

Identification of Knowledge Institutes and Implementing Partner Organisations on Domestic Biogas in India in the framework of the Energy for All Partnership



Mission report by

SNV Netherlands Development Organisation:

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-Wim J. van Nes

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1. Introduction

The Energy for All Partnership (E4ALL) was launched in June 2009 at the Asia Clean Energy Forum in Manila as a regional response to the challenge of regional energy poverty. The Partnership provides a platform for cooperation, knowledge and technical exchange, innovation, and project development, bringing together key stakeholders from business, financial institutions, governments, and non-government organizations. The Partnership is focused on action, with a goal to provide access to energy to 100 million people in Asia and the Pacific region by 2015¹.

SNV Netherlands Development Organisation was invited by the Steering Committee of the Energy for All Partnership initiated by the Asian Development Bank (ADB) to lead a Working Group on Domestic Biogas. The objective of this Working Group is the innovative dissemination of 1 (one) million domestic biogas plants in about 15 Asian countries by 2015/2016, providing access to sustainable energy to about 5 million people. In addition, the Working Group aims to make an important contribution to the development of sustainable, commercial biogas sectors in these countries. SNV will actively pursue the achievements of these objectives as a follow-up of its present biogas practice in the region covering seven countries (Nepal, Vietnam, Bangladesh, Cambodia, Lao PDR, Pakistan and Indonesia)² through partnering, networking and knowledge brokerage, see Annex 1 for more information.

With more than 4 million units installed in the country so far, it is paramount to partner with dedicated, professional organisations in India engaged in knowledge brokerage on domestic biogas and implementation of innovative biogas programmes. In this respect, a mission was undertaken to India in April 2010 on which this document provides a brief report.

The mission team is very grateful to all respondents and informants for their time made available for discussion and for all other support provided to the mission.



Asian and Pacific Centre for Transfer of Technology

Field visit, Hassan district

2. Objective of the Mission

The objective of the mission was to identify and assess potential organisations in India willing and capable to be engaged as Knowledge Institute or Implementing Partner Organisation in the Working Group on Domestic Biogas under the Energy for All Partnership.

3. Time schedule, team composition, activities and limitations

The mission was undertaken by Dr. Govind Pokharel, Senior Renewable Energy Advisor of SNV/Asia and Mr. Wim J. van Nes, Renewable Energy Network Leader of SNV/Asia from 26 to 30 April 2010. Prior to the mission, its Terms of Reference was submitted for comment to the most important stakeholders in India. Finally, a total of six organisations and one expert were visited by the mission: Ministry of New and Renewable Energy (MNRE), Asian and Pacific Centre for Transfer of Technology (APCTT) of the Economic and Social Commission for Asia and the Pacific (ESCAP), Embassy of the Kingdom of the Netherlands (EKN) in New Delhi, The Energy and Resources Institute (TERI), SKG Sangha (Karnataka), and Punjab Energy

¹ For more information, see www.energyforall.info

² For more information, see www.snvworld.org/en/ourwork/Pages/Renewable%20Energy.aspx

Development Agency (PEDA), with Dr. K.C. Khandelwal as independent expert. Key respondents were met for interview and discussion and – where and when possible - brief field visits were paid. Annex 2 provides the itinerary of the mission.

Even after careful preparation, it goes without saying that it is impossible to get acquainted with all relevant stakeholders and activities on domestic biogas in India in a time span of just five working days...

4. Findings by organisation

The results of the meetings with the different organisations are summarised in Annex 3.



5. Overall findings and recommendations

The following are the main overall findings of the mission to India:

- All contacted organisations showed a medium to strong interest to be associated to the Working Group, especially related to activity V: networking, learning, innovation and R&D. In addition, some (implementing) organisations requested for financial support to (better) implement their programmes;
- It is recommended that the Working Group also engages - in addition to knowledge institutes and implementing partner organisations – with policy organisations (like MNRE). The visited organisations in India could then be classified as follows:

Type of organisation	Organisations in India visited by the mission
Policy organisation	-Ministry of New and Renewable Energy (MNRE)
Implementing Partner Organisation	-Punjab Energy Development Agency (PEDA) -SKG Sangha
Knowledge Institute	-The Energy and Resources Institute (TERI) -Asian and Pacific Centre for Transfer of Technology (APCTT)

It is also useful to maintain relations on technical innovation with the Councillor for Science and Technology of EKN/New Delhi.

Although all organisations showed interest to be associated with the Working Group, the mission observed differences in terms of willingness, ability and likely available financial resources to actively participate under E4ALL. Limited availability of time could be a constraint for cooperation, affecting for example the involvement of the representative from MNRE. However, the invitation from the Secretary of MNRE to host a future meeting of the Working Group in India is taken as a very positive sign. Nevertheless, the mission recommends the Working Group to associate with all visited organisations in India and to decide based on experience on the more formal membership only after some time.



Field visit, Hassan district

Field visit, Hassan district

- Against the background of the huge size of the domestic biogas programme in India and the large budgets being made available by the national and sometimes also state governments, it is not relevant for the Working Group to mobilise resources for the construction of additional biogas plants in India and add to 'business as usual'. However, support to selected programmes in India with innovative approaches would be very useful. Such approaches could for example focus on the introduction of biogas plants with more daily gas storage capacity and on the comprehensive use of bio-slurry. It is recommended that the Working Group provides technical support to the formulation of such innovative programmes and also assists the respective implementing organisation to mobilise financial resources required for the implementation of the programme.



Punjab Energy Development Agency

Field visit, Chandigarh

Annex 1: Working Group on Domestic Biogas under the Energy for All Partnership

1. Introduction

SNV Netherlands Development Organisation was invited by the Steering Committee of the Energy for All Partnership initiated by the Asian Development Bank (ADB) to lead a 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.

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 Netherlands³.

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 asset⁴. 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 operation⁵. 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, donor partnerships and carbon funds (both in the compliance market as well as voluntary) are mobilised to increase the financial support to the sector. 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, among others, the following countries may be included⁶: Bangladesh, Cambodia, China (limited area), India (limited area), 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

³ For more information on SNV, see www.snvworld.org

⁴ *Building viable biogas programmes; success factors in sector development*. SNV, October 2009

⁵ Dissemination rates in India and PR China are much higher with more than 4 million respectively 30 million units installed. Data on the operation rate of these units are difficult to obtain

⁶ This outcome of this assessment still needs confirmation

- 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:

<i>SN</i>	<i>Activity</i>	<i>Timeline</i>	<i>Indicative budgets (EUR)</i>
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 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 convened by SNV and have two types of members:

- Implementation-oriented members being representatives from the participating countries (Implementing Partner Organisations); and
- Support-oriented members representing among others knowledge institutes and donors (Supporting Partner Organisations).

November, 2009

Annex 2: Itinerary for the E4ALL Domestic Biogas Mission to India, April 2010

Date	Activities	Accommodation/location	Remark
Saturday, 24 April 2010	Arrival Wim van Nes from Dhaka	Check in Hotel Jyoti Mahal Palace	Hotel provides airport pick-up
Sunday, 25 April 2010	Arrival Govind Pokharel from Dhaka	Check in Hotel Jyoti Mahal Palace	Hotel provides airport pick-up
Monday, 26 April 2010	09.00-10.30: Preparation of the mission	In the hotel	
	11.30-12.15: Meeting with Dr. A.R. Shukla, Advisor (Bio-energy), MNRE	Block-14, CGO Complex, Lodhi Road, New Delhi - 110 003	Mobile: (0)9810585602
	12.30-13.15: Meeting with Dr. Deepak Gupta, Secretary, MNRE	Block-14, CGO Complex, Lodhi Road, New Delhi - 110 003	Contact: Mr. Shivsankaran, Principal Staff Officer Phone: 24361481
	15.00-16.00: Meeting with Mr. K. Ramanathan, Head, Asian and Pacific Centre for Transfer of Technology (APCTT) of UNESCAP	APCTT Building C-2, Qutab Institutional Area New Delhi - 110016	Mobile: (0)9818414594
	16.30-17.30: Meeting with Dr. K.C. Khandelwal		Mobile: 09929070365
Tuesday, 27 April 2010	09.00-11.30: Preparation and discussion	In the hotel	
	13.00-14.00: Meeting with Mr. Theo Groothuizen, Embassy of the Kingdom of the Netherlands, Councilor for Science and Technology	6/50F Shantipath Chanakyapuri New Delhi - 110021	Contact: Mr. Freek Jan Frerichs Telephone: 24197619
	14.30-15.30: Meeting with The Energy and Resources Institute (TERI), Mr. I.H. Rehman, Director	Darbari Seth Block, India Habitat Centre 6-C, Lodhi Road, New Delhi - 110 003	Contact: Mr. R.C. Pal, Field Manager Phone: 24682100/11 Mobile: (0)9873004665
	17.10-19.45: Flight from Delhi to Bangalore	Pick-up and hotel arrangement by SKG Sangha	Contact Mr. Vidya Sagar Devabhaktuni, President, mobile: 09844160038 and 09243436266
	Evening: Telephone call to Ms. Soma Dutta, Energia, Regional Network Coordinator, Asia		Mobile: 09818484790
Wednesday, 28 April 2010	Meeting with and field visit to Hassan district in Karnataka by SKG Sangha	Arrangement by SKG Sangha	
Thursday, 29 April 2010	10.00-12.30: Flight from Bangalore to Delhi		
	14.00-15.00: Flight from Delhi to Chandigarh	Pick-up and hotel arrangement by Punjab Energy Development Agency	Contact Mr. Balour Singh, Director, mobile: 09876693975
Friday, 30 April 2010	09.00-16.00: Meeting with and field visit by Punjab Energy Development Agency	Arrangement by Punjab Energy Development Agency	
	17.30-18.50: Flight from Chandigarh to Delhi		
Saturday, 1 May, 2010	Departure from India by Wim van Nes and Govind Pokharel		

Annex 3: Summary of the results of the meetings in India by organisation

<i>Name of the organisation:</i> Ministry of New and Renewable Energy			
<i>Brief description of the organisation:</i> The Ministry of New and Renewable Energy (MNRE) is the nodal Ministry of the Government of India for all matters relating to new and renewable energy, see www.mnre.gov.in . The broad aim of the Ministry is to develop and deploy new and renewable energy for supplementing the energy requirements of the country. The Central Sector Scheme on National Biogas Programme, which mainly caters to setting up of family type biogas plants, has been under implementation since 1981-82. National Biogas and Manure Management Programme (NBMMP) provides for central subsidy in fixed amounts, turn-key job fee linked with three years' free maintenance warranty; financial support for repair of old-non functional plants; training of users, masons, entrepreneurs, etc.; publicity and extension; service charges or staff support; State level Biogas Development and Training Centres (BDTC); etc. By the end of March 2010, more than 4.2 million domestic biogas plants have been installed in the country.			
<i>Date of meeting:</i> 26 April 2010		<i>Location of meeting:</i> New Delhi, CGO Complex	
<i>Persons met:</i> -Mr. Deepak Gupta, Secretary; -Mr. Atma Ram Shukla, Group Head, Biogas Programmes, R&D, Special Projects on Cook-stoves; -Mr. Anil Dhussa, Division Head, Waste to Energy;			
<i>Field visit:</i> -			
<i>Notes from the meeting:</i> -On 27 November 2009, the Government of India has issued a revised Central Sector Scheme on NBMMP for the remaining period of the 11 th Five year Plan (up to fiscal year 2011-12). Under this Scheme, 150,000 biogas plants are targeted every year with an annual budget of Rs. 1.5 billion. This budget is almost three times as high as the actual expenditures in the fiscal years 2007-08 and 2008-09; -Few of the special and innovative features of the Scheme are: Introduction of competitive bidding on pilot basis, large-scale installation of biogas plants through CDM co-financing, taking up implementation through biogas-fertiliser companies/entrepreneurs, establishment of innovative models for financing and implementation (5% of the budget), repair of old non-functional biogas plants and capacity building through various organisations; -The Scheme provides a list of approved models including pre-fabricated models based on High Density Polyethelene (HDPE), Fiber-glass Reinforced Plastic (FRP) and Reinforced Cement Concrete (RCC) material, in addition to ferro-cement and brick-masonry biogas plants. The Deenbandhu model with brick masonry is still the most popular model in India; -The Punjab Energy Development Agency (PEDA) is engaged in a CDM co-financing partnership with an investor who is about to sign an agreement on the sale of the emission reductions of 100,000 units (4 m3 gas output per day) to be installed in a period of three years; -The Secretary is dissatisfied on the very complex and costly procedure to arrive at CDM financing, and would welcome a session on this issue in the 2010 network meeting of the Working Group on Domestic Biogas; -As number of staff at MNRE is limited, it will be hard to free time for engagement in activities of the Working Group on Domestic Biogas. The Ministry, however, is ready to exchange knowledge on domestic biogas to other countries in Asia and invites the Working Group to organise one of its meetings in future in India;			
<i>Possible areas for cooperation with E4ALL Working Group on Domestic Biogas:</i> -Exchange of knowledge and experience on domestic biogas from India to other countries in Asia (if time permits); -Hosting a future network meeting of the Working Group on Domestic Biogas in India;			
<i>Contact person towards E4ALL Working Group on Domestic Biogas and Focal Point within the organisation:</i>			
Name:	Job position:	E-mail address:	Direct telephone:
Mr. A.R. Shukla	Group Head	shuklaar@nic.in	+91-11-24361604

<i>Name of the organisation:</i> Asian and Pacific Centre for Transfer of Technology			
<i>Brief description of the organisation:</i> The Asian and Pacific Centre for Transfer of Technology (APCTT) is a regional institution of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) servicing the Asia-Pacific region. It was established in 1977 with the objective of facilitating technology transfer in the Asia-Pacific region. All member states and associate members of UNESCAP are de facto members of APCTT. The Centre is headquartered in New Delhi with host facilities provided by the Government of India. The activities of APCTT are focussed on technology capacity-building, promotion and management of innovation as well as sub-regional and regional networking, with small and medium scale enterprises being the primary target group. In this direction, the Centre has focused on four specific areas of activity: Technology Information; Technology Transfer; Tech-Entrepreneurship Development; and Innovation Management, which are SME-oriented, IT-powered, environmentally responsible and gender conscious. APCTTT employs about 10 staff.			
<i>Date of meeting:</i> 26 April 2010		<i>Location of meeting:</i> New Delhi, Qutab Institutional Area	
<i>Persons met:</i> -Dr. K. Ramanathan, Head and Senior Economics Affairs Officer			
<i>Field visit:</i> -			
<i>Notes from the meeting:</i> -APCTT provides a number of technology transfer services to SMEs and intermediaries: Information on technology/business/investment opportunities; matching and pre-selection of prospective business partners; support services (market/feasibility studies, technology evaluation, contract negotiation); finance syndication (loan, venture capital, grants, incentives), and; product marketing; -APCTT uses the following technology transfer mechanisms: Partnerships with intermediaries (consultants, technology brokers, chambers of commerce, industrial associations, business information centres) offering complimentary technology transfer services; international networks of technology brokers; technology transfer databank; technology transfer periodicals which are disseminated in more than 70 countries all over the world, and business meets, workshops, training programmes; -The Centre searches for matching partners for its clients through various channels such as business periodicals, data banks, networks of technology brokers, and international business meets; -APCTT develops and implements programmes for building national capabilities to assist entrepreneurs and SMEs in the area of national and sub-national innovation systems; innovation and managing innovation; new and emerging technologies; renewable energy technologies; and green growth; -APCTT has focal points in several countries including Bangladesh, China, India, Indonesia, the Islamic Republic of Iran, Malaysia, Mongolia, Nepal, Pakistan, Philippines, Republic of Korea, Sri Lanka, Thailand, and Vietnam.			
<i>Possible areas for cooperation with E4ALL Working Group on Domestic Biogas:</i> -Methodological support on technology development and transfer (for example by applying the Cooper's stage-gate model) related to domestic biogas; -Cooperation in conducting regional courses in the area of domestic biogas; -Utilisation of the APCTT network in the region (in specific cases).			
<i>Contact person towards E4ALL Working Group on Domestic Biogas and Focal Point within the organisation:</i>			
<i>Name:</i>	<i>Job position:</i>	<i>E-mail address:</i>	<i>Direct telephone:</i>
Mr. K. Ramanathan	Head	kramanathan@apctt.org	+91-11-26856255

<i>Name of the organisation:</i> Embassy of the Kingdom of the Netherlands			
<i>Brief description of the organisation:</i> The Department of Science & Technology of the Embassy of the Kingdom of the Netherlands (EKN) in New Delhi (www.hollandinindia.org) is the Indian office of the international Network of Netherlands Officers for Science & Technology of the Ministry of Economic Affairs in the Netherlands. The Department supports R&D institutes, scientific institutions, businesses, industry associations, government and NGO's in the Netherlands by providing information about scientific and technological developments in India. The aim also is to promote Dutch Science & Technology in India and to present opportunities for S&T collaboration between India and the Netherlands and to facilitate contacts, exchange of information and initiatives for collaboration.			
<i>Date of meeting:</i> 27 April 2010		<i>Location of meeting:</i> EKN/New Delhi, Shanti Path	
<i>Persons met:</i> -Mr. Theo J.J. Groothuizen, Counsellor/Head of Science & Technology Department -Mr. Freek Jan Frerichs, Technical Scientific Attaché			
<i>Field visit:</i> -			
<i>Notes from the meeting:</i> -The Dutch Ministry of Economic Affairs employs also Officers for Science & Technology at other Netherlands Embassies in Asia, being China (Beijing, Shanghai and Guangzhou), Singapore and South-Korea (Seoul); -The Department is well connected to related, outstanding institutes in India including TERI, Indian Institutes of Technology and Indian Institutes of Management; -			
<i>Possible areas for cooperation with E4ALL Working Group on Domestic Biogas:</i> -Presentation to the staff of EKN/New Delhi during the next visit to India; -Utilisation of the network of the Department in India (in specific cases); -Involvement of (Dutch) students in activities like studies and surveys			
<i>Contact person towards E4ALL Working Group on Domestic Biogas and Focal Point within the organisation:</i>			
Name:	Job position:	E-mail address:	Direct telephone:
Mr. Theo Groothuizen	Counsellor	tg@nost-india.org	+91-11-24197625

<i>Name of the organisation:</i> The Energy and Resources Institute			
<i>Brief description of the organisation:</i> The Energy and Resources Institute (TERI, www.teriin.org) was formally established in 1974 and has grown substantially over the years, particularly, since it launched its own research activities and established a base in New Delhi, its registered headquarters. The central element of TERI's philosophy has been its reliance on entrepreneurial skills to create benefits for society through the development and dissemination of intellectual property. At present, TERI employs more than 700 staff from diverse disciplines such as engineering, economics, natural and social science, biotechnology, architecture, public policy, information science and administration in New Delhi and other offices in India, Washington, London, Dubai, Petaling Jaya (Malaysia) and Tokyo.			
<i>Date of meeting:</i> 27 April 2010		<i>Location of meeting:</i> New Delhi, India Habitat Centre	
<i>Persons met:</i> -Mr. Ibrahim Hefeezur Rehman, Director, Social Transformation Division; -Mr. R.C. Pal, Field Manager, Rural Energy Technology.			
<i>Field visit:</i> -			
<i>Notes from the meeting:</i> -More than 20 years ago, TERI has developed a spherical type of biogas plants with less chance of dome failure, increased gas storage and maximised hydraulic retention time; -In 1992, TERI conducted a survey covering 80 biogas plants in 27villages in Haryana state. Only 20% of the plants were still functioning; -TERI developed a LDPE liner method to repair non-functional biogas plants due to dome gas leakage. Several glues were tested and four plants were rectified; -TERI is definitely interested to associate with the E4ALL Working Group.			
<i>Possible areas for cooperation with E4ALL Working Group on Domestic Biogas:</i> -TERI may be involved as a knowledge institute undertaking independent surveys, assessments, studies and innovations.			
<i>Contact person towards E4ALL Working Group on Domestic Biogas and Focal Point within the organisation:</i>			
<i>Name:</i>	<i>Job position:</i>	<i>E-mail address:</i>	<i>Direct telephone:</i>
Mr. Ibrahim H. Rehman	Director	ihrehman@teri.res.in	+91-11-24682100

<i>Name of the organisation:</i> SKG Sangha			
<i>Brief description of the organisation:</i> SKG Sangha (www.skgsangha.org) is a non profit voluntary organisation founded in 1993 in India focussing on sustainable energy, sustainable agriculture, rural industrialisation, solid waste management and optimising natural resources. Initially, the organisation has been working in the states of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu in southern part of India, but more recently also the states of Meghalaya and Manipur in north east of India and West Bengal have been included. SKG Sangha facilitated the installation of more than 90,000 family size biogas plants and more than 200,000 improved, fuel efficient wood fuel stoves. Other activities include vermin-composting, PV, solar water heaters and rain water harvesting.			
<i>Date of meeting:</i> 27-29 April 2010		<i>Location of meeting:</i> Bangalore-Hassan district & vv	
<i>Main persons met:</i> -Mr. D. Vidya Sagar, President -Mr. K. Kiran Kumar, Secretary			
<i>Field visit:</i> A field visit was undertaken in Hassan district, about 200 km west of Bangalore. Several domestic biogas plants – both constructed and under construction – were visited. A brief visit was paid to the Area Administration Office of SKG Sangha in Hassan where several forms related to the biogas practice were presented.			
<i>Notes from the meeting:</i> -To improve the use of bio-slurry, SKG Sangha has introduced Vermi composting using earthworms for composting organic residues. Earthworms have the capacity to eat as much matter as their own weight and produce the same amount of manure per day in the form of castings. More than 1,500 units have been installed. Started initially with the financial support from CAPART, a Government of India organisation and continuing with VER revenues; -SKG Sangha is run by a governing body responsible for decision making and planning. Mr. Sagar has overall responsibility for the organisation, while Mr. Kumar is responsible for project implementation. About 20 full-time staff run the biogas programme, with supervisors and masons employed on a piece-work basis; -Nowadays, no use is made of the government subsidy scheme on domestic biogas but of international funding and carbon financing; -Households under the SKG Sangha programme invest between 20 to 40% of the total capital costs only; -Basically, the Deenbandhu design is used by SKG Sangha having a storage capacity of about 33% of the daily gas production. Against the background of the gas consumption pattern of the very average biogas household, an increase to 50% may be recommended; -The NGO is engaged in carbon market projects as well, has achieved one voluntary scheme successfully, but has been facing challenges with the performance of the DOE (Designated Operational Entity); -SKG Sangha was among others rewarded by Sustainable Energy Association Award 2006, Ashden Award for Sustainable Energy (Food Security) 2007, and the Mother Teresa Excellence Award 2008; -Students from India and other nations are trained to get on site practical knowledge; -SKG Sangha is also undertaking some biogas activities in Kenya, Uganda and Ghana and is planning some activities in Sudan, Liberia and Central America;			
<i>Possible areas for cooperation with E4ALL Working Group on Domestic Biogas:</i> -Exchange of knowledge and experience from SKG Sangha to other countries in Asia; -Design and implementation of innovative programmes;			
<i>Contact person towards E4ALL Working Group on Domestic Biogas and Focal Point within the organisation:</i>			
Name:	Job position:	E-mail address:	Direct telephone:
Mr. D. Vidya Sagar	President	skgsangha@gmail.com	+91-9243436266

<i>Name of the organisation:</i> Punjab Energy Development Agency			
<i>Brief description of the organisation:</i> The Punjab Energy Development Agency (PEDA, www.peda.gov.in) was formed in September 1991 as a nodal agency for promotion and development of non-conventional and renewable energy programs or projects in the State of Punjab in India. Through its mission statement "PEDA - Working towards a Sustainable Energy future", the Agency is undertaking various activities including domestic biogas, solar energy, biomass projects and hydro power.			
<i>Date of meeting:</i> 29 and 30 April 2010		<i>Location of meeting:</i> Chandigarh	
<i>Main persons met:</i> -Mr. Balour Singh, Director; -Mr. Ravinder Singh, Joint Director;			
<i>Field visit:</i> A short field visit was undertaken to observe the functioning of two biogas plants near Chandigarh.			
<i>Notes from the meeting:</i> -The technical potential on the number of domestic biogas plants in Punjab State is about 425,000. By the end of 2009, around 70,000 units have been installed; -The size of most of the biogas plants in Punjab is big having a capacity between 4 and 6 m ³ (gas production per day); -The biogas programme is being implemented with the active participation of turnkey workers who have been trained by Punjab Agricultural University (PAU) in Ludhiana. The turnkey workers arrange a trained mason for installation of the plant, helps the beneficiary for procuring good quality material which includes burners and other fittings; -PEDA is in the process to cooperate with a buyer of certified emission reductions composing of 100,000 units (4 m ³) in a period of three years. The estimated CERs per unit per year are estimated to be 6, with a price of EUR 10 per CER;			
<i>Possible areas for cooperation with E4ALL Working Group on Domestic Biogas:</i> -Exchange of knowledge and experience from PEDA to other countries in Asia; -Design and implementation of innovative programmes including carbon-financing.			
<i>Contact person towards E4ALL Working Group on Domestic Biogas and Focal Point within the organisation:</i>			
<i>Name:</i>	<i>Job position:</i>	<i>E-mail address:</i>	<i>Direct telephone:</i>
Mr. Ravinder Singh	Joint Director	rav_inder@peda.gov.in	+91-172-2667007

<i>Name of the expert:</i> Dr. Kailash C. Khandelwal			
<i>Brief description of the informant:</i> Dr. K.C. Khandelwal has served for more than 25 years in the Ministry of New and Renewable Energy (MNRE) and carries in-depth knowledge and experience on domestic biogas programme development. Since his retirement from service in December 2006, he is undertaking different consultancies in the area of biogas, biofuels, biomass and organic farming.			
<i>Date of meeting:</i> 26 April 2010		<i>Location of meeting:</i> New Delhi	
<i>Persons met:</i> -Dr. K.C. Khandelwal, Consultant			
<i>Field visit:</i> -			
<i>Notes from the meeting:</i> -It would be useful to design and implement innovative programmes in India through different actors, possibly one through an NGO and another one through a government agency;			
<i>Possible areas for cooperation with E4ALL Working Group on Domestic Biogas:</i> -Exchange of knowledge and experiences from participating countries to India and vice versa; -Consultancies; -R&D, testing of biogas appliances and new designs, etc.; -Training, seminars, exhibitions, etc.			
<i>Contact person towards E4ALL Working Group on Domestic Biogas and Focal Point within the organisation:</i>			
<i>Name:</i>	<i>Job position:</i>	<i>E-mail address:</i>	<i>Direct telephone:</i>
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