

E4ALL Working Group on Domestic Biogas

1. Introduction

In the framework of the Energy for All (E4ALL) Partnership, SNV Netherlands Development Organisation was invited by the Asia Development Bank (ADB) to lead the proposed Working Group on Domestic Biogas. After providing the background on SNV and its activities in domestic biogas, this paper presents the objective, activities, timeline, indicative budget and composition of the Working Group. Two activities are planned for execution in 2009.

2. SNV Netherlands Development Organisation

SNV is dedicated to a society where all people enjoy the freedom to pursue their own sustainable development. We contribute to this by strengthening the capacity of local organisations aiming at promoting sustainable development by means of generating production, income and employment opportunities, and of improving access to basic services including renewable energy. Our core activities are advisory services, knowledge brokering and development, advocacy, and setting up local capacity development funds. We are actively present in more than 30 countries across the world and employ more than 1,500 staff. The head office of SNV is in The Hague, the Netherlands¹.

A substantial part of SNV's work is financed by the Directorate General for International Cooperation (DGIS) of the Netherlands. The annual contribution from the Ministry allows us to implement our core programme. In the coming years (up to 2015) the close relations with the Ministry, including the Netherlands Embassies in the countries where we are operating, will be continued. SNV actively seeks to leverage impact through corporate and regional partnerships, including third party funding arrangements financed by other donor organisations. It is a strategic priority of SNV to diversify and broaden its funding sources in the coming years.

SNV presence in Asia started in 1980 in Nepal and has since expanded to Bhutan (1988), Vietnam (1995), Laos (2003), Cambodia (2005), Bangladesh (2005) and Pakistan (2009). At present, about 150 local and international advisors are employed in Asia operating in five sectors: renewable energy; water, sanitation and hygiene; smallholder cash crops; forest products; and pro-poor sustainable tourism.

3. SNV and domestic biogas

From 1989 onwards, SNV has been successfully involved in domestic biogas produced from animal manure and where possible in combination with human excreta. Supporting the establishment of a viable biogas sector in Nepal, distinctive experience and international recognition was gained and used in the beginning of the new millennium for up-scaling to Vietnam. From 2005 onwards, Cambodia, Bangladesh, Lao PDR, Pakistan and Indonesia were gradually added to the market-based biogas practice of SNV. The so-called 'multi-stakeholders sector development approach' applied by SNV is yielding results and has become a strategic asset². Up to December 2008, over 250,000 biogas plants have been installed in the Asian countries providing access to sustainable energy to almost 1.65 million people. Surveys indicate that minimum 90% of these plants are still in operation³. Equally important is the development towards sustainable, commercial biogas sectors in the respective countries and a supportive public environment. In each country, SNV partners-up with private sector (construction companies; financial service providers), public sector (regulation, standard-setting, policy) and local service providers. In addition, local financing, partnerships (with for example DGIS, KfW, FMO, WB and Hivos) and carbon funds (both in the compliance market as well as voluntary) are mobilised to increase the financial support to the sector.

¹ For more information on SNV, see www.snvworld.org

² *Building viable biogas programmes; success factors in sector development*. SNV, June 2008

³ Dissemination rates in India and PR China are much higher with about 4 million respectively 26 million units installed. Data on the operation rate of these units are difficult to obtain

In 2007, SNV supported the start of a national programme in Rwanda and more recently a partnership has been established for the implementation of national programmes in six other African countries (Ethiopia, Tanzania, Kenya, Uganda, Senegal and Burkina Faso). Knowledge networks have been actively set up since 2004, connecting professionals, policy makers, practitioners and scientists on domestic biogas around the world.

4. Objective of the Working Group

The objective of the Working Group on Domestic Biogas is the innovative dissemination of 1 (one) million domestic biogas plants in about 15 ADB member countries by 2015/2016, providing access to sustainable energy to about 5 million people (5% of the target set by the E4ALL). Equally relevant, an important contribution will have been made to the development of sustainable, commercial biogas sectors in these countries.

Based on a very first assessment on the technical potential number of biogas plants (see Annex 1), among others, the following countries may be included⁴: Bangladesh, Cambodia, China (one province), India (one state), Indonesia, Kazakhstan, Lao PDR, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam.

5. Activities of the Working Group

The Working Group will undertake the following activities:

- I. Participatory studies on the feasibility of domestic biogas in about 10 ADB member countries without a significant programme so far ("new biogas countries");
- II. Formulation of detailed implementation plans for feasible national programmes on domestic biogas in about 15 ADB member countries consisting of about 8 countries with an already ongoing programme ("existing biogas countries") and about 7 new countries;
- III. Establishment of a donor basket fund (grant) amounting to about Euro 300 million for the co-financing of the implementation of national programmes on domestic biogas in about 15 ADB member countries, covering the costs of programme support activities including investment incentive, technical assistance and fund management;
- IV. Contracting and implementation of national programmes on domestic biogas in about 15 ADB member countries including mobilisation of about Euro 180 million (loan) for the provision of biogas credit to livestock farmers;
- V. Networking and joint learning involving all relevant stakeholders in existing and new biogas countries, as well as experts around the world, among others through internet, workshops, study tours and joint research, resulting in supra-national synergies to increase efficiency, effectiveness, innovation and accelerated growth of the sector.

6. Timeline and indicative budgets

The following table provides the timeline and indicative budgets required to implement the activities of the Working Group:

SN	Activity	Timeline	Indicative budgets (EUR)
I	Feasibility studies	2009/2010	600,000
II	Formulation of implementation plans	2010/2011	900,000
III	Establishment of basket fund	2010/2011	Included under IV
IV	Implementation	2011/2016	-300 million as grant -300 million investment by farmers (cash/loan)
V	Networking/learning/innovation/R&D	2009/2016	1,200,000

Local, national and external resources will have to be mobilised at country or partnership level to finance all activities, if feasible in combination with carbon financing. Eligible households will

⁴ This outcome of this assessment still needs confirmation

finance the major part (on average 75%) of the capital costs of the biogas plants and 60% of the households are expected to use for this a credit.

7. Composition of the Working Group

The Working Group will be chaired by SNV and have two types of members:

- Support-oriented members being representatives from SNV, other supra-national suppliers of technical assistance, ADB, other possible donors/financers;
- Implementation-oriented members being representatives from the participating countries (maximum two per country) and reputed knowledge institutes (maximum five members in total)

The members of the Working Group will be put together gradually and meet twice every year. Also non-members may be invited to attend the meetings on an ad-hoc basis.

8. Kick-off activities in 2009

For the remainder of 2009, two activities are scheduled:

- Reconnaissance on the most suitable institutes and experts (policy, implementation, knowledge) from the key-countries PR China and India to be invited to the Working Group; and
- Organisation of an international workshop on domestic biogas in Kathmandu, Nepal, from 10-12 November, during which the E4ALL Working Group on Domestic Biogas will be formally launched.

It is proposed to finance these activities by SNV and ADB.

Based on the outcome of its meeting in Kathmandu, the Working Group will draft an annual work plan & budget for the year 2010.

SNV, 10 June 2009

Annex: Estimate of the technical potential number of biogas plants in ADB member countries

SN	Country	No. of Animals		Dung Production in Kg/day	Total no. of biogas plants feasible based upon availability of cattle and swine manure	Assumed Feasibility factor based upon temperature	No. of Biogas plant feasible based upon dung and temperature	Assumed Feasibility factor based upon availability of water	No. of Biogas plant feasible based upon dung, temperature and availability of water	Assumed Feasibility factor based upon farming practices as well as rural-urban scenario	No. of Biogas plant feasible based upon dung, temperature, availability of water and farming practices	Level of Feasibility for Large scale domestic Biogas Programme	% of households with biogas potential
		Cattle	Buffalo										
1	Afghanistan	4,500,000	-	-	1,080,000	0.3	324,000	0.3	97,200	0.5	48,600	Medium	1.0
2	Armenia	674,000	-	135,000	6,628,000	0.3	51,768	0.6	31,061	0.3	9,318	Very low	1.6
3	Azerbaijan	2,217,000	295,400	19,800	3,114,200	0.3	186,685	0.6	112,011	0.5	56,006	Medium	3.7
4	Bangladesh	25,900,000	850,000	-	6,327,000	1.0	6,327,000	0.9	5,694,300	0.9	5,124,870	Very High	21.3
5	Bhutan	385,000	2,000	-	4,790,000	0.5	47,900	0.6	28,740	0.7	20,118	Low	17.5
6	Cambodia	3,500,000	775,000	2,790,000	1,295,700	1.0	1,295,700	0.6	777,420	0.7	544,194	High	20.3
7	China	136,861,493	22,722,010	501,582,621	3,989,498,550	0.7	55,852,980	0.8	44,682,384	0.9	40,214,145	Very High	12.0
8	Cook Islands	300	-	-	67,200	1.0	1,344	0.8	1,075	0.3	323	Very low	16.1
9	Fiji	159,000	-	29,000	2,024,000	1.0	40,480	0.7	28,336	0.7	19,835	Low	12.6
10	Georgia	1,318,800	34,500	509,700	18,981,900	0.3	110,291	0.7	77,204	0.5	38,602	Low	5.0
11	Hong Kong, China	123	-	377,000	1,809,476	0.9	18,114	0.9	16,302	0.1	1,630	Very low	0.1
12	India	177,840,000	98,700,000	14,000,000	3,670,980,000	0.9	66,070,440	0.7	46,249,308	0.9	41,624,377	Very High	19.6
13	Indonesia	11,700,000	2,450,000	6,756,476	204,175,904	1.0	4,083,518	0.7	2,858,463	0.7	2,000,924	Very High	4.0
14	Kazakhstan	6,748,000	-	-	1,580,000	0.3	523,776	0.5	261,888	0.4	104,755	High	4.1
15	Kiribati	-	-	41,000	164,000	1.0	3,280	0.7	2,296	0.2	918	Very low	4.9
16	Korea, Republic of	2,860,000	-	9,850,000	70,960,000	0.5	703,600	0.9	633,240	0.2	126,648	High	1.3
17	Kyrgyz Republic	1,117,000	-	79,000	13,720,000	0.4	189,760	0.6	65,856	0.4	26,342	Low	2.9
18	Lao PDR	1,337,000	1,120,000	2,260,000	41,884,000	0.7	586,376	0.6	351,826	0.4	140,730	High	13.8
19	Malaysia	828,000	138,000	2,290,000	21,178,000	1.0	423,560	0.8	338,848	0.3	101,654	High	2.1
20	Maldives	-	-	-	-	1.0	-	0.8	-	0.5	0	Very low	-
21	Marshall Islands	-	-	15,000	60,000	1.0	1,200	0.7	840	0.3	252	Very low	2.3
22	Micronesia	14,000	-	-	168,000	1.0	3,360	0.7	2,352	0.5	1,176	Very low	6.6
23	Mongolia	2,167,900	-	7,000	26,042,800	0.1	52,088	0.4	20,834	0.4	8,334	Very low	1.2
24	Myanmar	12,500,000	2,820,000	6,300,000	217,900,000	0.9	3,915,000	0.7	2,740,500	0.9	2,466,490	Very High	27.3
25	Nauru	-	-	3,000	240	1.0	240	0.6	144	0.1	14	Very low	0.5
26	Nepal	7,044,280	4,366,800	989,430	153,991,080	0.7	2,155,875	0.7	1,509,113	0.9	1,386,201	Very High	26.6
27	Pakistan	29,800,000	27,300,000	-	764,700,000	0.8	12,235,200	0.6	7,341,120	0.8	5,872,896	Very High	25.0
28	Palau	82	-	1,343	6,356	1.0	127	0.7	89	0.3	27	Very low	0.8
29	Papua New Guinea	94,000	-	1,800,000	8,528,000	1.0	166,560	0.6	99,936	0.6	59,952	Medium	5.9
30	Philippines	2,650,000	3,365,000	13,250,000	135,275,000	0.9	2,434,950	0.7	1,704,465	0.5	852,233	High	5.1
31	Samoa	29,000	-	202,000	1,156,000	1.0	23,120	0.7	16,184	0.5	8,092	Very low	22.1
32	Singapore	200	-	260,000	20,848	1.0	20,848	0.9	18,763	0.1	1,876	Very low	0.2
33	Solomon Islands	13,600	-	54,000	379,200	1.0	7,584	0.7	5,309	0.1	531	Very low	0.5
34	Sri Lanka	1,222,960	318,920	94,210	19,936,520	0.8	396,730	0.7	277,711	0.8	222,169	High	5.2
35	Taipei	131,000	4,000	7,069,000	29,968,000	0.8	478,528	0.7	334,970	0.4	133,988	High	2.9
36	Tajikistan	1,418,000	-	600	17,018,400	0.3	102,110	0.5	51,055	0.5	25,528	Low	2.1
37	Thailand	6,480,876	1,748,548	8,381,122	137,448,190	0.9	2,474,067	0.8	1,979,254	0.8	1,583,403	Very High	9.6
38	Timor-Leste	171,000	110,000	346,000	5,086,000	1.0	101,720	0.6	61,032	0.8	48,826	Medium	25.9
39	Tonga	11,250	-	81,200	459,800	1.0	9,196	0.7	6,437	0.5	3,219	Very low	16.0
40	Turkmenistan	1,941,000	-	29,800	23,495,200	0.3	140,971	0.5	70,466	0.4	28,194	Low	3.5
41	Tuvalu	-	-	13,600	54,400	1.0	1,088	0.7	762	0.4	305	Very low	14.8
42	Uzbekistan	7,042,500	-	92,300	84,879,200	0.3	509,275	0.5	254,638	0.4	101,855	High	2.2
43	Vanuatu	156,000	-	63,000	2,124,000	1.0	42,480	0.6	25,488	0.4	10,195	Low	28.0
44	Vietnam	6,840,000	29,211,000	26,500,000	626,245,000	0.8	10,019,920	0.7	7,013,944	0.8	5,611,155	Very High	37.9
Total		456,801,394	196,326,176	607,903,102	10,855,721,776		172,052,809		125,843,182		105,602,870		