unhealthy competition through enforcement of a code of conduct by NBPG
- Offer a combination of training and coaching services and capital to a selected group of companies willing to undertake genuine business development efforts
- Facilitate the NBPG to develop and execute a business plan that might lead to handing over of promotion and (bio-slurry) extension activities from BSP-N to NBPG from FY 2006/07 onwards

## 4.5 Functioning of main actors

The RESS proposal assumed certain roles to be played by various actors in BSP-IV, see Table 4-5 for the conclusion and recommendations.

*Table 4-5 Conclusions and recommendations on the functioning of the main actors in BSP-IV*

<p>Conclusions:</p> <ul style="list-style-type: none"> <li>• Functioning of NPC, MoF, MoST, KfW, SNV/Nepal (with respect to financial assistance), biogas companies and some (I)NGOs has been as foreseen</li> <li>• Functioning of HMG/N line agencies, SNV/Nepal (with respect to advisory services), NBPG, ADB/N, RBB, NBL, MFIs, DDCs, VDCs and some other (I)NGOs has been less than foreseen</li> <li>• Functioning of AEPC and BSP-N has been more than foreseen</li> <li>• Functioning of RBCCs has been different than foreseen</li> </ul> <p>Recommendations:</p> <ul style="list-style-type: none"> <li>• For MoST, to allow AEPC to continue its operations autonomously</li> <li>• For AEPC, to fully utilise the KfW fund for micro-financing of biogas plants</li> <li>• For BSP-N, to continuously capacitating other suitable actors to take up and play their assumed role in the biogas sector rather than implementing activities on one's own</li> <li>• For NBPG and RBCCs, to define their role in the biogas sector and provide the secretariat with the required delegated powers like budget control on the basis of approved annual plans and representation in the CBCC</li> </ul>
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## 4.6 Advisory services by SNV/Nepal

The conclusion and recommendation with respect to the advisory services of SNV/Nepal are provided in Table 4-6.

*Table 4-6 Conclusion and recommendation on the advisory services (to be) provided by SNV/Nepal*

<p>Conclusion:</p> <p>The advisory services of SNV/Nepal have been to a large extent ineffective as they were too much focussed at only one actor in the programme, delivered out of the office of SNV rather than the client's office, not felt practical by the client and sometimes even provided unsolicited</p> <p>Recommendation:</p> <p>SNV/Nepal should consider the entire sector for the delivery of advisory services and provide the permanent advisor with a desk in the office of the client rather than in its own office. In addition, advisory services should remain fully unlinked from financial assistance as the quality of the advice needs to be based on client satisfaction rather than on the (financial) authority of SNV/Nepal</p>
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## 4.7 Other findings

The conclusions and recommendations with respect to the other findings of the internal assessment are included in Table 4-7.

Table 4-7 Conclusions and recommendations on other findings

Conclusions:	Recommendations:
<p>Participation fee:</p> <ul style="list-style-type: none"> <li>• AEPC failed to present proper physical and financial reports on the use of the participation fees collected during BSP-III and the first year of BSP-IV</li> </ul>	<ul style="list-style-type: none"> <li>• AEPC needs to present as soon as possible a more detailed physical and financial report on the use of the spent participation fees</li> <li>• In addition, the remaining amount needs to be provided to BSP-N on the basis of approved annual plans or to be spent on other purposes with the approval of the CBCC</li> </ul>
<p>Quality control:</p> <ul style="list-style-type: none"> <li>• Strict quality control has resulted in increased quality of construction and maintenance of biogas plants, but needs to be adapted to cope with the insecurity and to be strengthened to be able to deal with more companies and at a later stage the implementation of CDM</li> </ul>	<ul style="list-style-type: none"> <li>• BSP-N might need to revise its ISO standards on quality control sampling to make them proof for the growing insecurity in the country</li> <li>• In case BSP-N is not able to check the quality of biogas plants in certain areas, the provision of subsidy should be frozen immediately and resumed only after control has become possible again</li> </ul>
<p>Erosion of plant quality:</p> <ul style="list-style-type: none"> <li>• In the general quotation of FY 2004/05, the cost of the biogas plants has been reduced by elimination and erosion of vital parts</li> <li>• Since March 1997, the fee for three years maintenance has remained to be NPR 600</li> </ul>	<ul style="list-style-type: none"> <li>• Mixer device, GI pipe, participation fee of NPR 500 and the original numbers of bags of cement shall be reinserted in the general quotation</li> <li>• Fee for three years maintenance might be increased to NPR 900</li> </ul>
<p>HRM at BSP-N:</p> <ul style="list-style-type: none"> <li>• After the transformation from SNV/BSP programme office to an independent Nepalese NGO, the employees of BSP-N including the management and executive committee need to be prepared for their new role under different employment conditions</li> </ul>	<ul style="list-style-type: none"> <li>• SNV/Nepal and BSP-N shall consider to avail additional guidance for the change process including the mandate and functioning of its executive committee, for example through the services of a professional HRM coach</li> </ul>
<p>Handing over of review and monitoring role from DGIS to SNV/Nepal:</p> <ul style="list-style-type: none"> <li>• SNV/Nepal has been requested by DGIS to take over the review and monitoring role for BSP-IV with effect of the 1<sup>st</sup> of January 2005</li> </ul>	<ul style="list-style-type: none"> <li>• SNV/Nepal might commission an independent technical audit on annual basis including a survey of biogas users sampled by its own preference</li> </ul>
<p>Communication between main actors:</p> <ul style="list-style-type: none"> <li>• Many actors do need to play their role and to work together in BSP-IV and might sometimes feel excluded or insufficient encouraged to solve their problems</li> </ul>	<ul style="list-style-type: none"> <li>• SNV/Nepal and BSP-N might take extra responsibility to periodically bring together the main actors for sharing of information and discussion</li> </ul>

## CHAPTER 5: References

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# Annex 1: Terms of Reference

## Internal assessment of BSP (phase-IV)

### Programme background

#### 1. Introduction

His Majesty's Government of Nepal (HMG/N) officially launched the biogas programme in 1974. In 1977, HMG/N established the Biogas and Agricultural Equipment Development Pvt. Ltd. popularly known as the Gobar Gas Company (GGC). GGC was responsible for developing biogas technology and for large scale product dissemination.

In November 1992, HMG/N entered into an agreement with SNV/Nepal and the Directorate General for International Cooperation (DGIS) for the implementation of the Biogas Support Programme (BSP) that was implemented in three phases from July 1992 to June 2003 by SNV/BSP. Kreditanstalt fuer Wiederaufbau (KfW) entered into partnership (co-financing) in the third phase of the BSP. At the end of BSP Phase III, SNV/BSP became independent and was officially registered as a Non-Governmental Organisation under the name of Biogas Sector Partnership, Nepal (BSP-N). SNV/BSP installed 111,395 plants in 65 districts. With the successful transition and implementation of the BSP in Nepal, HMG/N, DGIS and KfW agreed to further support the programme into its fourth phase from July 2003 to June 2009. SNV/Nepal continues providing managerial, technical and advisory services to BSP-N in the fourth phase of BSP.

As a preparation to the planned Mid Term Review (MTR) of the Renewable Energy Sector Support (RESS) Programme an internal assessment of the Biogas Support Programme (BSP) is requested by the Netherlands Development Organisation (SNV). This assessment has been discussed with the implementer, the Biogas Sector Partnership Nepal (BSP-N). BSP-N recognises the need for such a review and agreed that a reduced team of the SNV regional Biogas Practice Team (BPT), under the coordination of the SNV/NRM Sector Manager, will be mobilised to carry out the assessment. The assessment will reflect on the current progress, the opportunities to meet the programme objectives as well as the possible problems or causes of the reduced output. The assessment will be carried out in line with the hand over of the Netherlands Government commitments for BSP phase IV to SNV as from 2005. This assessment will take into account the priorities of the BSP programme, the objectives of SNV and follows, where possible, the discussion lines initiated between SNV/Nepal and BSP-N related to the hand over. Key words during the assessment are ownership, demand driven, sustainability and poverty alleviation as far as possible within the objectives of the programme. The assessment should consider the institutional setting (AEPC, NBPG, BCC, etc.) and the multi donor aspect of BSP (KfW, HMG/N).

The MTR of the RESS programme is planned during the first half of 2005 (April/May). This MTR will look at BSP-N, CTR-N and AEPC/Micro-Funds. In order to make the MTR efficient the internal assessment of BSP-IV (the largest programme component by far) can assist in reflecting on a number of critical issues related to the overall approved programme document, the changed roles for BSP-N after becoming a NGO in July 2003 and SNV's role after moving away from the direct implementation towards providing advisory services and the hand over of the Embassies review and monitor role to SNV.

In order to be prepared for the MTR, the BSP-N, in collaboration with the SNV-N should preferably make an assessment of the current programme developments and make proposals on how to resolve the critical issue of the lower than planned output of biogas reactors of the BSP-IV programme (as compared to the planned outputs), and make suggestions on how to resolve the problems.

The internal assessment should look at the overall picture of the:

- changing environment of the institutional organisation (of BSP-N, AEPC and SNV-N);
- way towards sustainability of the biogas sub-sector as a whole;
- options on how to up scale the current programme to other regions and target groups in Nepal; and
- the opportunities to achieve the objectives as per the approved programme document.

Several options can be provided by the BSP-N/SNV-N and presented to the MTR mission for comments and advice. This will place BSP-N, SNV/N and AEPC in a leading position to suggest alternatives (technical, programmatic, institutional, etc.) for the observed bottlenecks to achieve its final goals or on how to further strengthen the opportunities identified.

## **2. Objectives of the BSP Phase IV**

The overall objective of BSP Phase IV is to further develop and disseminate biogas as a mainstream Renewable Energy Technology (RET) in rural areas of Nepal. The specific objectives contributing to its overall objective are:

1. to develop a commercially viable, market oriented biogas industry;
2. to further strengthen institutions for sustainable development of the biogas sector;
3. to stimulate internalisation of all benefits of the biogas plant, focusing on gender related impacts of the technology;
4. to implement the Clean Development Mechanisms (CDM) arrangements for the biogas sector in Nepal;
5. to increase the number of quality biogas plants by 200,000;
6. to ensure the continued operation of all biogas plants installed under the biogas programme; and
7. to conduct applied Research and Development (R&D) in order to optimise plant operation.

## **3. Main objective of the internal assessment**

Although the ToR for the MTR has not been prepared yet, the main objective of this internal assessment is:

1. Progress of BSP phase IV versus approved programme document and approved annual plans is reviewed.

Main activities within the above mentioned objectives could be:

- analyse the BSP IV programme document (RESS proposal) to ensure the expected outputs indicating clear bench marks (including budget estimations) for the period July 2005 – June 2009;
- analyse the Memorandum of Understanding for RESS, signed between SNV/Nepal and the Ministry of Finance and the working agreements signed between SNV, AEPC and BSP-N to guarantee the output delivery as per the project document;
- analyse the existing financing modalities, subsidy, credit, participation fee , etc. to ensure service delivery to the end-users also in line with the existing conflict situation;
- assess the clarity of institutional relationships (AEPC, BSP-N, BCC, NBPG, MFIs, etc.) that should enable quick delivery in line with the objectives of the BSP- phase IV;
- assess the options to scale up the current programme to other regions and/or target groups;
- review the quality, quantity and timeliness of input delivery by SNV, HMG/N and other relevant partners if required;
- analyse the possible value added of future SNV advisory services and propose thematic areas to strengthen the capacities of BSP-N within the experience of SNV/Nepal and the regional BPT;
- discuss possible synergy between the regional BPT and the BSP-N;
- assess how lessons learnt from phases I, II and III are documented and integrated in phase IV;
- provide input for the finalisation of the ToR for the MTR mainly related to the BSP-N;
- present the findings of the assessment to SNV/Nepal, BSP-N, AEPC and the regional Biogas Practice Team. If agreed, other parties can be invited but it is only up to the SNV/Nepal management to communicate, if required, the findings to others ;
- present recommendations to the management of SNV/Nepal, that will communicate them to the relevant Key Strategic Partners (BSP-N and AEPC);
- prepare a concise report, not exceeding 20 pages, to be sent to SNV/Nepal management.

#### **4. Methodology and team composition**

Based on the ToR the team will meet all stakeholders involved in the biogas programme (BSP-N, AEPC, NBPG, BCC, some (potential) end-users, SNV/Nepal advisors involved in the past or at present with BSP-N, ADB/N, KfW representative, Winrock International/Nepal, WWF/N, UNDP, etc.). Meetings will be organised by SNV-N and/or BSP-N and, if needed, the team will be accompanied by them.

The team leader of this assessment will be Wim van Nes assisted by Jan Lam. BSP-N, SNV/Nepal, staff members of the above mentioned organisations and the SNV regional Biogas Practise Team are resource persons.

The team will on the first day discuss the details of the ToR with the management of SNV/Nepal and BSP-N to finalise the programme. A list of documents, see list attached, will be made available to the team before the assessment starts in Nepal which should enable them to do the assessment in 4 working days (not including the report). This includes 1 day for a field visit to the Terai (Bharatpur) to get the input from (selected) biogas companies. The draft report should be submitted within 7 working days after completion of the assessment to the management of SNV/Nepal. They have 5 working days to react allowing the team two more days to present the final assessment report. SNV/Nepal will discuss (and distribute) the report with the Key Strategic Partners.

## **5. Expected output**

In line with the above mentioned objectives and activities the team leader present a concise assessment report to the management of SNV/Nepal not exceeding 20 pages exclusive possible annexes. The outline of the report will be discussed with the SNV/N management.

## **6. Time frame of activity**

The assessment is to be organised in Kathmandu by SNV/Nepal in coordination with BSP-N and takes four working days. Tentative dates for the assessment are 14 – 19 January 2005.

Details in time:

- Friday 14.1.2005 First meeting in Kathmandu and start the assessment
- Sunday 16.1.2005 Field visit to Bharatpur
- Monday 17.1.2005 Continuation of the assessment
- Tuesday 18.1.2005 Continuation of the assessment
- Wednesday 19.1.2005 Presentation of the preliminary findings and discussion

## **7. Budget break down**

Staff time of Nepali based staff will be from current BSP-N and SNV-N budgets. All costs related to the participation of the regional Biogas Practise Team will be born by the budget of the regional biogas practise. Costs related to the presentation of the outcomes of the assessment or field visits will be born from SNV-Nepal budget.

## **8. Documents to be reviewed (to be completed)**

- RESS Proposal
- BSP-N annual plans and reports, with focus on BSP IV
- Memorandum of Understanding for RESS signed 24.6.03
- Working arrangement signed by SNV/N, AEPC and BSP signed 12.12.03
- ToRs for advisory services signed between SNV/N and BSP-N
- Working arrangements between BSP-N and BCC
- BSP practice plan 2004 prepared by SNV/Nepal (never shared with BSP-N)

## Annex 2: Programme of the assessment

<b>Thursday, 13 January 2005:</b>		
13.30	Arrival in Kathmandu by air	
16.00-18.30	Meeting with Mr. Willem Boers	SNV/Nepal, Biogas Advisor
19.30-21.30	Meeting with Mr. Bastiaan Engelhard	DGIS/DWM
<b>Friday, 14 January 2005:</b>		
09.30-11.15	Meeting with Mr. Huub Peters	SNV/Nepal, Practice Leader NRM
11.30-12.15	Meeting with Dr. Swoyambhu Man Amatya	MoST, Secretary
12.30-13.30	Meeting with Mr. Hari P. Regmi	MoF, Under Secretary
14.30-15.30	Meeting with Mr. Horst Schwoerer	KfW, External Expert, Antenna Kathmandu
16.15-20.30	Meeting with Mr. Sundar Prasad Bajgain and Mr. Balaram Shrestha	BSP-N, Executive Director BSP-N, Administrative Officer
<b>Saturday, 15 January 2005:</b>		
12.30-13.15	Travel from Kathmandu to Bharatpur by air	
14.00-14.30	Visit to Aggraj Women Development Saving & Credit Cooperative Ltd., Tandhi	
14.30-15.00	Visit to one BBI biogas plant in Tandhi, financed by above mentioned cooperative	
15.30-16.00	Visit to one RGG biogas plant under construction near Bharatpur	
16.30-18.00	Meeting with Mr. Prakash C. Shrestha and Mr. Lok Nath Ghimire	RGG, Director BBI, Managing Director
<b>Sunday, 16 January 2005:</b>		
08.30-10.15	Meeting with Mr. Hom Raj Bisural	GGC, Manager District Office Bharatpur
12.30-13.15	Travel from Bharatpur to Kathmandu by air	
<b>Monday, 17 January 2005:</b>		
10.00-12.00	Meeting with Dr. Madan B. Basnyat	AEPC, Executive Director
12.15-12.45	Meeting with Mr. Bishnu P. Gautam and Mr. Upendra Karki	ADB/N, Division Chief Loan Division ADB/N, Section Chief Loan Division
13.15-13.45	Meeting with Mr. Dev Raj Regmi	MoPE, Secretary
13.45-14.15	Meeting with Mr. Sjoerd Nienhuys	SNV/Nepal, Renewable Energy Advisor
14.45-16.00	Meeting with Mr. Prashun Bajracharya, Mr. Thakur Bhatta, Mr. Jagadish Ghimire and Mr. Yagya Gurung	NBPG, Programme Manager NBPG, Secretary NBPG, Treasurer NBPG, QC Technician
17.00-18.15	Meeting with Mr. Surendra Lal Shrestha, Dr. Amrit B. Karki, Prof. U.M. Malla, Dr. Indira S. Shakya	BSP-N, Executive Committee, Chairman, Vice-Chairman, Member, Treasurer
<b>Tuesday, 18 January 2005:</b>		
08.30-09.15	Meeting with Mr. Leonard van Duijn	SNV/Nepal, Conflict Management Advisor
10.15-11.45	Meeting with Mr. Harihar Sigdel, Mr. Shubash Lohani, Mr. Lokendra P. Dhakal, Mr. Anil Manandhar and Mrs. Sarala Khaling	BISEPST/CSU, Programme Officer WWF/WTLB, Programme Officer WTLB/CSU, Programme Coordinator WWF-N, Conservation Programme Director WWF-N, Programme Development, Monitoring & Research
12.15-13.45	Meeting with Mr. Khagendra N. Khanal, Mr. Mohaboob Siddiki, Mr. Ravi B. Chhetri, Mr. Prakash Lamicchane	BSP-N, Senior Quality Control Officer BSP-N, Research Officer BSP-N, Research Officer BSP-N, R&D Coordinator
15.00-17.00	Meeting with Mr. Prakash Ghimire, Mr. Bikash Pandey, Mr. Sushil K. Shrestha, Dr. Krishna B. Karki	Dev-Part, Managing Director Winrock International, Country Director EastConsult, Sector Director NARC, Senior Soil Scientist

<b>Friday, 21 January 2005:</b>		
09.00-10.00	Presentation of initial findings by Mr. Jan Lam and Mr. Wim J. van Nes	
10.00-13.00	Discussion on the initial findings by participants (see Annex 3)	
14.00-14.15	Brief meeting with Mrs. Subarna Rai	SNV/Nepal, NRM Advisor
15.00-15.15	Brief meeting with Mr. Anuj D. Joshi	SNV/Nepal, Advisor ID/OS
17.15-17.45	Brief meeting with Mr. Shekhar Aryal	NBPG, Chairman
<b>Sunday, 23 January 2005:</b>		
14.00-	Departure from Kathmandu by air	

## Annex 3: List of participants of the group discussion

Place: Blue Star Hotel, Kathmandu

SN	Name	Organisation
1.	Mr. Harihar Sigdel	BISEP-ST (CSU)
2.	Mr. Balaram Shrestha	BSP-Nepal
3.	Mr. Sundar Bajgain	BSP-Nepal
4.	Dr. Amrit B. Karki	BSP-N (Executive Committee)
5.	Mr. Surendra L. Shrestha	BSP-N (Executive Committee)
6.	Prof. U.M. Malla	BSP-N (Executive Committee)
7.	Mr. Prakash Ghimire	Dev-Part
8.	Mr. Sushil Shrestha	East Consult
9.	Mr. Horst Schwoerer	KfW
10.	Mr. Hari P. Regmi	Ministry of Finance
11.	Dr. Swoyambhu M. Amatya	Ministry of Science & Technology
12.	Dr. Krishna Karki	NARC, Soil Science Division
13.	Mr. Prashun Bajracharya	NBPG, Programme Manager
14.	Mr. Thakur Bhatta	NBPG (Board)
15.	Mr. Krishna C. Subedi	NBPG (Board)
16.	Mr. Felix ter Heegde	SNV/Vietnam
17.	Mr. Huub Peters	SNV/Nepal
18.	Mr. Sjoerd Nienhuys	SNV/Nepal
19.	Mr. Willem Boers	SNV/Nepal
20.	Ms. Subarna Rai	SNV/Nepal
21.	Mr. Lokendra Dhakal	WTLB (CSU)
22.	Mr. Ragu Laudari	AEPC
23.	Mr. Rajendra Gurung	WWF
24.	Mr. Narayan Bhattarai	ADB/N
25.	Mr. Jan Lam	SNV/Biogas Practice Team
26.	Mr. Wim J. van Nes	SNV/Biogas Practice Team

## Annex 4: Cost development of 4 and 6 m3 biogas plant

The Table below compares the cost (NPR) of the 4 m3 biogas plant under Terai conditions as included in the RESS proposal (FY 2000/01) to the cost of the same sized plant four years later (FY 2004/05). The latter cost has been corrected in the most right column for the following losses of quality introduced in BSP-IV:

- Deletion of mixer device (NPR 750) to lower the investment cost for the farmer
- Replacement of GI pipe by HDP pipe (net saving of NPR 510) for security reasons
- Decrease of participation fee from NPR 500 to 100
- Reduction of two bags of cement from 11 to 9 to lower the investment cost with NPR 800 for the farmer

The cost development is also linked with the development of subsidy rates and inflation rates<sup>7</sup>.

4 m3 biogas plant (Terai)	FY 2000/01	FY 2004/05	FY 2004/05 (corrected for loss of quality)
<i>Provided by company:</i>			
Appliances and fittings	4,820	3,068	4,328
Construction charge	4,100	4,300	4,300
Maintenance fee	600	600	600
Participation & QC fee	625	100	500
Total	10,145	8,068	9,728
Cost development	100.0%	79.5%	95.9%
<i>Managed by farmers:</i>			
Bricks	3,600	3,900	3,900
Sand	900	1,200	1,200
Gravel	360	600	600
Labour	1,200	1,500	1,500
Reinforcement rod	294	473	473
Cement	3,250	3,600	4,400
Total	9,604	11,273	12,073
Cost development	100.0%	117.4%	125.7%
Total plant cost	19,749	19,341	21,801
Cost development	100.0%	97.9%	110.4%
Subsidy	7,000	5,500	5,500
Net investment	12,749	13,841	16,301
Cost development	100.0%	108.6%	127.9%
Inflation rate	100%	> 117%	> 117%

A similar comparison has been made for the most popular size of plant, the 6 m3 biogas plant. For FY 2004/05, the cost has been corrected again in the most right column for the following losses of quality introduced in BSP-IV:

- Deletion of mixer device (NPR 750) to lower the investment cost for the farmer
- Replacement of GI pipe by HDP pipe (net saving of NPR 510) for security reasons
- Decrease of participation fee from NPR 500 to 100

<sup>7</sup> Assumed are the following inflation rates: 2.9% for FY 2001/02; 4.8% for FY 2002/03; 5.8% for FY 2003/04; and 2.7% for the first 4 months only of FY 2004/05



- Reduction of three bags of cement from 13 to 10 to lower the investment cost with NPR 1,200 for the farmer

6 m3 biogas plant (Terai)	FY 2000/01	FY 2004/05	FY 2004/05 (corrected for loss of quality)
<i>Provided by company:</i>			
Appliances and fittings	5,679	3,068	4,328
Construction charge	4,800	5,000	5,000
Maintenance fee	600	600	600
Participation & QC fee	625	100	500
Total	11,704	8,768	10,428
Cost development	100.0%	74.9%	89.1%
<i>Managed by farmers:</i>			
Bricks	4,200	4,550	4,550
Sand	1,050	1,400	1,400
Gravel	420	700	700
Labour	1,500	2,000	2,000
Reinforcement rod	294	473	473
Cement	4,160	4,000	5,200
Total	11,624	13,123	14,323
Cost development	100.0%	112.9%	123.2%
Total plant cost	23,328	21,891	24,751
Cost development	100.0%	98.8%	106.1%
Subsidy	7,000	5,500	5,500
Net investment	16,328	16,391	19,251
Cost development	100.0%	100.4%	117.9%
Inflation rate	100%	> 117%	> 117%

The following conclusions on the development of the costs over the period FY 2000/01 to FY 2004/05 can be made:

- The total cost of the 4 and 6 m3 biogas plants slightly decreased due to cosmetic operations that affected the quality of the installation
- After correction of this loss of quality, the total cost of 4 and 6 m3 biogas plants increased with 10.4% respectively 6.1%. This increase is less than the inflation rate being minimum 17%
- The increase of the total cost has been caused by the materials and labour managed by the farmer. These increased with 25.7% and 23.2% for the 4 and 6 m3 plants respectively after correction for the loss of quality
- The total cost of materials and services provided by the company after correction for the loss of quality decreased 4.1% and 10.9% for the 4 and 6m3 plants respectively!
- The net investment for the farmer after correction for the loss of quality and after deduction of the subsidy rate increased with 27.9% and 17.9% for the 4 and 6 m3 biogas plants respectively.