MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT
AGRICULTURE PROJECT MANAGEMENT UNIT

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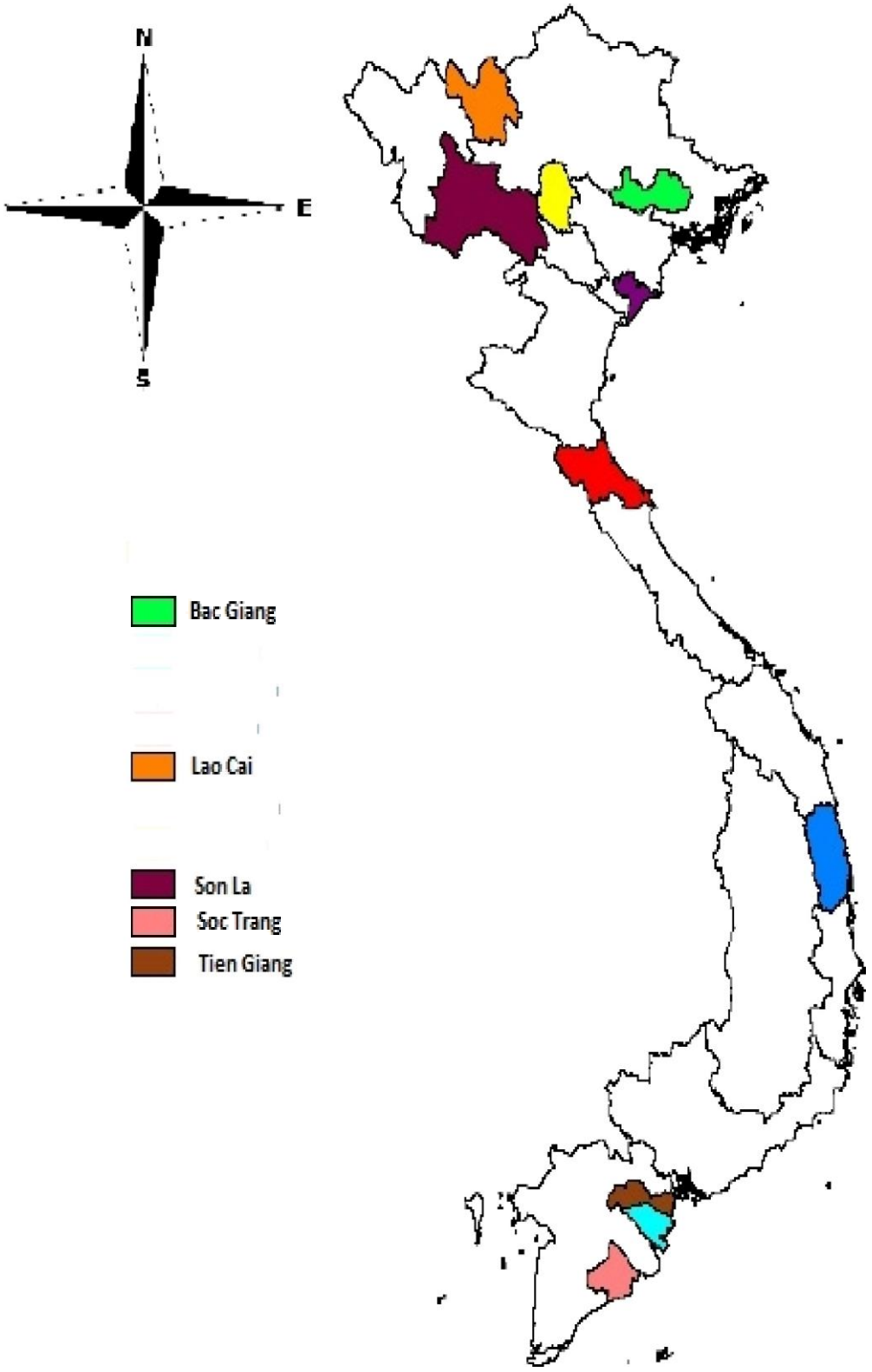
LOW CARBON AGRICULTURAL SUPPORT PROJECT (LCASP)

COMPREHENSIVE REPORT
OF CPMU AND LIC
FOR MTR PREPARATION

Hanoi, July 2016

PROJECT MAP



ABBREVIATION

ADB	Asian Development Bank
APMB	Agriculture Projects Management Board
BVC	Biogas Value Chain
BVCM	Biogas value Chain Management
BP	Biogas Plant
CPMU	Central Project Management Unit
CSAWMP	Climate Smart Agricultural Waste Management Practices
DSTE	Department of Science, technology and Environment
DTL	Deputy Team Leader
DMF	Design and Monitoring Framework
HDPE	High Density Polyethylene
FI	Financial Intermediaries
ICT	Information and Communications Technology
ICMD	Incentives for Carbon Market Development
LCASP	Low Carbon Agriculture Support Project
LIC	Local and International Consultants
LBVC	Large-sized Biogas
MBVC	Medium-sized Biogas
MARD	Ministry of Agriculture and Rural Development
M&E	Monitoring and Evaluation
MTR	Mid Term Review
NOL	No Objection Letter
O&M	Operation and Maintenance
PAM	Project Administration Manual
PFI	Private Finance Initiatives
PPMU	Provincial Project Management Unit
SBVC	Small-sized Biogas Plant
TL	Team Leader
TSU	Technical Support Unit
VACVINA	Viet Nam Gardening Association
VAAS	Viet Nam Academy of Agricultural Sciences
VBA	Viet Nam Biogas Association
VNUF	Viet Nam University of Forestry

1. INTRODUCTION

The comprehensive MTR report is prepared for the LCASP MTR Mission covering all the activities covered by the project up to August 2016. The report also includes the LIC support to implement the project activities. Report is prepared based upon the reports provided by PPMUs, LIC, other independent consultants; and surveys and studies. Reporting period covers from June 2013 to August 2016.

CPMU mobilized project staff and consultants on a timely manner and effectively facilitated in the field and administrative supports.

2. PROJECT BACKGROUND

The objective of the project is to increase the uptake of climate smart agriculture waste management practices (CSAWMP) as measured by the increased use of clean biogas energy and organic bio-slurry fertilizers. The purposes include:

i. Improve management of livestock waste, bio-slurry; reducing environmental pollution; creating clean energy; bio-organic fertilizer; generating incomes from Clean Development Mechanism (CDM);
ii. Increasing the application of CSAWMPs that are effectively certified; greater use of renewable energy and bio-fertilizer from agricultural waste; replicating models in order to reduce greenhouse gas emissions, and improving the livelihoods and quality of life of rural people;
iii. Capacity building of stakeholders and disseminating knowledge and skills of good CSAWMP to beneficiaries.[1]

The project covered crosscutting representation of agro-ecological zones of Viet Nam, i.e. 10 provinces, Son La, Lao Cai, Phu Tho, Bac Giang, Nam Dinh, Ha Tinh, Binh Dinh, Tien Giang, Ben Tre and Soc Trang.

Low Carbon Agricultural Support Project, Loan No.2968-VIE (SF) was signed on 07 March 3013 and came into effect on 05 June 2013. The Loan closing date shall be 30 June 2019.

Project objectives:

- Overall objectives:

Developing a sustainable agricultural production, efficient and friendly to the environment through promoting development/ replication of research models and transferring technology on agricultural production towards reducing greenhouse gas emission and response/mitigation to the impacts of climate change, utilizing effectively the natural resources, agricultural waste products, managing effectively agricultural processing and post-harvest preservation.

Reducing environmental pollution caused by agricultural waste through the expansion and development of the biogas program from household scale to medium and large size to create clean energy; improving livelihood and increasing life quality of rural citizens.

- Specific objectives

Livestock waste, rural waste management in biogas production are improved; reducing environmental pollution; contributing to sustainable development of household and farm scale

[1] Inception Report LCASP, May 2016

livestock production; creating clean energy; improving livelihood and improving life quality of rural citizens; creating incomes from CDM project;

Applying low carbon agricultural production technology in the field of aquaculture and crop production that are effectively certified in the world, then trial application to Vietnam conditions and selectively replicate models of crops, livestock, and aquaculture in order to increase economic efficiency and response/ mitigate impact of climate change and reduce greenhouse gas emissions.

Total Investment

ADB loan amounted to 48.17 million SDR equivalents to US$67.506 million as of 31 July 2016. The counterpart funds from Government of Viet Nam and financial intermediaries are US$3.7 million and US$6.3 million respectively.

The project become effective from 5 June 2013 with the loan agreement signed on 7 March 2013. The project closing date is 30 June 2019.

Expected Impacts

By 2024 from baselines in 2013 in selected participating communities:

1. Livestock waste effluence in water resources reduced by at least 50%.
2. GHG emissions reduced by about 0.2tCO_2e annually per cubic meter capacity of BPs.

Expected Outcomes

Greater uptake of CSAWMP with target by 2018 (from baselines in 2013) in the project areas:

- At least 70% bio-slurry is converted to organic fertilizers.
- At least 80% energy produced by Biogas Value Chains (BVCs) is utilized.
- Daily workload of women and children is reduced by 1.8–2 hours, on average.

Project Outputs

Output 1: Expanded use of livestock waste management infrastructure

- 36,000 SBPs, 40 MBPs and 10 LBPs and associated value chain infrastructure constructed and operating by 2019.
- At least 5% of total SBPs will be constructed for ethnic minorities in 3 selected provinces.
- 36,000 SBP operators, 500 masons, 160 technicians, 10 engineers and 10 contractors trained and registered in biogas associations by 2019.
- At least 50% of trainees on biogas use will be women, 20% of trainees on SBP construction, and 20% of those trained on biogas management and technical issues will be women.
- BP database managed effectively by 2014, including registration in both husband's and wife's names.

Output 2: Credit lines for biogas value chains

- 50% of credit recipients will be under joint accounts and/or on behalf of women.
- BVC infrastructure financing products mainstreamed in two FIs.
- ICMD funds are fully channeled to 36,050 accounts of beneficiaries.

Output 3: Enhanced CSAWMP technology transfer

- Well-established CSAWMP packages are disseminated in 10 participating provinces.
- One long-term, community-based CSAWMP technology transfer and research strategy is elaborated by 2014, and includes communication, dissemination, and mainstreaming plans
- Critical CSAWMP knowledge gaps are identified and at least 21 research, dissemination, and mainstreaming packages carried out according to a priority list, by 2018. 30% of research projects will include gender issues by 2016.

Output 4: Effective project management

- A CPMU and 10 PPMUs established and operational with adequately skilled staff and facilities in MARD by first quarter of 2013.
- At least 30% of staff are women and a gender focal point will be appointed by 2014.
- PPMS with sex-disaggregated and ethnicity data collected and reported operating effectively in 10 provinces by 2015.
- Carbon market coordinator and 36,000 biogas owners are organized through associations by 2014.

3. OVERALL PROJECT PROGRESS

3.1. Updated of the agreed follow-up actions of previous mission:

There have been a number of actions taken by CPMU to address the agreed actions of last ADB review Mission of August 2015 (Table 1).

Table 1: Agreed follow-up Actions of August 2015 ADB Review Mission

No	Issue	Agreed Action	Time frame	Responsibility	Status
1	Output 1: Expanded Use of Livestock Waste Management Infrastructure	(i) Biogas sector database consolidation		CPMU	
		- Procured	Oct 2015		Done
		- Operational	June 2016		Done
		(ii) Study into Environmental regulation of agricultural waste – proposal and TOR	Oct 2015	CPMU	Done
		(iii) Secure funding for MONRE participation	Oct 2015	ADB PO	No information
		(iv) Report on the status and recommendations	Mar 2016	MONRE/CPMU	No information
		(v) TOR for physical audit	Oct 2015	CPMU	On-going
2	Output 2: Credit Lines for Biogas	(i) Contract credit specialist	1 Dec 2015	CPMU	Done
		(ii) Credit study final report	June 2016	Cons.	Done
		(iii) MTR briefing note of	August 2016	CPMU	Done

No	Issue	Agreed Action	Time frame	Responsibility	Status
	Value Chains	proposed changes to credit line resources and procedures			
3	Output 3: Enhanced Climate Smart Agricultural Waste Management Practices Technology Transfer	(i) Research strategy elaboration (ii) Value Chain Pilot review and proposal formats (iii) Procurement methods and procedures for Pilots (iv) First Provincial demonstration full proposal with recommended procurement packaging and discussion with ADB on appropriate procurement procedures (v) Provincial Demonstration program procedures and procurement guidelines	30 Oct 2015 30 Oct 2015 30 Oct 2015 30 Oct 2015 30 Nov 2015	CPMU CPMU/EA ADB PO CPMU CPMU CPMU	Done Done Done Done Done Done
4	Output 4: Effective Project Management	(i) Audit reports (ii) LIC technical review (ADB) (iii) Agribusiness and Commercial business planner ToRs submitted to ADB (iv) Baseline submission 1 approval (v) PAM Update (vi) Procurement Plan Update (vii) Uploading of revised procurement plan to website	30 Dec 2015 15 Sept 2015 30 Sept 2015 30 Aug 2015 30 Oct 2015 30 Sept 2015 30 Oct 2015	CPMU/Audit ADB PO CPMU ADB CPMU/ADB CPMU ADB	Done Done Done Done Done Done Done
6	Review mission	Scheduling of - Special Administration Mission - Mid Term Review	 30 Sept 2015 30 Nov 2015	 ADB PO ADB PO/CPMU	Not yet

3.2. Overall project progress based on weighted progress of project components.

The overall project progress of components by 31 August 2016 is weighted in the Table 2:

Table 2: Overall Physical Progress by 31 August 2016

Component/Activity				Physical Progress		
			Cost (USD)	Weight	Rated Progress (0 - 100)	Weighted Progress
I.	**Component 1: Expanded use of Livestock waste management Infrastructure**		**13,035,000**	**15.52%**		**9.58**
1.1	***Sub-component 1.1: Management of livestock waste and carbon market***		***3,117,000***			***61.72***
	1.1.1	*Activity 1: Develop training modules for CSAWMP and providing training to supervisors, operators and other stakeholders for application and mainstreaming in the project provinces*	*590,000*	*18.93%*	*60*	*11.36*
	1.1.2	*Activity 2: Standardize and disseminate for the package of design for BVC design*	*1,294,000*	*41.51%*	*90*	*37.36*
	1.1.3	*Activity 3: Register program of activities for small, medium and large scale biogas plants for relevant carbon markets*	*10,000*	*0.32%*	*20*	*0.06*
	1.1.4	*Activity 4: Strengthen capacity for relevant agencies to monitor the constructed BPs*	*860,000*	*27.59%*	*30*	*8.28*
	1.1.5	*Activity 5: Monitor annual CO2 emission reduction and income from the carbon certified emission reduction*	*343,000*	*11.00%*	*40*	*4.40*
	1.1.6	*Activity 6: Provide capacity building to relevant agencies to continuously manage national biogas development program.*	*20,000*	*0.64%*	*40*	*0.26*
1.2	***Sub-component 1.2: Providing support for Biogas plant development***		***9,918,000***			***85.82***
	1.2.1	*Activity 7: Monitor use of BPs with adequate environmental facilities*	*1,400,000*	*14.12%*	*30*	*4.23*
	1.2.2	*Activity 8: Train and certify the technicians, masons, engineers, and contractors for supporting construction of BVC*	*1,888,000*	*19.04%*	*95*	*18.08*
	1.2.3	*Activity 9: Providing incentive for carbon market development*	*6,630,000*	*66.85%*	*95*	*63.51*
II.	**Component 2: Credit lines for biogas value chains**		**42,000,000**	**50.00%**		**15.00**
		FIs: Credit for farmers to construct SBPs, MBPs, LBPs	42,000,000	100.00%	30	30.00
III.	**Component 3: Enhanced climate-smart agriculture**		**14,513,000**	**17.28%**		**9.43**

	waste management practice technology transfer					
3.1	***Sub-component 3.1: Prepare a research strategy to direct project research activities on CSAWMP***		***10,313,000***			***54.57***
	3.1.1	*Activity 1: Conduct research and trials on technologies of CSAWMP*	*8,353,000*	*80.99%*	*60*	*48.60*
	3.1.2	*Activity 2: Establishing an information system for sharing CSAWMP*	*685,000*	*6.64%*	*20*	*1.33*
	3.1.3	*Activity 3: Train researchers and extension staff in efficient CSAWMP*	*300,000*	*2.91%*	*50*	*1.45*
	3.1.4	*Activity 4: Develop training program, textbooks, and syllabus for training farmers on appropriate techniques for CSAWMP and provide vocational training for farmers*	*795,000*	*7.71%*	*30*	*2.31*
	3.1.5	*Activity 5: Upgrade CSAWMP – based map sets for 7 agro-ecological regions to forecast the direct impact of climate change and provide support for agricultural planning.*	*180,000*	*1.75%*	*50*	*0.87*
3.2	***Sub-component 3.2: Constructing low carbon agricultural demonstrations for agricultural waste management***		***4,200,000***	***5.00%***	**40**	***2.00***
	3.2.1	*Activity 6: Develop livestock waste management demonstrations for agricultural production and greenhouse gas emission reduction*	*3,600,000*	*4.29%*	*35*	*1.50*
	3.2.2	*Activity 7: Training extension staff and farmers on CSAWP technologies*	*600,000*	*0.71%*	*50*	*0.36*
IV.	**Component 4: Project Management**		**14,452,000**	**17.20%**		**11.18**
4.1	***Project Management***		***8,042,000***			***64.99***
	4.1.1	*Cars for CPMU and 6 PPMUs (Lao Cai, Son La, Nam Dinh, Ha Tinh, Binh Dinh, Soc Trang)*	*400,000*	*4.97%*	*100*	*4.97*
	4.1.2	*Office equipment for CPMU, Technical Support Unit (TSU) and 10 PPMUs*	*200,000*	*2.49%*	*100*	*2.49*
	4.1.3	*Accounting software*	*35,000*	*0.44%*	*100*	*0.44*
	4.1.4	*Cost for operation*	*2,395,000*	*29.78%*	*50*	*14.89*
	a	Cost for operation of CPMU	895,000	*11.13%*	50	5.56
	b	10 PPMUs: Cost for operation of PPMUs	1,500,000	*18.65%*	50	9.33
	4.1.5	*Consultant service, Audit*	*2,960,000*	*36.81%*	*80*	*29.45*
	4.1.6	*Salary and Allowance*	*2,052,000*	*25.52%*	*50*	*12.76*
	a	Salary and Allowance for CPMU	832,000	*10.35%*	*50*	5.17
	b	10 PPMUs: Salary and Allowance for PPMUs	1,220,000	*15.17%*	*50*	7.59
4.2	***Unallocated (Contingency, interest rate, etc.)***		***6,410,000***		**-**	***0.00***
	4.2.1	*Interest rate*	*2,410,000*	*37.60%*	*0*	*0.00*
	4.2.2	*Unallocated cost*	*2,284,000*	*35.63%*	*0*	*0.00*

	4.2.3	*10 PPMUs: Contingencies*	*1,716,000*	*26.77%*	*0*	*0.00*
		Total (%)				**45.19**

The overall physical progress achieved at 45.19%, of which, the Component 1 reached 61.72% (most of the main targets achieved); Component 2 reached 30% (the conditions for releasing sub-loans completed); Component 3 reached 54.57% (designs of research and demonstration packages completed); and Component 4 reached 64.99% (management systems and facilities are smoothly operated).

3.3. Major Achievements of Components:

Component 1: Expanded Use of Livestock Waste Management Infrastructure

Contrast to other project components, this component has made excellent progress meeting 37,128 SBVCs installations against the 36,000 SBVCs as per DMF. There are four MBVCs installed in Phu Tho province. All the BVC plants are in good condition without any health and safety related issues. The project checked 3,006 biogas plants selecting randomly based on the database updated by the project provinces.

Other main activities are as follows.

- organized 1,311 training courses on guidance of BVC operation, maintenance of BVC plants for 36,911 farmer households
- Altogether 283 workshops organized with the participation of 12,355 households on BVC related technical and environmental safeguards and benefits from BVC plants.
- organized 39 training courses for 839 turns of technicians, five contractors, 28 technicians for large and medium scale biogas, and 321 turns of masons/installer
- Communication programs through graphics materials, audio and visual media launched. Leaflets, posters, billboards, booklets with various messages are designed, produced and disseminated.
- Three biogas related video films have been produced and telecasting.
- Assessed and evaluate the biogas plants and its development in Viet Nam.
- A project website, http://www.lcasp.org.vn, has been designed and launched.
- The Project has proposed NBP to become the focal point under MARD for entire carbon credit from biogas of the projects. Consequently, LCASP collaborated with NBP to develop the database of biogas plants management.

Component 2: Credit Lines for Biogas Value Chains

The financial intermediaries including VBARD and Co-op Bank have conducted disbursing the credit fund for biogas plants construction. These two financial intermediaries have only disbursed 241 sub-loans with a total amount of 11 billion VND, accounting for 1.3% out of the allocated credit fund.

Other activities are as follows.

- CPMU organized training/workshops on information and communication to stakeholders in collaboration with FIs.
- Whereas VBARD has disbursed 198 sub-loans with 5.52 billion VND in Bac Giang and Lao Cai, Co-op Bank has disbursed 43 sub-loans with 5.53 billion VND in Binh Dinh and Bac Giang. Altogether it covered only three provinces with overlapping of Bac Giang province.

- Viet Nam Bank of Social Policy (VBSP) commits to disburse 40 million USD of the credit fund of the Project by the rest of the project period.
- Credit program related study has been completed and report submitted.

Compare to the total project budget, this component made set back of the project with only 1.3% credit fund use.

Component 3: Transfer of Technology for Enhanced CSAWMP

As soon as the LIC was mobilized in November 2015, the Project has developed six research packages and seven demonstration packages on CSAWMP. Progress has been made as follows.

Six research packages:

- ADB had provided NOL to a list of six research packages.
- ADB provided NOL to the Submission 0 of the package 25. The remaining 5 packages have been revised and submitted to ADB for review and NOL.

Seven demonstration packages:

- ADB had provided NOL to a list of seven demonstration packages.
- ADB provided NOL to the household selection result of the package 34.

Component 4: Effective Project Management

CPMU and PPMUs have been established and fully staffed. LIC was mobilized from December 2015 to assist CPMU and PPMUs in designing the activities in Component 3. The project management capacity is now strengthened and adequate to project implementation.

- Three national independent consultants including the national agribusiness consultant, the training consultant and the PIM/PAM consultant had been completed their contracts.
- LIC started to work from December 2015.
- CMPU established monitoring and evaluation and reporting framework based upon Design and Monitoring Framework (DMF).
- Auditor recruited

Contract Award and Disbursement

According to the ADB's record in LFIS, the LCASP has disbursed 13.45 mil USD out of 67.62 mil USD total loan fund at 30 August 2016.

4. PROJECT IMPLEMENTATION PROGRESS BY COMPONENTS

Detailed implementation progress by project components is provided.

COMPONENT 1: EXPANDED USE OF LIVESTOCK WASTE MANAGEMENT INFRASTRUCTURE

The project targets to construct 36,000 SBP, 40 MBP and 10 LBP and associated value chain infrastructure constructed and operational by 2018 supported by capacity building of various stakeholders. At least 5% of total SBPs will be constructed for ethnic minorities in three selected provinces. With gender safeguard, it envisaged that 50% of the trainees on biogas and 20% of trainees on SBP construction and 20% trainees on biogas management and technical issues will be women. BP database, including registration of both wife and husband names, managed effectively by 2014.

Overall progress under this component against the performance target and indicators is in Table 3.

Table 3: Overall progress of Component 1

Design Summary	Performance Targets and Indicators with Baselines	Progress to August 2016
Outputs 1. Expanded use of livestock waste management infrastructure	From baselines in 2013:	
	(i) 36,000 SBPs, 40 MBPs, and 10 LBPs and associated value chain infrastructure constructed and operating by 2018. At least 5% of total SBPs will be constructed for ethnic minorities in 3 selected provinces.	As of 30 July 2016, a total of 37,200 SBVCs and 04 MBPs have been constructed by livestock farming HH of which 1672 SBPs (18%) are constructed for ethnic minorities in 3 selected provinces.
	(ii) 36,000 SBP operators, 500masons, 160 technicians, 10 engineersand10 contractors trained and registered in biogas associations by 2018. At least50%of trainees on biogas use will be women; 20% of trainees on SBP construction,and20% of those trained on biogas management and technical issues will be women.	36.911 SBP operators, 321 masons, 330 technicians, 28 engineers and 10 contractors trained. 34% trainees on biogas use are women. 5.6% trainees on SBP construction are women. 24% trainees on biogas management and technical issues are women.
	(iii) Biogas plant data base managed effectively by 2014, including registration in both husband's and wife's names.	The Project is collaborating with BP under DLP to develop the database of biogas plants management, support for selling carbon credit (CER). As of 30 July 2016, the software of biogas plants database management

1.1. Sub-component 1.1: Management of livestock waste and carbon markets

1.1.1. Activity 1: Develop training modules for CSAWMP and providing training to supervisors, operators and other stakeholders for application and mainstreaming in the project provinces.

Main Tasks

The Project will assist finance for developing training modules and programs for farmers in livestock waste management, utilization of livestock waste for producing organic fertilizer and bio-energy to reduce environmental pollution and create income for farmers.

Implemented Activities

CPMU with LIC support reviewed training proposals to provincial technicians on its contents, technical aspects, delivery methods and approach, quality assurance and follow up. The Project has developed guidelines and training documents as follows.

i. Guidance on operating small biogas plants and
ii. Guidance on construction/installation of small biogas plants.
iii. KT2 biogas digester for biogas technical training courses;
iv. Biogas technology and clean development mechanism for training course of Research Institutes

v. Carbon market for training course of Research Institutes under LCASP.

CPMU also prepared, with LIC support, guidelines for construction and installation of covered lagoon by HDPE sheet and guidelines for operation and maintenance of covered lagoon by HDPE sheet. The documents are ready for printing and dissemination.

Regarding the capacity building, PPMUs have organized 83 training courses on livestock waste management with the participation of agricultural extension staff and farmer. There are a total of 2,691 turns of trainees of which 35% trainees are female. Besides biogas technology, the Project has trained farmers, agricultural extension staff on composting technology, raising earthworm and other technologies handling redundant manure, creating efficiency to improve the environment and creating more income to farmers.

Table 4: Number of Trainees Participated

Trainees	CPMU	PPMUs										Total
		SL	LC	PT	BVC	ND	HT	BD	TG	BT	ST	
Technicians	12	2	1	3	1	1	2	2	1		2	27
Masons		1	1	2	1		2	1	1	1	1	11
BVC Operators		66	47	328	270	55	109	134	103	130	69	1,311
Agriculture extension staff and farmers	6		16	16	11	27	6	20	6	7	26	141
Total	18	69	65	349	283	83	119	157	111	138	98	1,490
Percentage	1	5	4	23	19	6	8	11	7	9	7	100

Note: Data up to 31 August 2016

While 88% of trainees are BVC operators, highest percentage of trainees are in Phu Tho (23%) and followed by Bac Giang (19%).

In addition, CPMU is also planning to organize five training modules, programs on livestock waste management and repair, installation and maintenance of biogas equipment.

Trained human resources from the Project have made a significant impact in the BVC installation and its operation and maintenance with quality BVC at place. Follow up on the BVC installation has a good feedback on the quality of the BVCs.

1.1.2. Activity 2: Standardize and disseminate the package of design for Biogas Value Chain (BVC)

Main Tasks

The Project will assist finance for training; and information and communication on biogas technology and the environment improvement. In addition, the Project also finances for the activities related to develop guidance; and standards of small, medium and large biogas plants.

Implemented Activities

The Project has completed the guidance on technical and environmental requirements of small biogas plants including the technological guidance on medium and large sized BVC, HDPE and fixed-dome brick biogas plants, in collaborating with Department of Livestock Production in order to widely disseminate to farmers.

CPMU designed, produced and disseminated communication materials to target groups on livestock waste management and agricultural by-products treatment. Various communication materials CSAWMP such as leaflets, posters, handbooks, information books and other materials are produced and disseminated. The materials such as biogas safety are prepared with graphics and in simple

language targeting the beneficiaries including women and ethnic minorities. There is a good response in the field on the materials disseminated by the project.

In addition, for effective visual information, LIC supported CPMU to prepare three biogas related video films targeting to participating male and female beneficiaries including ethnic minorities. Titles of the films are

i. Economic efficiency of investment in biogas plant construction/installation;
ii. Introduction for biogas plant operation and maintenance
iii. Introduction about carbon credit in biogas and selling carbon credit

These videos are telecasted by VTV and project provincial TVs. Most of the telecasting is at prime time covering wider audience.

A project website, http://www.lcasp.org.vn, has been designed and launched to promote information covering project information and biogas related information and waste management.

Since the Project implementation, PPMUs have organized 1,311 training courses on guidance of BVC operation, maintenance of BVC plants for 36,911 farmer households who had registration application for construction/installation of biogas plants. There are altogether 283 workshops organized with the participation of 12,355 households on BVC related technical and environmental safeguards and benefits from BVC plants.

Along with CPMU, PPMUs continues to implement communication programs to propagate and disseminate information through graphic materials, audio and visual media. Leaflets, posters, billboards, booklets with the message regarding project biogas programs, biogas technology and maintenance, management and operation, are designed, produced and disseminated. Audio and video programs are also launched through local radios and provincial televisions. LIC Specialists closely supported on the identification of the contents, graphic designs and testing.

Installation of BVC plants supported by technical training and communication materials dissemination on operation, maintenance and safety of BVC plants have contributed to enhanced the efficiency of BVC operation reducing environmental pollution. There is no health and safety issues encountered from the project BVC plants. Exceeding load of livestock waste into BVC plants and excess gas emission into environment has been reduced due to awareness of the participating farmers.

LIC specialist supported CPMU to assess and evaluate the biogas plants and its development in Viet Nam, specifically in project provinces supporting to prepare Inception Report. Appropriate SBVC technologies for LCASP households are fix-dome biogas plant made from brick and cement mortar and composite bio-digester made in Viet Nam. CPMU with LIC also evaluated medium scale biogas plants made from brick and cement mortar and large scale biogas digester with covered lagoon HDPE, with the document to support PPMUs.

Comparing to planned medium and large scale BVC, small scale BVC installation is achieved meeting the target (Table 5).

Table 5: Number of Biogas Plants Installed

Period	Biogas Plants			Remarks
	Small	Medium	Large	
Planned for 2016	15,456	34	21	
Implemented by June 2016	9,397	4	0	
Total from Project start	37,128	4	0	

On the provincial basis, BVC installation is highest in Phu Tho province (18%). It is followed by Bac Giang and Binh Dinh with lowest in Son La province (Table 6).

Table 6: BVC Installation by Province

No	Provinces	Biogas Plants					Remarks
		Small	Medium	Large	Total	Percent	
1	Son La	1,542			1,542	4	
2	Lao Cai	1,729			1,729	5	
3	Phu Tho	6,530	4		6,534	18	
4	Bac Giang	6,194			6,194	17	
5	Nam Dinh	3,399			3,399	9	
6	Ha Tinh	3,682			3,682	10	
7	Binh Dinh	5,917			5,917	16	
8	Tien Giang	2,261			2,261	6	
9	Ben Tre	3,796			3,796	10	
10	Soc Trang	2,078			2,078	6	
	Total	37,128	4		37,132	100	

Note: Data up to 31 August 2016

Based on the project assessment, the development of medium and large biogas plants in Viet Nam still remains a challenge and need to explore with in-depth study and research to resolve in order to ensure effective livestock waste management. The research and demonstrations, described separately under Component 3, will contribute to resolve these issues.

1.1.3. Activity 3: Register program of activities for small, medium and large scale biogas plants for relevant carbon markets

Main Tasks

The Project will assist financial supports for carbon markets to sell carbon credit in biogas.

Implemented Activities

The Project is collaborating with the National Biogas Programme (NBP) under the Department of Livestock Production to prepare the plan of proposing PoA and CPA to register in the appropriate carbon markets. The Project has proposed to become the focal point under MARD for entire carbon credit from biogas of the projects by providing funding to strengthen the capacity of BP.

However, carbon credit selling is no longer attractive profit as before due to reduced CDM market price. Moreover, the registration of volunteer market is still complicated, and the mechanism of using revenue from selling carbon credit is not clear. Currently, NBP under DLP has sold carbon credit for VGS volunteer market. The Project will support as requirements of NBP to continue registering for selling carbon credit in other potential markets.

LIC has represented LCASP in various international forums i.e. Asia Pacific Forum in Malaysia (May) and Eco Village Workshop, Singapore (June).

1.1.4. Activity 4: Strengthen relevant agencies to handover the monitoring of the constructed biogas plants

Main Tasks

The Project will support for enhancing capacity of livestock environmental monitoring equipment for relevant agencies at central and provincial levels to ensure the requirements of monitoring quality of biogas plants and the environment after treatment with biogas.

Implemented Activities

ADB has provided no-objection letter to enhance the capacity of livestock environmental monitoring equipment of the project provinces and relevant agencies. CPMU is collaborating with the consultants to prepare bidding documents.

According to regulations of the National Livestock Environment Standards, the management agencies need to monitor 35 analysis indicators of the environment after treatment with biogas. However, the project provinces and some agencies assigned to monitoring the livestock environment are not sufficiently equipped and trained to monitor the livestock environment based on the national standards. Provision of such equipment to monitor constructed biogas plants at central and provincial levels will highly contribute to meet this shortcoming.

1.1.5. Activity 5: Monitor annual attributable CO2 reduction and issuance of carbon revenue from the certified emission reduction.

Main Tasks

The Project will support developing the monitoring system from central to local level to monitor the annual emission of GHG. The Project will provide counseling on operation mechanism of the carbon market in biogas.

Implemented Activities

The Project has collaborated with NBP under Department of Livestock Development to develop the database of biogas plants management, support for selling carbon credit. The official version of the biogas plant database software has been completed and the service provider is preparing the instructions for PPMUs, project consultants, and NBP

The plan of proposed NBP under Department of Livestock Production as the focal agency for selling carbon credit biogas and the revenue use from selling carbon credit to reinvest in biogas development is appropriate (properly) due to the fact that NBP has had experience in this complicated sector. However, in order to support effectively, NBP needs to actively collaborate with CPMU with necessary requirements for earliest implementation.

1.1.6. Activity 6: Enhancing capacity building for the governmental officials and relevant agencies to continue management of the development of NBP.

Main Tasks

The Project will provide training and strengthening capacity and equipment for relevant agencies in management and development of NBP.

Implemented Activities

CPMU is supporting the National Biogas Programme (NBP) under Department of Livestock Production and Department of Science, Technology and Environment, to avoid duplication of biogas assistance works, planning and evaluate the level of completing the national target in biogas development. Department of Livestock Production and Department of Science, Technology and Environment are the two agencies which are assigned to develop NBP by MARD to develop the biogas plants database nationwide. First phase will be implemented in the 10 project provinces. The proposals on strengthening equipment capacity for the Department of Livestock Production, DSTE and the 10 project provinces have been developed by CPMU in collaboration with LIC and approved by MARD and ADB. This has been updated to the Project Procurement Plan of the Project. Now CPMU is preparing the bidding document, and submit to ADB.

CPMU is developing training document, information and communication for enhancing awareness of the officials of the government and relevant agencies on biogas development and creating revenue from selling carbon credit.

There are a significant number of donors and programmes in the management and development of biogas plants in the country. Project supports the management agencies under MARD to develop the database of biogas plants, so as to support MARD to more effectively manage the supporting resources for this sector, as well as provide accurate data for making strategy, plan and monitoring implementation of the national target in biogas development.

1.2. Sub-component 1.2: Providing support for Biogas plant development

1.2.1. Activity 7: Monitor use of biogas plants with adequate environmental facilities.

Main Tasks

CPMU and PPMUs conduct checking operation and environmental items of constructed biogas plants assisted by the Project in order to evaluate quality of the biogas plants assisted by the Project and the level of environmental improvement. The minimum number of checked biogas plants annually is 5% out of the entire biogas plants that were constructed under the Project in the previous years.

Implemented Activities

The project checked 3,006 biogas plants selecting randomly based on the database updated by the project provinces.

The result shows that the checked biogas plants are operating well. No broken digesters found. The farmers are aware of BP operation, maintenance and in accordance with the guidance provided. However, there are a number of negligence detected in some biogas plants such as lack of code inscription or blurred inscription at the time of checking, inaccurate information in the updated database, late incentives to households and others. CPMU has already informed to executive agency to resolve these issues.

1.2.2. Activity 8: Train and certify the technicians, masons, engineers, and contractors for supporting construction of BVC.

Main Tasks

The Project will support training and certify for masons and biogas contractors who are qualified for the need of biogas plants construction/installation of farmers in the 10 project provinces. The Project has also formed a team of qualified technicians to ensure the technical needs of farmers to register application to participate in the Project.

Implemented activities

Qualification of masons and biogas contractors is important to ensure the quality of biogas plants. It is significant to provide training to enhance capacity, extend the resource of technicians and masons, biogas contractors to meet the quality and timely construction of biogas plants.

Until end of July 2016, the Project has organized 39 training courses for 839 turns of technicians, five contractors, 28 technicians for large and medium scale biogas, and 321 turns of masons/installers.

In the coming time, CPMU will coordinate with other agencies to continue organizing advanced training ensuring the quality of the human resource for biogas plants construction of different scales.

1.2.3. Activity 9: Providing incentive for carbon market development.

Main Tasks

The Project will support finance for 36,000 small scale biogas plants, 40 medium scale biogas plants and 10 large scale biogas plants at the rate of 3 million VND/small scale biogas plant, 10 million VND/ medium scale biogas plant and 20 million VND/large scale biogas plant respectively.

Implemented activities

PPMUs have constructed/installed 37,128 small BVC plants and 4 medium BVC plants supporting financial incentives to 28,152 small BVC owners to the end of July 2016.

The biogas plants development has contributed to a high efficiency in investment, social awareness and the environmental improvement. There has been a reduction in cooking time and health improvement using biogas. Small BVC plants have a significant contribution to small households with small livestock farms. However, feasibility of medium and large biogas plants is outside the scope of households, instead it should involve enterprises in bigger scale.

COMPONENT 2: CREDIT LINES FOR BIOGAS VALUE CHAINS

It is targeted that 50% of credit recipients will be under joint account of wife and husband and/or on behalf of women by 2018. The BVC infrastructure is financed through two FIs. ICMD funds are fully channeled to 36,050 accounts of beneficiaries by 2017.

Overall progress under this component against the performance target and indicators is in Table 7.

Table 7: Overall progress of component 2

Design Summary	Performance Targets and Indicators with Baselines	Progress to August 2016
2. Credit lines for biogas value chains	(i) 50% of credit lines will be under joint accounts and/or on behalf of women by 2018.	As of 31 July 2016, 241 sub-loans have been disbursed with total 11 billion VND of which 43.5% of credit lines are under account on behalf of women.
	(ii) BVC infrastructure financing products are mainstreamed in two financial intermediaries by2018.	The 2 financial intermediaries participated in Project are VBARD and Co-op Bank.
	(iii) ICMD funds are fully channeled in to 36,050 accounts of beneficiaries by2017.	Financial incentives are being disbursed through the post office or provincial bank systems.

Main Tasks

The Project will provide credits to farmers and enterprises to construct/install BVC plants through Viet Nam Bank of Agricultural and Rural Development, Cooperative Bank of Viet Nam and other appropriate financial intermediaries in order to develop the biogas value chain infrastructure – including lending for construction of waste collection system infrastructure, biogas plants, biogas utilization equipment (stoves, generators, kilns, gas pipelines,...), environmental treatment items (sedimentation tank, filter tank, items for handling redundant manure,…), items for storing, transporting waste for producing and use organic fertilizer.

Implemented Activities

The financial intermediaries including VBARD and Co-op Bank have conducted disbursing the credit fund for biogas plants construction with a preferential interest rate of 10% lower than the current market interest rate. In 2015, CPMU collaborated with the central FIs to organize training/workshops on information and communication for farmers, financial intermediaries in communes, districts and training on regulations, procedures and lending norms for technicians. However, the progress is still very slow, according to reports of the financial intermediaries, the two financial intermediaries have

only disbursed 241 sub-loans with a total amount of 11 billion VND, accounting for 1.3% out of the allocated credit fund.

Whereas VBARD has disbursed 198 sub-loans with 5.52 billion VND in Bac Giang and Lao Cai, Coop-Bank has disbursed 43 sub-loans with 5.53 billion VND in Binh Dinh and Bac Giang. Altogether they covered only three provinces with overlapping of Bac Giang province. This total disbursement is significantly low as compare to the total commitment of these two FIs, about 13 million USD in the project period.

They also lack a strong marketing on credit program limiting within the training participation only. FIs low interest is also due to heavy paper works compare to a number of small credits to farmers.

Based on the evaluation of the Credit Consultant, on 06 June 2016, MARD proposed to ADB to add Vietnam Bank for Social Policies (VBSP) to participate in the Project. As VBSP has the appropriate lending method for the Project such as focusing to farmer households with small loan; no need of certificate of land ownership (red book); apply microfinance model through civil society organizations; its ability to implement the credit component is very high. Now, VBSP commits to disburse 40 million USD of the credit fund of the Project by the rest of the project period. The credit consultant of the Project has assessed and concluded that this plan is possible.

With the 50% of the project fund allocated to this component, negligible progress in this component has contributed to adverse consequences to the project performance. Slow disbursement of the credit component has made impact to the whole progress of the project implementation.

BVC covering credit was delayed by about a year. Collateral requirements are one of the factors to release the credit where land title, Red Book, have to submit, however, beneficiaries are not ready for small credit amount. In addition, financial institutions are rigid with their administrative formalities. It resulted to low attraction to credit program envisaged by the project.

Participating FIs are rather centered on their regulatory formalities than following the spirit of the project.

COMPONENT 3: ENHANCED CLIMATE-SMART AGRICULTURE WASTE MANAGEMENT PRACTICE (CSAWMP) TECHNOLOGY TRANSFER

The performance targets under this component are i) well established CSAWMP packages are disseminated in 10 participating provinces, ii) one long term, community based CSAWMP technology transfer and research strategy is elaborated by 2014, and includes communication, dissemination, and mainstreaming plans; and iii) critical CSAWMP knowledge gaps are identified and at least 21 research, dissemination, and mainstreaming package carried out according to a priority list, by 2018. 30% of research projects will include gender issues by 2016.

Overall progress under this component against the performance target and indicators is in Table 8.

Table 8: Overall progress of Component 3

Design Summary	Performance Targets and Indicators with Baselines	Progress to August 2016

3. Enhanced CSAWMP technology transfer	(i) Well-established CSAWMP packages are disseminated in 10 participatingprovincesby2016.	- ADB has approved the demonstration models selection procedure, demonstration models content and implementing plans. MARD approved the demonstration models implementing regulation. - ADB has agreed the 02 packages of e-library which will be used for disseminating CSAWMP information packages into 10
	(ii) One long-term, community-based CSAWMP technology transfer and research strategy is elaborated by2014,and includes communication, dissemination, and main streaming plans.	The research strategy is elaborated in line with GoV's GHG emission reduction strategy, which includes communication, dissemination, and mainstreaming plans
	(iii) Critical CSAWMP knowledge gaps are identified and at least 21research, dissemination, and mainstreaming packages carried out according to a priority list, by 2018. 30% of research projects will include gender issues by 2016.	- ADB has no objection for the list and the implementing method of 06 research packages. CPMU, LIC and DSTE have reviewed the TOR of the 6 research packages. CPMU has submitted ADB the Submission 0 of 06 packages and waiting for no objection.

3.1. Sub-component 3.1: Prepare a research strategy to direct project research activities on CSAWMP

3.1.1. Activity 1: Research and trials activities on CSAWMP

Main Tasks

The Project will support developing six research packages on CSAWMP to promote the technologies using agricultural waste for producing organic fertilizer, bio-energy and other activities creating income. The researches on technologies of using cultivation and aquaculture by-products for producing organic fertilizer and bio-energy and other technologies of reducing greenhouse gas emissions are also considered to implement within the Project.

Implemented Activities

ADB had provided no-objection letter to the contents and list of six research packages. Implementing agencies have to recruit to conduct the research following the consultant recruitment procedures of ADB. LIC supported CPMU to finalize the Submission 0 of Package 26 (research on organic fertilizer production from livestock waste and bio-slurry by value chain) and CPMU forwarded to ADB for review and NOL.

Lack of research strategy during design stage and an implementation plan in the Project Administration Manual delayed to conduct research and technology transfer along with the implementation of livestock waste management infrastructure and BVC. It should be noted that PAM has emphasized mainly BVC related activities.

Giving the high priority to accelerate its implementation, CPMU/LIC with the support of MARD experts in consultation with PPMUs identified 77 research topics in March 2015. These research topics were further screened by the Department of Science, Technology and Environment (DSTE) to 23 research topics. All these research topics were from MARD institutes except one is from outside. The research topics along with the draft of Research Strategy were forwarded to ADB in August 2015. However, ADB was concerned to the limited engagement with the provinces in the consultation process and that the MARD institutes were ineligible to implement under ADB procurement guidelines. Following these comments, LIC supported CPMU and PPMUs to prepare procedural guidelines with bottom up approach regarding the identification and selection of research topics as well as biogas related demonstration sub-projects. At this stage, LIC has supported CPMU in the preparation of six research packages (21 sub-projects). These packages have been reviewed by Evaluation Team of MARD (Ministerial Decision 2411/QD-BNN-HTQT dated 16 June 2016). A NOL has been received from ADB.

ADB provided the NOL for the following packages on 17 August 2016.

- Submission 0 of Package No 26: Research on Organic Fertilizer Production from Livestock Waste and Bio Slurry by Value Chain
- Package 34: NOL of application manure separating system to treat livestock waste to produce material for organic fertilizer production for Back Giang, Ben Tre, Binh Dinh, Phu Tho - Household/farm selection result.

The consultants selection methods – Quality Cost Based Selection (QCBS), will be followed for all the procurement of research packages.

Until now, the research activities are vital to find direction for agricultural waste treatment in order to protect the environment and create income for farmers. The research activities are delayed due to slow recruitment of LIC. Therefore, CPMU request ADB and MARD to promptly approve to conduct implementation as soon as possible.

3.1.2. Activity 2: *Establishing an information system for sharing CSAWMP.*

Main Tasks

The Project will support developing an information system (e-library), sharing information on transferring CSAWMP for farmers and enterprises to apply in the 10 project provinces. Relevant research agencies will be involved and promote information sharing on CSAWMP among research units under MARD.

Implemented Activities

The updated project procurement plan has been approved by ADB and MARD. CPMU is collaborating with LIC to develop TOR for the package on design installation, monitoring and technological transferring for e-library system, and expects to submit ADB for no-objection. The equipment package for e-library will be prepared after the design package.

The survey of the consultant shows that farmers and enterprises are facing various difficulties in searching information on CSAWMP and applicability of technologies in production. Forming an e-library system with the participation of research agencies will contribute to link research and extension staff with farmers and enterprises, to promote transferring CSAWMP in actual production.

3.1.3. Activity 3: *Training research and extension staff in efficient CSAWMP (including study tours)*

Main Tasks

Based on the evaluation of training need, CPMU will organize short training courses, domestic and overseas study tours for management officials and research staff of MARD, agricultural extensionists of the 10 project provinces.

Implemented Activities

To date, PPMUs have organized 16 domestic study tours to share experience on the technology of livestock waste management for 278 staff. CPMU is preparing the plan for oversea study tour on the technology of livestock waste treatment at farm-scale in 2016.

CPMU has relevant agencies in developing the plan for organizing training courses for research staff, and staff at professional agencies on the technologies of using agricultural waste for producing bio-energy, organic fertilizer and the technologies of agricultural production with low GHG emissions. Based on training needs assessment by the consultant, CPMU and LIC have identified three topics for training

(i) BVC value chain, effective and safe use of biogas in CSAWMP,
(ii) effective use of agricultural by-products and bio slurry for producing organic fertilizer under value chain, and
(iii) technical process in livestock and cultivation under value chain, reducing GHG emissions, supporting CSAWMP.

With the appointment of Training and Extension Specialist, the e-library and training related activities are progressing supporting CPMU and PPMUs. ADB is concern to the preparation of Training Master Plan and revision of technical specification for the e-library. Distance learning modules with adult learning approach is followed and supported by videos and soft copies. In addition, editing of training models developed by VACVINA and VNUF, and three year training programme for researchers in conjunction with VAAS is in progress.

LIC specialist supported CPMU and PPMUs reviewing training program of the project and prepared Training Master Plan for project training program both in Vietnamese and English languages. LIC specialist also supported and finalised the training work plan of VAAS, CPMU and other trainers.

3.1.4. Activity 4: Develop training program, textbooks, and syllabus for training farmers on appropriate techniques for CSAWMP and provide vocational training for farmers.

Main Tasks

The Project will support developing training programs, curriculums, lecture notes; and printing training documents on CSAWMP for farmers (technology of using agricultural waste for producing organic fertilizer, bio-energy, applying the technologies of reducing GHG emission in agriculture). These training programmes can be used for the national target programme on vocational training for farmers.

Implemented Activities

Based on the training needs assessment of the consultant, CPMU is collaborating with LIC in developing implementation plan of training program and documents related to the technology of using agricultural waste for producing bio-energy, organic fertilizer and reducing agriculture's greenhouse gas emissions in order to protect the environment and create more income for farmers. CPMU is also collaborating with LIC and stakeholders in developing a set of assessment criteria on the outcomes and efficiencies of vocational training in agriculture.

With the review and comments provided by LIC specialist, CPMU finalised Outline of Handbook on Carbon Credit in the field of Biogas Plants and Guiding Construction and Installation of MBPs and LBPs using HDPE and Biogas Plant Management.

3.1.5. Activity 5: Activity 5: Upgrade CSAWMP – based map sets for 7 agro-ecological regions to forecast the direct impact of climate change and provide support for agricultural planning.

Main Tasks

CPMU has collaborated with relevant agencies conducting upgrade and update of map sets of potentiality and current situation of agricultural waste use for producing recycled energy and organic fertilizer in order to support agricultural waste management planning.

Implemented Activities

The Project is conducting to upgrade the map sets of potential and current situation of agricultural waste use for producing renewable energy and organic fertilizer, to include support for agricultural waste management planning. It is significant to update information on potential and current situation of agricultural waste use for producing recycled energy and organic fertilizer in the form of map set in order to support the management units under MARD to plan for development of agricultural waste use for reducing environmental pollution and increasing income for farmers. Until now, there is not any agency under MARD possessing a database on this field.

3.2. Sub-component 3.2: Constructing CSAWMP demonstrations for agricultural waste management

3.2.1. Activity 6: Develop livestock waste management demonstrations for agricultural production and greenhouse gas emission reduction.

Main Tasks

PPMUs will organize implementation of the demonstrations related to livestock waste management in order to achieve the targets of the Project including: (i) transferring at least 70% of the livestock waste amount to produce organic fertilizer; (ii) using at least 80% of the biogas amount produced from biogas plants; (iii) reducing the working time of women and children about 1.8 – 2 hours per day.

Implemented Activities

LIC specialist provided critical inputs especially biogas value chain, biogas technology assessment, identification of demonstration topics and sites; and assessed the demonstration models and research topics to be piloted for BVCM and CSAWMP. CPMU also developed with LIC specialist support the framework for demonstration models with the categorization (seven categories in origin) meeting the local conditions of the provinces and requirement of MARD and ADB. NOL has been received for Guidelines Procedure for the Selection and Implementation of Demonstration and Demonstration Catalogue.

ADB has agreed with the implementation plan and method of the demonstration packages of livestock waste treatment for producing organic fertilizer and bio-energy. The procurement method has changed as CPMU will be responsible for implementing comprehensive procurement of the whole packages instead of PPMUs. Whereas CPMU and PPMUs will sign contract with the winning bidder, PPMUs will manage the contracts and payment from the allocated fund. The procurement process of demonstration packages is expected to begin in Q3 of 2016. CPMU has already organized a meeting with PPMUs addressing implementation contents, method and plan of the demonstrations under Component 3. MARD has made the Decision No. 2081/QĐ-BNN-TC dated 07 July 2016 on regulations of implementing the demonstration models under LCASP. According to this guidance, PPMUs have to select households and locations to implement the demonstrations. By 31 July 2016, 4 PPMUs, Bac Giang, Phu Tho, Binh Dinh and Ben Tre, have submitted full document of household selections for the demonstration i.e. application of manure separating system to treat livestock waste to produce

material for organic fertilizer production at farm scale. CPMU has synthesized a report of household selection results of the four provinces and submitted ADB for no-objection letter.

Academic delegates of Tokyo National University, Japan, Faculty of Biological Technology – Seoul National University, Korean, Faculty of Biological Technology – Kasesart Agriculture University, Thailand, Bauer Co., Austria, AEM Engineering Co., Denmark visited LCASP/LIC to update technology of biogas, BVC, separator and organic fertilizer technology in the world. These appropriate international organizations with biogas plant related experiences will consider applying into LCASP project in coming time. President of VBA has taken a keen interest on the project achievements and technological development. LIC is in regular contact for wider sharing.

3.2.2. Activity 7: Training agricultural extensionists and farmers on CSAWMP.

Main Tasks

CPMU and PPMUs will coordinate with the training agencies to organize training courses for about 7,700 turns of farmer and agricultural extension staff on techniques of agricultural waste management and CSAWMP.

Implemented Activities

Until the end of July 2016, the Project has organized 58 training courses for agricultural extension staff, key farmers on CSAWMP with 2,062 turns of participants, of which 931 people are female. PPMUs continue preparing training courses for agricultural extension staff and farmers on CSAWMP, to be implemented in second half of 2016.

The training activities for farmers and agricultural extension staff are significant for supporting farmers and enterprises in applying CSAWMP into actual production. However, the implementation agencies need to pay attention on evaluating quality of these activities and complying the criteria of gender and ethnic minorities of the Project.

COMPONENT 4: PROJECT MANAGEMENT

The performance targets under this component are

- A CPMU and 10 PPMUs established and operational with adequately skilled staff and facilities in MARD by first quarter of 2013.
- At least 30% of staff are women and gender local focal point will be appointed by 2014.
- PPMS with sex disaggregated and ethnicity data collected and reported operating effectively in 10 provinces by 2015.
- Carbon market coordinator and 36,000 biogas owners are organized through associations by 2014.

Mr. Nguyen The Hinh is the Project Director of LCASP from the beginning of the project. MARD organized a functional CPMU of the project with Project Director, Deputy Project Director and other staff along with 10 PPMUs, and two PFIs, and TSU[2]. CPMU held a Project Launching Workshop on 9 August 2013.

LIC started to function from November 2015. Working regulation between CPMU and LIC team was agreed on 1 February 2016.

Overall progress under this component against the performance target and indicators is in Table 9.

Table 9: Overall progress of component 4 (Project management)

[2] ADB Aide Memoire, Loan Inception Mission, 16 – 20 September 2013

Design Summary	Performance Targets and Indicators with Baselines	Progress to August 2016
4. Effective project Management	(i) A CPMU and 10 PPMUs established and operational with adequately skilled staff and facilities in MARD by first quarterof2013. At least 30% of staff are women and a gender focal point will beappointedby2014.	MARD appointed Dr. Nguyen The Hinh as the Project Director to lead project implementation and to supervise the Project's CPMU. He will be supported by two Project Deputy Directors, Mr. Hoang Thai Ninh and Mr. Vu Tien Dung; and approximately 25 staff in the CPMU office. Each PPMU is led by a project manager. Key PPMU staff have been selected based on their qualifications and experience in the management of similar projects. To date, approximately 46% of staff is women.
	(ii) PPMS with sex-disaggregated and ethnicity data collected and reported operating effectively in 10 provinces by 2015.	Monitoring and Evaluation consultant has been mobilized and conducted M&E tools for DMF, GAP, Loan covenant, and Training data.
	(iii) Carbon market coordinator and 36,000 biogas owners are organized through associations by 2014.	Being implemented. NBDP will be formulated as a carbon market coordinator for all biogas plants supported under MARD's biogas projects

Working Approach

Given the project design with the empowerment of the beneficiaries, organizationally and with accountability, participatory approach is followed, however, limited to desired level. It was intended to follow the process based approach from provincial level, however, due to output demand by the delayed project implementation, LIC team was mobilized to "pursue an output driven approach".

LIC inputs are based on demand driven approach from the stakeholders, particularly from CPMU and PPMUs. LIC support in the field and centre are covered by supervision, technical support, on the job training, coaching and follow up. All the documents are critically reviewed and comments provided as necessary. Project documents, guidelines, training packages, extension and communication materials are thoroughly reviewed and checked with quality assurance. LIC team exercises and meetings with CPMU and PPMUs are conducted on a regular basis and a team building is kept abreast.

CPMU and LIC team attended various meetings in central and provincial levels, workshop and seminars sharing LCASP experience and learning.

Implemented Activities

MARD has approved the Master Plan of the whole project, the Project Procurement Plan, the Master Training Plan, and annual financial plans as base for implementing the activities under the Project. The Project Implementation Manual and the Project Financial Management Manual were established and CPMU has organized training courses for PPMUs on implementation guidance.

CPMU regularly organizes missions to the project provinces in order to support, supervise, coordination and resolving issues and problems on the project implementation through meetings and site visits.

Reports such as quarterly and annual reports are provided to ADB, MARD and APMB by CPMU, PPMUs and LIC on regular basis. LIC Inception Report has been prepared and submitted to CPMU. All the consultants provide monthly reports regarding their performance outputs.

Human Resources

CPMU and PPMUs are fully staffed as per the project requirements.

Loan Implementing Consultants (LIC)

LIC team was mobilized since November 2015, firstly with the involvement of four national consultants. Team Leader (International) and additional national consultants provided services since early 2016. However, some of the short term consultants resigned and replacement had been made. Meanwhile, the Team Leader resigned (July 2016) and new Team Leader joined the project in later part of August 2016. International CSAWMP Specialist provided seven days of input in January 2016.

There is a reduction of the Technical Assistance contract period from four to three years compared to bidding stage, and curtailed period of Biogas Value Chain and CSAWMP experts to same amount. However, the outputs are kept the same.

Other consultants

The on-going consultants are now coordinating closely with CPMU to implement Project including: (i) Project Management Consultant (LIC); (ii) Baseline Survey; (iii) Project Auditing; (iv) National Biogas Value Chain (BVC) Credit Market Specialist; (v) National Commercial Business Planner-Finance Specialist, (vi) International Agribusiness Specialist.

Until now, the three national independent consultants including the agribusiness consultant, the training consultant and the PIM/PAM consultant had been completed their contracts.

5. Procurement of Civil Works, Goods and Service

List of Awarded and On-going, and Completed Contracts

Goods and Works							
Package Number	**General Description**	**Estimated Value**	**Contract Value**	**Procurement Method**	**Advertisement Date** (quarter/year)	**Date of ADB Approval of Contract Award**	**Comments**
Package 8	Accountant Software	80,000.00	33,610.00	Shopping	30-JUN-2014		Contract was Liquidation
Package 12	Produce and publish documentary films on utilization agricultural waste to producing bio-energy, organic fertilizer and environment protection measures in agriculture production.	95,000.00	66,078.00	Shopping	Q4/2015		Post review On-going contract

Package 13	Develop database management software system for biogas plants	90,000.00	86,729.00	Shopping	Q4/2015		Post review On-going contract
Package 16	Upgrading map sets for seven agro-ecological regions to forecast potentiality and current situation of agricultural waste using for producing renewable energy and organic fertilizers, and provide support for agricultural waste management planning.	90,000.00	88,616.00	Shopping	Q4/2015		Post review On-going contract
Package 17	Develop and publish documents on CSAWMP	92,000.00	47,241.00	Shopping	Q4/2015		Post review On-going contract
Package 19	Vehicle for Phu Tho province	50,000.00	45,455.00	Shopping	Q4/2015		Contract liquidated
Consulting Services							
Package Number	**General Description**	**Estimated Value**	**Contract Value**	**Recruitment Method**	**Advertisement Date** (quarter/year)	**Date of ADB Approval of Contract Award**	**Comment**
Package 1	Project Management Consulting Services	2,417,000	2,185,018	QBS	Q2 / 2014	November 2015	Associate: Agrifood Consulting International, Inc and ASIA DEVELOPMENT CONSULTANTS JOINT STOCK COMPANY
Package 3	Baseline Survey	146,080.00	130,800.00	FBS	Q1 / 2015	28 January 2016	Joint venture

							between Institute of Research and Consultancy on Development and ASEAN Development and Management Consulting Ltd
Package 4	Project Auditing (Stage 1)	125,000.00	47,143.00	LCS	Q4 / 2013	September 2015	UHY ACA Audit &Advisory Services Limited
Pakage 5a	Project Start-up support Consultants	150,000.00	59,543.00	ICS	Q4/2013	17-MAR-2014	3 separate consulting contracts awarded
CS Package 6	Start-up Consultants	60,000.00	26,323.00	ICS	Q4/2013	29-APR-2014	Contract was Liquidated Mrs. Le ThiThoa
CS Package 7	Start-up Consultants	10,000.00	7,905.00	ICS	Q4/2013	17-MAR-2014	Contract was Liquidated (Mr. Nguyen Dinh Vinh)
CS Package 8	Start-up Consultants	30,000.00	21,005.00	ICS	Q4/2013	17-MAR-2014	Contract was Liquidated (Mrs. Le Thi Nhung)
CS Package 9	Start-up Consultants	80,000.00	79,332.00	ICS	Q4/2013	06-JUL-2015	Mr. Lindsay Saunders
Package 20	National biogas value chains (BVC) credit market specialist	11,500.00	9,992.00	IC	Q3/2015	18 January 2016	Mrs. Đinh Thị Minh Thái
Package 21	National commercial business planner – finance specialist	29,500.00	25,788.00	IC	Q3/2015	18 January 2016	Mrs. Nguyễn Thị Bích Hạnh

6. Project Costs and Financing

6.1. Contract Awards and Disbursement:

Accumulated from the beginning of the Project until 31 July 2016, the total ADB loan fund for the whole project is 67.506 million USD, of which the credit fund is 32.336 million USD, contingencies fund is 2.172 million USD and interest rate is 2.187 million USD. Therefore, the total fund of ADB for non-credit activities (for CPMU and 10 PPMUs) is 30.256 million USD. Until now, the CPMU and 10 PPMUs have implemented 12.378 million USD, achieved 40.91%, disbursed 9.038 million USD, and achieved 29.87% out of the total implementation ADB loan fund of non-credit activities (30.256 million USD). The 02 FIs have implemented 0.7 million USD, accounted for 1.5% the ADB loan fund.

6.2. Reallocation of Loan Proceeds

No	Category	Amount in Loan Agreement	Amount remaining in 31 August 2016	Reallocation
1	Biogas Value Chain Management and CSAWMP Civil Works	5,300,000	4,816,508	3,413,045
2	Credit lines for BVC Management Construction	35,700,000	32,336,000	32,336,000
3	Incentives for Carbon Market Development	8,130,000	7,621,737	8,130,000
4	Equipment	1,000,000	926,323	1,500,000
5	Vehicles	400,000	395,889	395,889
6	Training and Workshops	3,030,000	2,806,733	3,503,000
7	Consulting Services	2,960,000	2,686,830	2,960,000
8	Research and Development	6,260,000	5,677,964	6,260,000
9	Organizing CSAWMP Technology Transfer	3,470,000	3,150,858	3,470,000
10	Incremental Operating Costs	2,340,000	2,175,796	3,340,000
11	Interest Charge	2,410,000	2,193,669	2,193,669
12	Unallocated	3,000,000	2,735,023	0
	Total	74,000,000	67,523,330	67,501,603

7. Benefit Monitoring and Evaluation

The monitoring and evaluation system of the Project has been developed in a scientific manner to monitor and reflect sufficiently current status of the Project progress. Based on the CPMU prepared reporting formats for the quarterly and annual report for PPMUs, PPMUs submit implementation progress reports to CPMU to synthesize and summarize in the project implementation progress report following GoV and ADB requirements.

CMPU established monitoring and evaluation and reporting framework based upon Design and Monitoring Framework (DMF). LIC Specialist is closely working with the CPMU and PPMUs supporting provincial coordinators to gather data and biogas quality assessment and regular updating of M&E framework. With the progress to date, LIC is supporting CPMU in reviewing all output performance targets with respect to Design and Monitoring Framework.

LIC specialist opined that, in the process of project restructuring, project resources have to be carefully rationalized against expectations of Project. The PPMS still needs further improvement. Some outputs indicators for Component 3 need supplement aiming at better monitoring of Demonstrations and Research Packages.

The Project has developed a draft of DMF with appropriate adjustment for the current status of the Project (Appendix).

LIC team was closely worked with the baseline survey team reviewing methodology and questionnaires. Baseline survey report is provided in July 2016.

8. Key Issues and Lessons Learned

There are a number of operational and performance issues as follows.

Technical

1. No effective solutions to use both of bio-products (bio-slurry) and surplus animal manure that is not feeding to biogas digester.
2. While the livestock farming is expanding, the capacity of SBP is fixed by design. Scum and sludge will be discharged untreated into environment where bio-digester capacity is low.
3. The surplus biogas from most of the MBPs and LBPs is often emitted without application of suitable technologies or flaring – resulting to avoidable and unnecessary increase of greenhouse gas emissions.[3]
4. Suitable technologies for constructing medium and large scale biogas plants have not been identified, outside the HDPE (High Density Polyethylene) covered lagoon.
5. According to regulations of the National Livestock Environment Standards, the management agencies need to monitor 35 analysis indicators of the environment after treatment with biogas. However, the project provinces and some agencies assigned to monitoring the livestock environment are not sufficiently equipped and trained to monitor the livestock environment based on the national standards. Provision of such equipment to monitor constructed biogas plants at central and provincial levels will highly contribute to meet this shortcoming.
6. The plan of proposed NBP under Department of Livestock Production as the focal agency for selling carbon credit biogas and the revenue use from selling carbon credit to reinvest in biogas development is appropriate (properly) due to the fact that NBP has had experience in this complicated sector. However, in order to support effectively, NBP needs to actively collaborate with CPMU with necessary requirements for earliest implementation.

Operational and Managerial

1. Lack of specialists created gaps in the program support.
2. Strategic planning with consistent project implementation is lacking. This has adversely affected the international and national expert's timely inputs. The Work Plan should be consistent and realistic.
3. Whereas the carbon credit program with transparency and accountability of beneficiaries should be followed with monitoring, reporting and verification, strengthening of such stakeholders i.e. beneficiaries, should be improved.

Lessons Learned

[3] Inception Report LCASP, May 2016

1. With the experience of the project implementation, the project focused on livestock waste management with biogas plant installation as compare to crop waste. Though there are areas to address crop waste, however, project beneficiaries are more tended towards the livestock wastes.
2. Effective coordination between CPMU/LIC and PPMU is imperative for result oriented output. All the stakeholders should follow strategic planning once agreed.
3. Biogas technology is not new in Viet Nam having an encouraging national program for small scale biogas plants. Medium and large scale biogas plants technology has been initiated, however, it is challenging due to lack of suitable solutions for biogas plant application. Biogas plant with animal manure separation technology for organic fertilizer production is an essential solution. This will address for animal waste management in coming time.
4. Two potential aspects affecting GHG emission in carbon market are the release of methane (in case of over biogas production) and untreated manure (in case of over loading). Under LCASP demonstration models, these issues are addressed by installing separator machines/biogas generators.

9. Recommendations and Conclusions

Component 1

1. Investment to construct medium and large scale biogas plant are about VND200 million and over VND700 million respectively (about VND 1 million per m3 of biogas plant). It is recommended to increase the project subsidies to medium and large scale biogas plants to VND 40 million and VND 140 million respectively (about 20% of total investment).
2. Most of livestock households are poor and they normally give priority to invest the lending money in increasing livestock heads, which is more profitable than investing into biogas plants. Therefore, apart from providing sub-loans to households, financial incentives are important to encourage households investing into the livestock environment treatment. At present, the GoV's policy (Decree 50/2014/TTg dated 04 September 2014) allowed Government budget to support livestock households with the financial incentives up to 5 million VND per small biogas plant. Some provinces already applied this supports of 5 million VND per biogas plant to livestock farmers. However, Government budget is limited so that the LCASP's fund, even with the lower support of 3 million VND per biogas plant, is an important resource to implement this policy in the situation of increasing concerns about livestock environment in Vietnam.
3. At the current CDM market, the revenue from biogas CERs is currently not attractive until the CER price increased. However, development of biogas plants is still relevant in LCASP since after COP 21, Vietnam developed INDC, which consists of the target of construction of 500,000 biogas plants in the next 10 years. The INDC will be verified soon and become NDC, which Vietnam must comply as an international commitment to cope with global climate change. With the current national budget difficulty, Vietnam deadly needs ADB support to implement its NDC commitment of 500,000 biogas plants in the next 10 years.

Component 2

1. Project performance has been highly set back from Component 3 on credit support. FIs have to come up with effective credit support to expedite timely disbursement.
2. CPMU highly recommend Viet Nam Bank of Social Policy (VBSP) as an implementing agency for the credit component of the Project with the rest of the credit fund to channelize though

this bank.

3. With the successful credit programs envisaged under cooperatives and social organizations such as Farmer's Organization and Women's Union in Viet Nam, BVC credit support will be more effective and efficient through these organizations that are well familiar with the local conditions.
4. Interest rates of the credit should be lower than the present rate. The participating beneficiaries should be well familiar with carbon credit that they will ultimately take advantage.
5. Besides credit support for biogas plant construction, FIs should explore opportunity to support organic fertilizer from animal manure.

Component 3

1. ADB no-objection and MARD to have promptly approve the procurement activities of research and demonstration packages to follow the schedules agreed upon.
2. LCASP should follow the applied research approach with the participation of local beneficiaries sharing research results and realize advantage to them both financially and environmentally.
3. Besides HDPE covered lagoon biogas digester for medium and big livestock farms, introduction of advance livestock waste treatment technologies is imperative to meet practical requirements. There are available technologies to process livestock manures into organic fertilizers and bio-energy.
4. Scaling up of the research results should not be limited within the project provinces but also outside the project. The project can play a role model disseminating the research results.
5. Until now, the research activities are vital to find direction for agricultural waste treatment in order to protect the environment and create income for farmers. The research activities are delayed due to slow recruitment of LIC. Therefore, CPMU request ADB and MARD to promptly approve to conduct implementation as soon as possible.