



EIE-06-256 REEPRO



Promotion of the Efficient Use of Renewable Energies in Developing Countries

Show Case documentation

**Show Case No.: 10
Takeo Province**

Authors

Uch Rithy, COMPED
Antje Klauß-Vorreiter, DGS

December 2009

1 Show case documentation

Type of Equipment: (tick off the type)	PV	Solar Thermal	Biomass to Energy	
			✓	
Name:	Farmer's biodigester plant			
Location of the equipment:	Prey Prom Village, Pro Kabas commune, Prey Kabas District Takeo Province			
Year of purchasing:	2008			
Operator: (Name and address)	Tot Son Prey Prom Village, Pro Kabas commune, Prey Kabas District Takeo Province			
Planner: (Name and address)	Samrith Kim, NBP construction company with the supervision of Kheang Vannthy, Takeo province			
Detailed description of the installation: (technology, function, benefit for training, etc. max 150 words)	It is 4m ³ NBP biodigester plant, which has detail as below: <ul style="list-style-type: none"> • Storage capacity of modified plant 50%, the original model only 30% per day. Farmer will have enough gas for cooking. • Hydraulic retention times is up to 40 days depend on climate in Cambodia, • Location and size of outlet are modified to simplified the flow out of digester by gas pressure and gravity, • Simplified the manhole for enter during maintenance, • Intern of dome (gas storage) will be spread with cement-acrylic emulsion, • Inlet is modified in order to reduce construction cost, • Dick of wall is modified according construction material offered at the market in Cambodia and • The outside wall plaster is thin necessary for reduce also the construction cost. 			
Generated Energy service: (tick off the energy type)	electricity	heat	gas	light
			✓	✓
Power output of installation: (kWel, m³ biogas, kW th, etc.)	1.2 m ³ /day			
Financing* (tick off the financing type)	private investment	loan	donation	grant
	✓	✓		
Investment costs in US\$*	USD 400			
Maintanance costs in US\$*	0			
Savings US\$ per month	<ul style="list-style-type: none"> • Fuelwood: 6Kg/day costs USD 9/month • Charcoal: 2Kg/day costs USD 4.5/month • Kerosen: 0.7l/day costs USD 13.8/month 			
Energy sale income	No			

in US\$*	
Comments	<p>After the result of the training in July 2009, there were more biodigester plants constructed in the community area . The increase is counted up to Jan 2010.</p> <ul style="list-style-type: none">- Prey Kabas: 82 biodigester
Pictures	
	
	

2 Show case development and operation

2.1 Project side survey

A case study within Prey Kabas commune, Prey Kabas district, Takeo province was selected because it should be an existing model for the others in order to promote more biodigester construction by showing many benefits given by biogas plant solving with the constrains the farmers are facing at the moment. As the mater of fact, it is due to:

- Firewood which is the only energy source in the area is becoming a scare resource; and
- Harmful environmental awareness about the chemical fertilizer and farm soil quality is becoming infertile

Most important points are:

- Because micro-financing channel is already existing in the area and it is under the coverage province of NBP, which is leading in the construction of biogas plant in Cambodia;
- Good management, responsibility and personal characteristics of the operators of the biogas plant;
- NBP masons are locally available for the construction; and last but not least,
- Accessible infrastructure to the case study site

These all points mentioned above are contributing REEPRO and NBP cooperate smoothly in case of providing training and practice by making use of the showcase promoting and extension of biogas application.

During the project survey, it found that within Prey Kabas commune, Prey Kabas district, Takeo province, there are 94 biodigester plants constructed in 2008 and dispersing in the area. One prominent farmer, who has the biodigester plant of 4m³ was selected as a case study in Prey Prum village (having 33 4m³ biodigester plants), Prey Kabas commune, Prey Kabas district, Takeo province because the householder has mixed farming system and multiple cropping.

2.2 Show case definition workshop

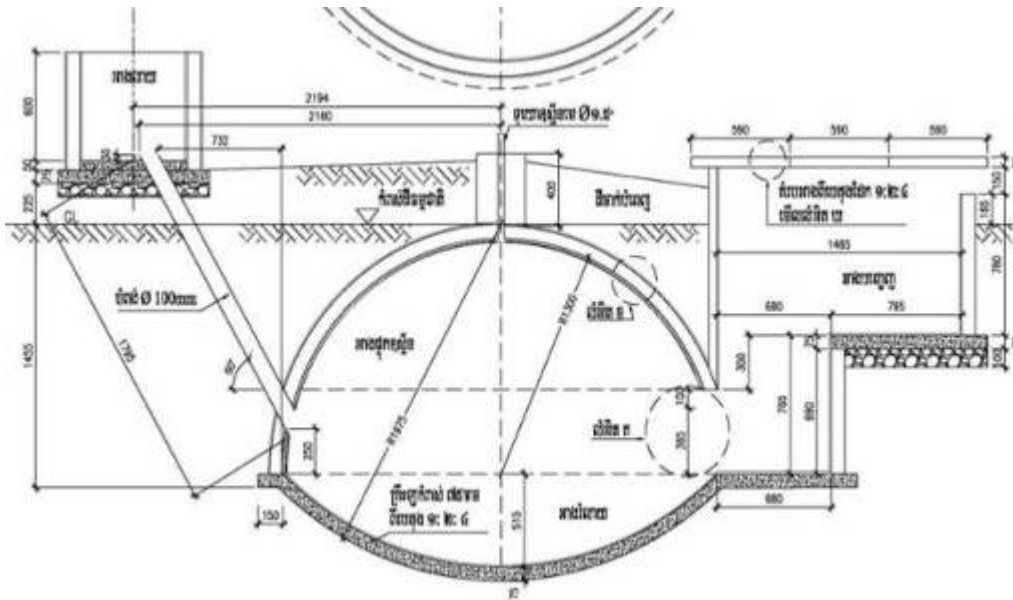
The case study was selected in the frame of REEPRO project in line with NBP cooperation. A workshop was given for the villagers, biogas owners, teachers and authorities on the background of REEPRO project in Cambodia and Lao and the training content focussing on Biogas Plant Technique, Slurry Extension. Since most of the villagers are farmers, so they are happy in having the biogas plants not only serving for energy supply but also for fertiliser, feeding animals, earth worms and fishes.

2.3 Showcase planning

Below is the biogas plant component and construction:

- (1) Mixing tank
- (2) Inlet pipe
- (3) Digester tank

- (4) Gas storage /dome
- (5) Manhole
- (6) Outlet tank
- (7) Gas outlet pipe.



2.4 MOU on showcase project

Base on the MOU between NBP and COMPED, the two case studies were selected. One case study is in Svay Rieng province and another one is in Takeo province.

MEMORANDUM of UNDERSTANDING
Cooperation in Biodigester Dissemination

Between

National Biodigester Programme Cambodia (hereinafter "NBP"),
Legally represented by **Mrs. Lam Saoleng**, Programme Coordinator, being the first party.

and

Cambodian Education and Waste Management Organization (hereinafter "COMPED" as
REEPRO local project manager in Cambodia),
Legally represented by **Mr. Chau Kim Heng**, Director, being the Second party

WHEREAS

Both parties are dedicated to a sustainable rural development including access of the rural people to permanent and clean energy sources provided on a commercial, market oriented basis as well as the promotion of organic fertiliser use;

AND

The COMPED is a non-governmental organization established in 2000 and officially registered at the Ministry of Interior in April 2003. Its purposes and goals are:

1. To cooperate with the authorities in dealing with the waste crisis in Phnom Penh, saving the environment and exchanging experiences with farmers, and promoting the quality of agricultural soil by using compost.
 2. To cooperate with the royal government of Cambodia in developing the educational field by providing more educational opportunities for children and adults and by building more schools.
 3. To cooperate with the German association called "Thüringisch Kambodschanische Gesellschaft" (TKG) in seeking for sponsorships for some disadvantaged children by finding them German Godparents, building schools, and operating the composting plant.
- and

Since 2007 COMPED is implementing three years project called Promotion of the Efficient Use of Renewable Energies in Developing Countries –REEPRO.

The project is motivated by the fact that poor household in developing countries often lack access to basic energy services. The proposed of the project shall lead to the provision of energy services to those currently un-served and underserved by higher quality energy services on the basic of an introduction of renewable energies and energy efficiency.

AND

The NBP which is the National Programme of the Ministry of Agriculture, Forestry and Fisheries was established since 2005. The programme's overall objective is the dissemination of domestic biodigesters as an indigenous, sustainable energy source through the development of a commercial, market oriented, biodigester sector in selected provinces of Cambodia.

Over the period 2006 till December 2012, 22 000 biodigesters are to be constructed under NBP. The programme supports biodigesters farmers financially by the provision of a US\$ 150 subsidy per plant, provides training in effective plant operation and on bio slurry (fertiliser) use.

THEREFORE

COMPED and the NBP shall cooperate in doing promotion of bio-digesters and the extension on bio-fertiliser use and commit themselves to the following:

1. COMPED accommodates approximately 0.5 hectare of land with a very nice training center in Cheung EK. In the training center compound there are an operating biodigester, a cross-cut sample of biodigester and fruit trees as well as some crops..
2. COMPED will use a part of the available land for developing a demonstration farm (Home garden) for students, trainees and other visitors who are interested in biogas technology or farming system or do more research on bio-slurry and compost use at least until the end of 2010.
3. COMPED will cooperate with the Slurry and Extension officer of NBP to design home garden demonstration and other necessary integrated farming at the training center.
4. NBP will support COMPED with resource person for necessary training, promotion and extension materials, and other publications available.
5. NBP will provide technical support and necessary input (seeds and necessary materials) for developing this home garden around 300 USD per year while COMPED will fill the land and make drainage system and provide sufficient staff to manage demonstration farming. All products from this demonstration farm will be managed by COMPED. The detailed demonstration activities will be annexed.
6. COMPED will provide financial support (catering, accommodations, and training facilities) to NBP to organize two training courses for PBPO technicians (Mason or supervisors) while travel cost and logistic as well as resource persons will be the burden of NBP.
7. COMPED will provide additional financial support for NBP trainees (travelling, food, admin, and accommodation) to organize five propagation campaigns for local communities or user training courses in some provinces of NBP targeted provinces. The detailed trainings will be annexed.
8. The validity of this Memorandum of Understanding will be until the end of the 2010.
9. Any disputes relating to this MoU will be settled in mutual consideration.

Signed in three copies (1 copy for COMPED, 1 copy for NBP and 1 copy to REEPRO).

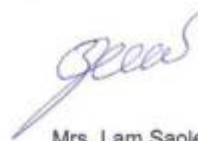
Phnom Penh, date: 17 June 2009

For COMPED



Mr. Chau Kim Heng
Director

For NBP



Mrs. Lam Saoleng
Programme Coordinator



2.5 Show case implementation

Thanks to the NBP programme that now there are more than 5,000 biodigester plants in Cambodia. There was a training course for level 3 (community level) in the case study area.

The material was wholly supervised by NBP and installed by NBP construction company trained by NBP.

The show case was to promote and disseminate about the function and benefit of biogas plant in the province economically, environmentally and socially.



2.6 Show case operation

The biodigester plant provide many benefits for the farmer such as:

- Energy for cooking three times per day
- Lighting for children to study at night time for about 4 hours per day
- Slurry for his whole farming system such as cropping, fishery and earth worm raising for ducks
- The area around the house is clean from cow dung
- The farmer can have more time for earning from other business



2.7 Show case supervision

As the result of two Level 2 training of REEPRO at COMPED training centre in Phnom Penh, the NBP mason companies were trained to provide more knowledge on construction technique, rule and review progress and problem and QC and CR and discussion; highlighted the critical point on the construction manual, principle of biogas plant construction. The NBP supervisor has checked the biodigester function well or not after the construction or in case of any call from the farmers.

Biogas Plant in Takeo Province

Size 4m³

No. of District	District	Commune	Village	Size 4m ³
1	Angkor Borei	Ba Srae	Svay Cheung	7
		Ba Srae	Prey Ba Soeng	1
		Ba Srae	Ta Ei	1
		Ba Srae	Roka	3
		Angkor Borei	Tuol Sang Kha	5
		Prey Phkoam	Prey Phkoam Ko	11
		Angkor Borei	Prey Sambuor	1
		Angkor Borei	Tuol Sang Ka	3
		Ponley	Ampil	2
		Prey Phkoam	Prey Phkoam Ka	1
		Ba Srae	Rumluk	1
		Prey Phkoam	Ta Mung	1
		Preaek Phtoul	Angkor	2
		Ba Srae	Ba Srae	2
		Prey Phkoam	Yea P'aeu	1
		Ba Srae	Svay Tboung	1
2	Bati	Chambak	Kanlaeng Khla	3
		Tnaot	Thmei	2
		Doung	Kandal	3
		Chambak	Seiha	1
		Tnaot	Prey Chob	1
		Komar Reachea	Serei Mean Chouk	1
		Krang Leav	Srei Krong Reach	1
		Trapeang Krasang	Tuek Thla	4
		Trapeang Krasang	Kou Duol	2
		Krang Leav	Sameakki	1
		Krang Leav	Prohut	1
		Krang Leav	Ta Paen	2
		Komar Reachea	Kanhchang	1
		Krang Leav	Trach Koh	1
		Chambak	Boeng Leach	1
		Chambak	Mreah Prov	1
		Doung	Pramoul Sokh	8
		Doung	Yuthka	8
		Doung	Krang Prateal	5
		Tnaot	Ta Non	3
		Pea Ream	Chumrov	1
		Pea Ream	Khnar ROUNG	2
		Tnaot	Pey	1
		Pea Ream	Khnar Thum	1
3	Bourei Cholsar	Doung Khpos	Doung Khpos	1
4	Doun Kaev	Roka Krau	Trapeang Angk	4
		Roka Knong	Snao	1
		Baray	Svay Ruessei	1
		Roka Knong	Chak	1
		Baray	Svay Chrum	1
		Roka Krau	Trapeang Sala	1
		Roka Krau	Tom	1
		Baray	Chrouy Samraong	2

		Baray	Krang Ta Pung	1
5	Kaoh Andaet	Pech Sar	Chontol Mekh	2
6	Kiri Vong	Ream Andaeuk	Trapeang Run	9
		Ream Andaeuk	Kouk Roka	2
		Kouk Prech	Kbal Damrei	2
		Ream Andaeuk	Trapeang Khchau	1
		Angk Prasat	Phngeas	6
		Ta Ou	Krasang Pul	1
		Ream Andaeuk	Pongro	4
		Ta Ou	Daom	1
7	Prey Kabbas	Tang Yab	Trapeang Tea	3
		Prey Phdau	Trapeang Thum	1
		Prey Kabbas	Prey Kabbas Ka	5
		Ban Kam	Doung Khpos	1
		Kdanh	Samdach Poan	3
		Kampeaeng	Kampeaeng Tbound	4
		Snao	Krang	1
		Kdanh	Trapeang Svay	1
		Kampeaeng	Ta Mung	1
		Tang Yab	Krang Ampil	1
		Prey Kabbas	Prey Kabbas Kha	15
		Prey Kabbas	Prey Prum	31
		Pou Rumchak	Prey Ta Pong	4
		Prey Phdau	Dong	3
		Tang Yab	Snuol Khpos	3
		Prey Phdau	Prey Chheu Teal	6
		Prey Kabbas	Ou	6
		Prey Kabbas	Pech Changva	7
		Ban Kam	Ta Vong	4
		Prey Kabbas	Ampil Rieng	5
		Angkanh	Pring	5
		Prey Phdau	Prey Phdau Cheung	1
		Prey Kabbas	Trapeang Krouch	3
		Prey Kabbas	Prey Kabbas Ko	16
		Angkanh	Roka	1
		Ban Kam	Pontong	1
		Prey Lvea	Lvea Tnaot	2
		Angkanh	Angkanh	3
		Angkanh	Ba Noy	2
		Prey Phdau	Kouk Trea	2
		Pou Rumchak	Kouk Angkong	2
		Champa	Ruessei Thmei	2
		Champa	Champa	1
		Tang Yab	Prey Chambak	1
		Prey Phdau	Saiva	1
		Angkanh	Phsar Chreae	1
		Prey Lvea	Prey Lvea Lech	1
		Prey Kabbas	Daeum Pou	1
8	Samraong	Rovieng	Prey Snuol	1
		Cheung Kuon	Cheung Kuon	3
		Cheung Kuon	Trapeang Vihear	11
		Trea	Saen Pheas	1
		Sla	Angk Chang'er	2
		Chumreah Pen	Ponlueu	1
		Rovieng	Daeum Thlok	2
		Sla	Sla Lech	11

		Sla	a Roung	12
		Boeng Tranh Khang Cheung	Angk Reang	4
		Cheung Kuon	Tbach	1
		Boeng Tranh Khang Tbound	Boeng Tranh	4
		Chumreah Pen	Ta Yueng	2
		Khvav	Khvav	1
		Boeng Tranh Khang Tbound	Khnar Rung	1
		Boeng Tranh Khang Cheung	Bei Pey	1
		Samraong	Prey Totueng	2
		Sla	Kanhchang	7
		Rovieng	Taol	1
		Sla	Srei Prasaeur	3
		Rovieng	Veay Chhneah	1
		Cheung Kuon	Ta Khouy	1
		Sla	Sla Kaeut	3
		Sla	Trapeang Trav	2
		Soeng	Krang Traeng	1
		Cheung Kuon	Ta Mau	6
		Rovieng	Rovieng	1
		Chumreah Pen	Trapeang Khnar	1
		Rovieng	Thmei	1
		Boeng Tranh Khang Tbound	Moha Reach	1
		Boeng Tranh Khang Cheung	Romon	2
		Rovieng	Trapeang Trea	1
		Rovieng	Kok Ta Rie	2
		Rovieng	Krang Thnong	8
		Sla	Ampil	6
		Sla	Srei Bandit	6
		Trea	Trea Leu	1
		Samraong	Samraong	1
		Sla	Boeng Kantron	3
		Rovieng	Trapeang Snang	1
		Soeng	Soengk	1
		Samraong	Tuol Char	1
		Rovieng	Dak Por	1
		Chumreah Pen	Srae Ta Sok	1
9	Tram Kak	Ou Saray	Tnaot Chum	1
		Popel	Trapeang Kak	4
		Angk Ta Saom	Angk Ta Saom	6
		Trapeang Thum Khang Cheung	Peak Bang'aong	9
		Trapeang Thum Khang Cheung	Prey Dak Por	3
		Ou Saray	Trapeang Khchau	2
		Kus	Saen Aok	2
		Popel	Trapeang Pring	1
		Ou Saray	Trapeang Dang Tuek	2
		Kus	Pong Tuek Tbound	1
		Cheang Tong	Ta Koem	1
		Leay Bour	Kach Trak	1
		Angk Ta Saom	Trapeang Chaeng	1
		Popel	Cham Pol	2
		Tram Kak	Thma Kaev	1
		Cheang Tong	Ti Pat	3
		Kus	Kus Thmei	2
		Angk Ta Saom	Srok Chek	1
		Nhaeng Nhang	Slaeng Kaong	1
		Samraong	Chan Teab	1

		Srae Ronoung	Trapeang Tonloab	1
		Srae Ronoung	Trach	4
		Srae Ronoung	Thum	5
		Cheang Tong	Srae Khvav	1
		Tram Kak	Chrey Tnaot	1
		Otdam Souriya	Prab Siem	1
		Ta Phem	Ba Khong Khang Lech	1
		Nhaeng Nhang	Kamsei	4
		Otdam Souriya	Trapeang Run	2
		Srae Ronoung	Kouk Rovieng	2
		Otdam Souriya	Trapeang Trakiet	1
		Popel	Prey Mien	2
		Angk Ta Saom	Trapeang Srangae	1
		Nhaeng Nhang	Ta Tai	3
		Angk Ta Saom	Ou Phot	1
		Srae Ronoung	Sameakki	1
		Ta Phem	Ta Koam	2
		Srae Ronoung	Srae Thlok	1
		Kus	Tmat Pong	1
		Samraong	Paen Meas	2
		Trapeang Thum Khang Cheung	Prey Kduoch	3
		Trapeang Thum Khang Tbound	Trapeang Chhuk	1
		Tram Kak	Trapeang Khlout	1
		Srae Ronoung	Chrey Veang	1
		Angk Ta Saom	Prey Chheu Teal Leu	1
		Samraong	Krang Banteay	1
		Trapeang Thum Khang Cheung	Prey Dak Por	1
		Leay Bour	Prey Theat	1
		Popel	Trav Aem	1
		Trapeang Thum Khang Cheung	Ta Suon	2
		Tram Kak	Trapeang Chak	1
		Kus	Prey Snuol	1
		Leay Bour	Trapeang Trach	2
		Otdam Souriya	Dang Van	1
		Cheang Tong	Tuol Roka	1
10	Treang	Srangae	Kouk Ampov	1
		Thlok	Samna Khmau	1
		Tralach	Tralach	1
		Prey Sloek	Prey Sloek	1
		Sambuor	Rovieng	3
		Khvav	Ta Sraen	1
		Prey Sloek	Srae Chrak	2
		Khvav	Sama Kraom	1
		Angk Khnaor	Kor	1
		Prey Sloek	Prey Mien	1
		Khvav	Kdey Run	2
		Sanlung	Angk Prangk	1
		Khvav	Angk Run	1
		Prey Sloek	Prey Sandaek	3
		Tralach	Kantuot Thum	1
		Thlok	Prey Veang	2
		Sambuor	Pou	1
		Angk Khnaor	Trapeang Prei	2
		Khvav	Sama Leu	1
Total				543

Size 6m³

No. of District	District	Commune	Village	Size 6m ³		
1	Angkor Borei	Preaek Phtoul	Kampong Pou	4		
		Angkor Borei	Tuol Sang Kha	3		
		Ba Srae	Svay Cheung	9		
		Ba Srae	Ba Srae	16		
		Ba Srae	Svay Tboundg	8		
		Ponley	Sramok	5		
		Preaek Phtoul	Phnum Borei	2		
		Prey Phkoam	Ta Mung	7		
		Preaek Phtoul	Angkor	9		
		Prey Phkoam	Yea P'aeu	18		
		Ba Srae	Roka	2		
		Ponley	Thlok Yol	4		
		Prey Phkoam	Prey Phkoam Ko	13		
		Ba Srae	Prey Ba Soeng	2		
		Ba Srae	Ta Ei	6		
		Angkor Borei	Prey Sambuor	6		
		Angkor Borei	Tuol Sang Ka	3		
		Ponley	Ampil	5		
		Angkor Borei	Kampong Luong	6		
		Angkor Borei	Stueng Kambot	2		
		Angkor Borei	Sameakki	1		
		Ba Srae	Rumlok	2		
		Prey Phkoam	Trong Phum	5		
		Ponley	Ponley Tboundg	1		
		Ponley	Ponley Cheung	1		
		Ba Srae	Puon Kak	1		
		Prey Phkoam	Prey Phkoam Ka	1		
		Prey Phkoam	Prey Phkoam Kha	1		
		2	Bati	Komar Reachea	Serei Mean Chouk	5
				Chambak	Bacham	1
				Komar Reachea	Prey Khla	1
Komar Reachea	Trapeang Phlong			1		
Chambak	Ta Nob			1		
Trapeang Krasang	Trapeang Prich			2		
Trapeang Krasang	Kou Duol			1		
Souphi	Prohaek			1		
Tang Doung	Tuol Lhong			2		
Souphi	Champa			1		
Komar Reachea	Royak			5		
Komar Reachea	Prey Slaeng			1		
Komar Reachea	Kanhchum			1		
Komar Reachea	Kanhchang			1		
Krang Leav	Ta Paen			1		
Trapeang Krasang	Trapeang Krasang			5		
Komar Reachea	Tramung Chrum			1		
Trapeang Krasang	Trapeang Kieb			1		
Trapeang Krasang	Boeng Ponhea Kuk			1		
Kandoeng	Kandoeng Touch			1		
Pot Sar	Krang Pou	1				
Komar Reachea	Sdok	1				
Pea Ream	Chumrov	4				
3	Bourei Cholsar	Kouk Pou	Prey Hiev	1		

		Kouk Pou	Kandaol	8
		Kouk Pou	Pong Tuek	1
		Bourei Cholsar	Angk Krouch	7
4	Doun Kaev	Roka Krau	Trapeang Sala	3
		Roka Knong	Snao	2
		Roka Krau	Thnong	1
		Roka Knong	Sambuor	1
		Roka Krau	Tram	2
		Roka Knong	Phsar Ta Kao	1
		Roka Krau	Prech	1
		Baray	Krang Ta Pung	2
		Baray	Chrouy Samraong	3
		Roka Knong	Ou Svay Chek	1
		Roka Krau	Thnal Baek	1
		Roka Knong	Louri	1
		Roka Knong	Chak	1
5	Kaoh Andaet	Thlea Prachum	Lieb	1
		Pech Sar	Kouk Khpos	3
		Pech Sar	Chontol Mekh	11
		Pech Sar	Pechosar	2
		Prey Khla	Chambak	1
		Prey Khla	Tuol Kandal	1
		Thlea Prachum	Roluos	3
		Pech Sar	Trapeang Krasang	2
		Prey Khla	Melong Khang Cheung	1
		Romenh	Daeum Krouch	1
		Romenh	Pralay Meas	3
		Romenh	Romenh Khang Cheung	2
		Krapum Chhuk	Kaoh Moan	1
		Thlea Prachum	Si Sla	1
		Romenh	Romenh Khang Tbound	2
		Romenh	Daeum Pou	1
		Prey Khla	Prey Khla Khang Cheung	1
		Pech Sar	Slaeng	1
6	Kiri Vong	Kouk Prech	Samraong Khang Kaeut	1
		Ream Andaeuk	Svay Sar	2
		Prey Rumdeng	Buor	1
		Kouk Prech	Prey Cheung	2
		Ream Andaeuk	Kouk Roka	2
		Angk Prasat	Voat Svay	2
		Angk Prasat	Roneam Tnaot	1
		Ream Andaeuk	Pongro	9
		Kouk Prech	Kbal Damrei	3
		Saom	Saom	2
		Prey Rumdeng	Phnum Krapeu	2
		Preah Bat Choan Chum	Pou Rong	1
		Angk Prasat	Phngeas	1
		Phnum Den	Thmei	1
		Ream Andaeuk	Kaoh Kosal	2
		Ta Ou	Krasang Pul	1
		Phnum Den	Totueng	2
		Ream Andaeuk	Ream Andaeuk	1
		Preah Bat Choan Chum	Trapeang Srang	1
		Saom	Preal	1
		Preah Bat Choan Chum	Pou Khvet	4
		Phnum Den	Kandal	1

		Ta Ou	Ta Ou Khang Tboundg	2
		Ta Ou	Krang Ta Mung	1
		Preah Bat Choan Chum	Chrouy	2
		Prey Ampok	Khvav	1
		Angk Prasat	Phnum Lonteah	1
		Kouk Prech	Chheu Neang Khpos	1
		Saom	Pong Tuek	1
		Prey Ampok	Trapeang Pring	1
		Kamnab	Krangol	2
7	Prey Kabbas	Tang Yab	Trapeang Tea	8
		Char	Chant Mongkol	2
		Char	Svay Chal	1
		Kampeaeng	Kampeaeng Thum	1
		Prey Phdau	Saiva	1
		Snao	Krang	3
		Tang Yab	Prey Chambak	3
		Char	Char	1
		Kampeaeng	Trapeang Angk	1
		Kampeaeng	Changkaeub	1
		Champa	Chek	2
		Angkanh	Roka	8
		Pou Rumchak	Prey Ta Pong	3
		Ban Kam	Thlok Doung Tum	2
		Angkanh	Angkanh	1
		Prey Phdau	Sman Muni	2
		Prey Kabbas	Samchat	1
		Kampong Reab	Klaeng Kong	4
		Angkanh	Pring	5
		Tang Yab	Roluos	5
		Angkanh	Svay Pear	5
		Angkanh	Phsar Chreae	3
		Angkanh	Ba Noy	2
		Prey Kabbas	Prey Kabbas Kha	1
		Prey Phdau	Kouk Trea	1
		Tang Yab	Kaev Chamraeun	1
		Prey Kabbas	Prey Prum	2
		Tang Yab	Snuol Khpos	2
		Pou Rumchak	Krasang	1
		Prey Kabbas	Ou	1
		Kampeaeng	Angk Chruk	1
8	Samraong	Rovieng	Prey Snuol	3
		Chumreah Pen	Svay Run	10
		Rovieng	Trapeang Sdok	1
		Cheung Kuon	Tbach	2
		Cheung Kuon	Krang lang	1
		Cheung Kuon	Trapeang Vihear	4
		Boeng Tranh Khang Tboundg	Dak Por	4
		Boeng Tranh Khang Cheung	Pech Entrea	6
		Khvav	Tram Kol	1
		Boeng Tranh Khang Tboundg	Khnar Rung	5
		Boeng Tranh Khang Cheung	Khnach Cheung	4
		Boeng Tranh Khang Cheung	Romon	8
		Boeng Tranh Khang Tboundg	Trapeang Veang	11
		Sla	Srei Prasaeur	2
		Boeng Tranh Khang Cheung	Bei Pey	5
		Rovieng	Taol	5

		Boeng Tranh Khang Tboung	Tradak Pong	1
		Rovieng	Prey Khcheay	1
		Chumreah Pen	Tramaeng	8
		Boeng Tranh Khang Tboung	Hang Heng	6
		Trea	Samraong	1
		Boeng Tranh Khang Cheung	Khnach Tboung	3
		Boeng Tranh Khang Cheung	Angk Reang	1
		Boeng Tranh Khang Cheung	Pech Changva	2
		Boeng Tranh Khang Tboung	Kampao	2
		Soeng	Krang Traeng	1
		Boeng Tranh Khang Tboung	Boeng Tranh	2
		Cheung Kuon	Anhchanh	2
		Trea	Thmea	1
		Sla	Kanhchang	4
		Trea	Tnaot Ter	1
		Khvav	Khvav	1
		Rovieng	Char	1
		Khvav	Leak Roteh	2
		Sla	Ampil	10
		Khvav	Ou	2
		Boeng Tranh Khang Cheung	Chheu Teal	2
		Samraong	Tuol Char	1
		Chumreah Pen	Ta Yueng	3
		Khvav	Svay Tong	2
		Boeng Tranh Khang Cheung	Koun Romeas	2
		Sla	Trapeang Trav	1
		Samraong	Prey Totueng	1
		Soeng	Prey Khla	1
		Chumreah Pen	Trapeang Rumduol	1
		Rovieng	Trapeang Trea	1
		Rovieng	Kruos	1
		Rovieng	Trapeang Sngang	1
		Samraong	Ta Poun Kaeut	1
		Rovieng	Veay Chhneah	2
		Sla	Pou	2
		Chumreah Pen	Damnak Trayueng	1
		Rovieng	Krang Leav	1
		Chumreah Pen	Angkor Phdiek	6
		Rovieng	Daeum Thlok	2
		Rovieng	Chonloat Dai	1
		Sla	a Roung	1
		Cheung Kuon	Ponsang	1
		Sla	Angk Chang'er	1
		Chumreah Pen	Snaeng Romeang	1
9	Tram Kak	Trapeang Thum Khang Tboung	Prey Rumduol	1
		Ta Phem	Moha Sena	3
		Kus	Angk Kralanh	4
		Tram Kak	Yeay La	3
		Popel	Trapeang Kak	2
		Otdam Souriya	Trapeang Chhuk	2
		Kus	Pong Tuek Tboung	1
		Ou Saray	Trapeang Kralanh	1
		Angk Ta Saom	Srok Chek	1
		Tram Kak	Trapeang Rumpeak	2
		Leay Bour	Seima	2
		Trapeang Thum Khang Tboung	Prakeab	1

	Angk Ta Saom	Angk Ta Saom	3
	Leay Bour	Angk Ta Chan	1
	Angk Ta Saom	Prey Sraong	7
	Leay Bour	Thyea	1
	Otdam Souriya	Angk Rumpeak	1
	Kus	Andoung Thma	1
	Kus	Chheu Teal Thkoul	1
	Trapeang Thum Khang Cheung	Prey Dak Por	1
	Popel	Trapeang Pring	2
	Tram Kak	Boeng Mkak	1
	Cheang Tong	Sandao	3
	Samraong	Chan Teab	2
	Nhaeng Nhang	Ta Tai	2
	Nhaeng Nhang	Kamsei	1
	Otdam Souriya	Prab Siem	1
	Ta Phem	Ba Khong Khang Lech	6
	Ta Phem	Ta Mom	2
	Ta Phem	Li Nha	1
	Otdam Souriya	Ta Sou	8
	Angk Ta Saom	Ou Phot	10
	Angk Ta Saom	Angk Tnaot Lech	2
	Cheang Tong	Ta Koem	1
	Angk Ta Saom	Angkor Moeang	1
	Ta Phem	Ba Khong Khang Kaeut	5
	Otdam Souriya	Rumpeak Pen	1
	Cheang Tong	Ti Pat	9
	Trapeang Thum Khang Tbound	Prey Preal	2
	Cheang Tong	Ta Koem	1
	Ta Phem	Trapeang Svay	5
	Srae Ronoung	Krang Svay	2
	Angk Ta Saom	Trapeang Chaeng	3
	Otdam Souriya	Trapeang Run	1
	Cheang Tong	Srae Khvav	1
	Angk Ta Saom	Trapeang Srangae	3
	Srae Ronoung	Thmei	1
	Ta Phem	Pravong	1
	Otdam Souriya	Chong ang	6
	Leay Bour	Tuol Tbaeng	2
	Srae Ronoung	Trapeang Tonloab	1
	Cheang Tong	Moeang Char	3
	Trapeang Thum Khang Cheung	Ta Suon	1
	Srae Ronoung	Sameakki	1
	Ta Phem	Ta Koam	4
	Angk Ta Saom	Prey Chheu Teal Leu	2
	Srae Ronoung	Prey Mouk	10
	Tram Kak	Kol Kom	6
	Kus	Saen Aok	4
	Ou Saray	Stueng	1
	Srae Ronoung	Prachum	3
	Angk Ta Saom	Angk Tnaot Kaeut	1
	Ta Phem	Ta Phem	12
	Srae Ronoung	Chrey Veaeng	3
	Kus	Tumnob Chrey	1
	Ou Saray	Trapeang Phlu	1
	Samraong	Ta Sman	2
	Nhaeng Nhang	Ruessei Srok	1

		Ou Saray	Trapeang Krasang	2
		Samraong	Krang Banteay	2
		Tram Kak	Trapeang Chak	15
		Ou Saray	Trapeang Khchau	2
		Kus	Prey Ta Khab	5
		Tram Kak	Trapeang Ruessei	1
		Nhaeng Nhang	Ang Ro Neab	2
		Trapeang Thum Khang Tbound	Trapeang Tnaot	2
		Trapeang Thum Khang Cheung	Angk Trav	2
		Ou Saray	Trapeang Dang Tuek	1
		Leay Bour	Chreae	1
		Samraong	Paen Meas	2
		Tram Kak	Niel	2
		Kus	Prey Snuol	3
		Leay Bour	Prey Theat	1
		Kus	Mean Chey	1
		Tram Kak	Angk Roneab	1
		Tram Kak	Chrey Tnaot	1
		Ou Saray	Tuol Khlong	2
		Kus	Pong Tuek Cheung	1
		Srae Ronoung	Srae Thlok	1
		Ta Phem	Ta Toem	1
		Ou Saray	Tnaot Chum	2
		Kus	Kus Thmei	1
		Kus	Chamkar Tieng	2
		Angk Ta Saom	Prey Sraong	1
		Kus	Khnach Chaor	2
		Nhaeng Nhang	Ou Sngaeun	1
		Trapeang Thum Khang Cheung	Prey Khvav	2
		Trapeang Thum Khang Tbound	Kou Chen Leaeng	1
		Trapeang Kranhung	Prey Kduoch	2
		Kus	Trapeang Lean	1
		Kus	Angk Ta Ngel	2
		Kus	Trapeang Thma	1
		Samraong	Pong Tuek	7
		Ta Phem	Tbaeng Totueng	1
		Trapeang Thum Khang Cheung	Prey Sbat	1
		Cheang Tong	Nomou	1
		Kus	Tmat Pong	1
		Leay Bour	Angk Neareay	1
		Angk Ta Saom	Khnar Tey	1
		Cheang Tong	Tuol Roka	1
		Srae Ronoung	Praviney	1
10	Treang	Khvav	Ta Sraen	1
		Smaong	Kampong Chrey	1
		Sanlung	Kraom	2
		Khvav	Kdey Run	12
		Prambei Mom	Trapeang Leuk	1
		Khvav	Pris Kraom	2
		Angk Kaev	Angk Kaev	2
		Khvav	Angk Run	3
		Angk Kaev	Thnuoh	1
		Sambuor	Prey Phdau	1
		Sanlung	Angk Prangk	1
		Khvav	Kakaoh	1
		Khvav	Sama Kraom	1

		Khvav	Pongro	3
		Srangae	Prey Changriek	4
		Srangae	Prey Chheu Teal	2
		Thlok	Rovieng	2
		Tralach	Samraong	1
		Tralach	Chingou	1
		Prambei Mom	Lve	1
		Prey Sloek	Prey Sandaek	1
		Sambuor	Tnaot Chum	1
		Sambuor	Pou	1
		Srangae	Kok	1
		Sambuor	Prey Dak Por	1
		Roneam	Prey Ph'av	2
		Khvav	Doun Pheu	1
		Prambei Mom	Chheu Teal Phluoh	1
		Sambuor	Ou Pou	1
		Prey Sloek	Srae Chrak	2
		Sanlung	Chrey	1
		Prey Sloek	Samraong Mean Chey	1
		Khvav	Sama Leu	1
		Khvav	Kdey Run	1
		Srangae	Prey Run	2

Total				876
Size 8m ³				
No. of District	District	Commune	Village	Size 8m ³
1	Angkor Borei	Preaek Phtoul	Phnum Borei	1
		Prey Phkoam	Yea P'aeu	2
		Prey Phkoam	Trong Phum	1
2	Bati	Tang Doung	Samraong Chrey	1
		Chambak	Run	1
		Krang Leav	Tuol Slaeng	1
3	Doun Kaev	Roka Knong	Chres	1
4	Kaoh Andaet	Pech Sar	Kouk Doung	1
		Prey Khla	Melong Khang Tboung	1
		Romenh	Romenh Khang Cheung	1
		Romenh	Daeum Chan	1
		Prey Khla	Kaev Kamphleung	1
		Romenh	Romenh Khang Tboung	1
		Pech Sar	Chontol Mekh	1
5	Kiri Vong	Phnum Den	Totueng	1
		Kamnab	Krangol	3
		Kamnab	Chamkar Tieb	2
		Saom	Pong Tuek	2
		Kouk Prech	Kbal Damrei	1
6	Prey Kabbas	Kampeang	Trapeang Angk	1
7	Samraong	Rovieng	Taol	1
		Khvav	Prey Nhuek	1
		Chumreah Pen	Svay Run	1
		Sla	Trapeang Srang	1
8	Tram Kak	Otdam Souriya	Dang Van	1
		Cheang Tong	Sandao	1
		Ou Saray	Stueng	1
		Otdam Souriya	Rumpeak Pen	1
		Otdam Souriya	Ta Sou	1
		Otdam Souriya	Chong ang	1
		Leay Bour	Chrae	1
		Kus	Angk Ta Ngel	2
		Kus	Krang Ta Chan	1
		Tram Kak	Chrey Tnaot	1
		Angk Ta Saom	Prey Damrei	1
		Kus	Chamkar Tieng	1
		Kus	Tuek Thla	1
		Otdam Souriya	Trapeang Chhuk	1
		Trapeang Kranhung	Prey Kduoch	1
9	Treang	Sambuor	Pou	1
		Roneam	Prey Ph'av	2
		Prey Sloek	Daeum Phdiek	1

Total				49
Size 10m³				
No. of District	District	Commune	Village	Size 10m³
1	Bati	Trapeang Krasang	Trapeang Kieb	1
		Tang Doung	Samraong Chrey	1
		Komar Reachea	Krang Pongro	1
2	Bourei Cholsar	Bourei Cholsar	Angk Krouch	1
		Bourei Cholsar	Kampong Ampil	1
3	Doun Kaev	Roka Knong	Chak	1
		Roka Krau	Trapeang Sala	1
4	Kiri Vong	Preah Bat Choan Chum	Kampong	1
5	Tram Kak	Otdam Souriya	Ta Sou	1
		Otdam Souriya	Trapeang Chhuk	1
		Otdam Souriya	Srangae	1
Total				11
Size 15m³				
No. of District	District	Commune	Village	Size 15m³
1	Samraong	Cheung Kuon	Krang lang	1
2	Bati	Trapeang Sab	Smau Khnhei	1
Total				2
Grand Total of Biogas Plants in Takeo Province				1481