MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT (MARD)

ASIAN DEVELOPMENT BANK (ADB)

LOW CARBON AGRICULTURAL SUPPORT PROJECT (LCASP)

REPORT ON

TRAINING MASTER PLAN

Hanoi, November 2016

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ABBREVIATION

ADB	:	Asian Development Bank
CPMU	:	Central Project Management Unit
CSAWMP	:	Climate Smart Agriculture Waste Management Practice
DARD	:	Department of Agriculture and Rural Development
DMF	:	Design and Monitoring Framework
LCASP	:	Low carbon agriculture support project
MARD	:	Ministry of Agriculture and Rural Development
M&E	:	Monitoring and evaluation
PPMUs	:	Provincial Project Management Units
TNA	:	Training need assessment

I. BACKGROUND

Low Carbon Agricultural Support Project, Loan No.2968-VIE (SF), was signed on 07 March 2013 and came into effect on 05 June 2013. The Project is implemented over a period of six years: 2013-2018. The objectives of the Project inlcude: (i) establish an environmentally-friendly, effective, sustainable agriculture via development and replication of research models and transfer of the agricultural production technologies towards the lower greenhouse gas emissions and mitigation of (adaptation to) climate change impact, effective utilization of natural resources, agricultural by-products, effective management of farm product post-harvest preservation and processing. (ii) Reduce the environmental pollution caused by the agricultural wastes via the expansion and development of biogas programme from small scale facilities (small biogas plant) to medium and large ones for the sake of creating the clean energy sources, improving the livelihood and raising the life quality of the rural inhabitants. The Project is to be implemented in 10 provinces of Son La, Lao Cai, Phu Tho, Bac Giang, Nam Dinh, Ha Tinh, Binh Dinh, Tien Giang, Ben Tre and Soc Trang.

The Project has four components: (i) Expanded use of livestock waste management infrastructure; (ii) Credit lines for biogas value chains; (iii) Enhanced CSAWMP technology transfer and (iv) Effective project management

The objectives of capacity development activities of the Project aimed at strengthening quality of staff (managerial staff, extension staff and researchers) from central to local level and training local people on effective operation and maintenance of biogas plants, environmental protection, lower GHG emission. The Project also lays the stress on raising the awareness of the participants of the common considerations related to low carbon agriculture and areas concerned, carbon credit market and the technologicial procedures related to low carbon agriculture, meeting the selected standards and required eligibility conditions.

Activity of training and capacity development of the human resources is embedded in the Project components, including: (a) Capacity development of managerial, extension and research staff from central to local level on the carbon credit market, environmental monitoring/management, livestock waste management, application of CSAWMP according to value chain, (b) Training for technicians, masons, contractors and farmers on the technicial procedures of construction, utilization, maintenance and treatment of the problems of the biogas plants, CSAWMP and livestock waste management, (c) formulation of training programs, textbooks, vocational training materials for the farmers on the livestock waste management technologies, (d) Training on deployment of database management software for the users of LCASP project, other relevant agencies (QSEAP, LIFSAP and DLP), (e) management and exploitation of e-library system.

All of these actions are to fullfil the objectives: 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.

LCASP envisage the expanded use of livestock waste management infrastructure, credit lines for biogas value chains and enhanced CSAWMP technology transfer reducing GHG emissions supported by capacity building to improve skills and knowledge and efficiency of the stakeholders involved at various levels including project provinces. The purpose of the Master Training Plan (MTP) is to understand and plan overall project related capacity building program to be implemented transparently and effectively on time meeting the project demand on the efficient personnel and participating farmers.

II. The LCASP capacity strengthening and training program

II.1 Overview

The LCASP project capacity strengthening and training has key features (i) Capacity development of contingent of technicians, engineers, contractors and stakeholders to support the techniques of construction/operation of biogas plants in a safe and effective manner, (ii) capacity development of livestock waste management and CSAWMP for the staff and farmers in 10 provinces and stakeholders to develop the low carbon livestock production technologies according to the value chain in an effective and sustainable manner, (iii) implementation of gender actions to support the stakeholders (from central to local, women and children in 10 provinces) to develop, manage and utilize CSAWMP in an effective and sustainable manner, reducing the working time of the women and children.

The training activities play an indispensable role in project implementation, mainly because of its importance in building and reinforcing capacity to manage and skill to implement the Project at all levels (national level staff, provincial, district, and commune, hhs/livestock farm) for the smooth operation of the components towards sustainable outcome and long lasting socio-economic benefits to the rural sector, especially poor and ethnic group areas.

II.2 Capacity constraints to be addressed

The LCASP capacity building and training is designed to address the capacity constraints faced by project stakeholders in livestock waste management projects in particular and agricultural waste management projects. The constraints in capacity in the livestock waste management and low carbon agricultural production are shown in the report on Training Needs Assessment of LCASP as detailed below:

- Constraint in treatment of livestock waste: Total amount of agricultural by-product in 10 provinces reaches about 48,71million tons, including 34,49 million tons of livestock waste. Such amount is mainly used for the cultivation or discharged into the enviroment while the portion processed via the biogas plan is modest. As a result, the formulation of training programs/modules for the comprehensive management of livestock waste and the effective low carbon agricultural production technologies according to the value chain for the

extension staff, farmers, research staff and the relevant agencies is one of the pressing requirements at this time.

- Constraint in the utilization and development of biogas plants: The fact is that the number of hhs utilizing the biogas plant to treat the livestock waste is modest and many hhs possessing the small scale biogas plants dumped excessive manure into biogas plant, overloading it and polluting the environment. Currently there are a total of 261,625 livestock hhs in 10 provinces who are raising more than 10 pigs equivalent, wish to construct biogas plants. In addition, as for the biogas plants of medium and large size (the ones constructed by the local people and were not supported by the Project), the gas produced is almost unused and directly discharged into the environment, polluting the surroundings and reducing the efficiency of them. In order to develop the biogas technology and effective livestock waste management, the Project needs to provide the local people and farm owners (those who get their biogas plants constructed) with the training courses on the technologies for livestock waste and cultivation waste treatment for the purpose of raising the income of the local people besides reducing the environmental pollution and lower GHG emission.

-Constraint in primary vocational training for rural labourers: According to the Decision No. 539/QĐ-BNN-TCCB concerning the approval of "program of primary vocational training to serve the training of rural labourers", the profession of utilizing the agricultural by-product for the low carbon agricultural production is not listed among a total of 30 approved ones. According to the statistics related to the training and vocational teaching in the agricultural sector in 10 provinces (as of 2014), there are no primary vocational training on the utilization of agricultural by-products which got the approval of MARD and also there are no vocational training courses for the rural labourers concerning the utilization of agricultural by-products. Therefore, the formulation of the primary vocational training courses for the farmers on the effective and comprehensive livestock waste management is necessary to meet the vocational training objectives for the rural laborers by 2020.

To address these constraints, significant capacity building inputs have been designed for the Project focusing on three key components:

Component 1: Capacity development for masons/installers and technicians so that they can consult and provide the technical support to those who have the demand for construction, maintenance and effective handling of issues related to the biogas plants.

Component 3: Capacity development for the local people in the management of livestock waste in particular and agricultural by-product in general, aiming at the mitigation of environmental pollution and generation of more employment. In addition, the Project also supports the capacity development for the research staff and relevant stakeholders for integrating the research work into the implementation of models.

Component 4: Capacity strengthening of project implementation and management of the staff of CPMU, PPMUs in 10 provinces and agencies under MARD and DARDs in project provinces.

II.3 Review of training activities to date and comparison with project design and monitoring framework

In the initial stage of project preparation (in 2013), key inputs have been designed for capacity building of national and local level staff, especially the technicians, masons, contractors and relevant stakeholders (including the beneficiaries of the Project such as farms/owners) such as skill of consultancy, construction, operation, management, utilization and development of biogas plants in a safe and effective manner; especially the workshops/trainings (ToT) for the local authorities on the criteria selection and potential livestock hhs who shall construct the biogas plants of small, medium and large scale, workshop on the experience sharing on the agricultural vocational training for the farmers, workshop for identifying training modules on the low carbon agricultural production in the field of livestock waste management, workshop on the guideline of procedure of construction and installation of biogas plants of medium and large scale, workshop on identification of demands and contents of low carbon agricultural production model. These were to be further streamlined upon mobilization of the Loan Implementation Consultants (LIC) and used as a basis for a master training plan to be developed at the start of project.

Prior to the development of this master training plan by LIC, training activities related to the training contents (from 2013 – 2016) were conducted by the CPMU and PPMUs. The purpose was to provide the necessary training/workshop for project preparation at the time of project start-up and application/development of biogas technologies in 10 provinces properly to avoid delays in project implementation. The training activities which were mainly aimed at capacity development for technicians, installers/masons, contractors, farmer hhs, farms and central level and provincial level project staff and related agencies of MARD and DARD.

Table 1: Comparison of training activities, capacity strengthening and DMF performance indicators

No.	DMF performance indicators	Activities of training and capacity development implemented from 2013 to 06/2016	Remaining targets for the master training plan (07/2016-2018) based on needs assessment in the Project provinces
	36,000 SBP operators, 500 masons, 160 technicians, 10 engineers and 10 contractors trained and registered in biogas associations by 2018. At least 50% of trainees on biogas use will be women; 20% of	- Provide the training and guiding to 34,115 SBP operators, including 11,704 women. - Provide training to 343 masons, including 17 women - Provide training to 1,093 technicians, including 268 women	-Provide the training and guiding to 16,915 SBP operators - Provide training to 343 masons - Provide additional and advanced training to 214 technicians

	trainees on SBP construction, and 20% of those trained on biogas management and technical issues will be women.	- Provide training to 5 contractors and 10 engineers	

II. TRAINING PLAN SCOPE

The Master Training Plan is prepared accommodating all trainings of the project to be organised by various agencies including CPMU and PPMU. Scope of the plan is high covering all stakeholders and understanding the training implementation based on DMF and sub-projects. This will contribute to database maintenance under PPMS and reporting with clear understanding related to the activities. The MTP is included training activities, study tours and communication caimpaigns.

Key features of the MTP of the Project are as follows:

- Enhance the capacity of the stakeholders on overall biogas plants construction and its management; livestock waste management and CSAWMP; safeguards of the project (gender, environment and ethnic minorities) and project related management skills. While it is targeted to technicians, masons, engineers, contractors/suppliers, biogas users and others on technical capacity to support the biogas plants construction, operation, maintenance, and health and safety, capacity development on low carbon livestock waste management technologies and CSAWMP following biogas plant value chain are provided to extension staff, farmers and others stakeholders. Additionally, safeguards related capacity is an integral part of the project to develop, manage and apply CSAWMP, with labour saving of women and children.
- Strengthen the capacity on CSAWMP with research and innovation in local conditions. Central and regional stakeholders such as research institutes and academics will be involved to enhance their research capacity.
- Awareness generation related communication materials in graphics, audio and videos are produced and disseminated targeting famers, extension staff, general public and others.

III. TRAINING NEEDS ASSESSMENT

The Master Training Plan of the Project is prepared on the basis of the project design, ADB's projects and TNA report of the project consultants.

The national consultant conducted the information collection and consulted with the target groups of the Project via the reports, programs, agricultural/rural training schemes, workshops and review report of LCASP implementation in 2015 prepared by CPMU and PPMUs.

Main findings of the TNA were as follows:

- Leaders of the PPMUs said that they have qualified staff with rich experience to work for LCASP project. Most of PPMU staff graduated from universities and majored in economics, agriculture and enviroment. Among the female staff now working at PPMUs, some are technicians and the majority is accountants and administrative officers. In addition, many PPMU staff has ever worked for some projects which are either completed or on-going within the provincial terriory. They has attended some training courses on capacity development or related to the current project activities. In conclusion, due to their quite high education background and technical capacity, PPMUs' staff now can meet the requirements of project activities.

- To equip the contingent of masons, technicians, engineers and contractors with the knowledge and background information about the biogas plants and to provide the technical support to the local people who have the demand for constructing the biogas plants as well as to enable them to see the benefits of the biogas plants, how to operate them in a proper and effective manner, aiming at reducing the environmental pollution and effectively managing livestock waste, it is necessary to raise the awareness of them via the training and dissemination activities by the Project.

- The dissemination strategy for the local people about the ways to operate and maintain the biogas properly is needed to bring about the practical results in terms of enviroment. Besides the biogas technologies for livestock waste treatment, the others are needed for the handling of excesssive manure to avoid the plant overloading. Considering the above requirement, besides the biogas technologies, the Project needs to provide the farmers and extension staff with the training courses on the technologies of livestock waste management such as composting, red worm raising, utilization of bio-bedding, etc. which help improve the enviroment and generate more income for the local people.

- Considerations of ethnic minority groups and gender shall be promoted within the community. At present, the number of working hours of women and girls is higher than that of the man. The awareness of this element shall be enhanced in the society: in all the Project provinces, the dissemination programs about the gender and ethnic minority groups as well as the training programs on gender action plan/social activities/poverty reduction are needed in the Project provinces, especially in the areas where the ethnic minority group predominates.

- The TNA confirmed the need for using different training modalities due to the large number of stakeholders and the varying needs of groups targeted for capacity building. PPMUs and related agencies confirmed the need for training on biogas technologies, low carbon agricultural production to reach as many target groups as possible. Implementation of training courses need to be held in the communes closest to the location of livestock hhs/farms for practice and learning by doing. A need was expressed for the importance of establishing demonstration models for biogas plants and livestock production for lower GHG emission according to the effective value chain which can use for hands-on training.

- For treatment of agricultural residues in the livestock production sector in 10 provinces and given the the demand for training and vocational training in the Project working areas, it is expected that training modules (for various target groups) is needed within LCASP project.

III. MASTER TRAINING PLAN

III.1 Training Goal and Objectives

The goal of the Master Training Plan is to provide all stakeholders of LCASP with the knowledge and skills required to meet the Project objectives. The training objectives are to:

- Develop the capacities of masons/installers, technicians, biogas contractors and relevant stakeholders in the construction work and technical support to the local people in the biogas plant construction

- Raise the awareness of the local people who have the demand for biogas plant construction of the benefits of biogas plants, skills of operation, maintenance and utilization of them in a safe and effective manner.

- Develop the capacity of the extension staff, farmers and relevant units on the low carbon agricultural production technologies and livestock waste management (such as red worm raising, composting, utilization of bio-bedding, etc.). for livestock evironment reduction.

- Develop the capacity of managerial staff, research staff concerning the low carbon agricultural production technologies, biogas value chain, effective utilization of biogas, operation/maintenance/repaire of biogas plant, carbon credit market, CDM for the sake of GHG emission reduction and planning for integrating the acquired knowledge into the profesional areas or assigned tasks.

- A number of training courses on the strengthening of project technical and managerial staff including database software, utilization of e-library system, enviromental monitoring equipment, etc.

III.2 Key training and capacity development areas and target groups

Following the consultations during the TNA the MTP for 2016-2018 has been designed to give emphasis to the key training areas and specific target groups:

III.2.1 Training and capacity development areas

III.2.1.1 Training courses organized by CPMU

- Training on the Project management and procurement
- Accounting training
- Training on the Project manuals
- Training for technicians, engineers and contractors: additional and advanced training for the technicians of province and district which shall provide the technical support to the local people who shall construct the biogas plants: provide the advice to the local people, guide the checking of plant, monitor the construction and operation/maintenance of the plant, help them process the formalities to get the financial support from the Project.

- Training on low carbon agricultural production technologies, management of livestock waste: training for the extension staff, farmers and other relevant stakeholders on the livestock waste management (red worm raising, bio-bedding, composting, etc.) for reducing the environmental pollution, lower GHG emission, higher income for the local people.
- Training on the utilization of environmental monitoring equipment: training on the capacity development for the staff utilizing the environmental monitoring equipment.
- Training on the deployment of database management software of biogas plants: database management of biogas plants under the Projects which are managed by MARD to serve the sale of carbon credit.
- Training on the operation of e-library system: training for the staff of the beneficiary agencies on the e-library system, how to use and exploit this effectively.
- Training workshops for research staff on the low carbon agricultural production technologies, biogas value chain, carbon credit management mechanism so that the management staff can map out the ideas and policies for embedding these issues into the research work and model according to the action plan for adaptation and mitigation of climate change set out by MARD as well as to support the local people and enterprises in the environmental reduction, GHG emission reduction and building up a clean and green agriculture.
- Study tour abroad to learn about the biogas technologies and low carbon agricultural production.
- Training on gender and ethnic minority group for the local people in 10 project provinces.
- Training on comprehensive agricultural waste management technologies through research/pilots on the utilization of livestock wastes for organic , crop by-products..

III.2.1.2 Training courses conducted by PPMUs

- Training for masons: Training for masons/installers on the satisfactory construction of biogas plants and on the safe and proper operation.
- Training on operation and maintenance of biogas plants: training for the local people who registered for construction/installation of biogas plants on the benefits of biogas plants, how to operate and maintain them in a proper, effective and safe manner.
- Training for the technicians: Training for provincial or district technicians who involve in the provision of technical support to the local people in the construction and installation of biogas plants: provide advice to the local people, guide the checking of plants, supervise the construction, directly instruct the local people how to operate, maintain the works, help them process the formalities to get the financial support from the Project.
- Training on the deployment of database management software of biogas plants: Guide the technicians and project staff in the Project on how to enter and access the data as well as to manage the database of the biogas plants under the provincial projects. Database

management of biogas plants of the Projects which are managed by MARD to serve the sale of carbon credit.

- Training on environmental monitoring equipment: training on the capacity development for the staff utilizing the environmental monitoring equipment.
- Training on low carbon agricultural production technologies, management of livestock waste: training for farmers and other relevant stakeholders on the livestock waste management (red worm raising, bio-bedding, composting, etc.) for reducing the environmental pollution, lower GHG emission, higher income for the local people.
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III.2.1.3 Training courses conducted by contractors

- Training on comprehensive livestock waste management for medium and large livestock farmers and relevant stakeholders through using manure separators, biogas electricity generators as well as using bio-slurry for crop watering and raising red worms from cattle manures shall be implemented by demonstration contractors under the supervision of CPMU, PPMUs and LIC.
- Training on agricultural waste management through using crop wastes for organic fertilizers, bio-energy and animal feedstock, using livestock wastes for organic fertlizers and biogas technologies, pig raising water saving technology, application of GHG reduction technologies in aquaculture and crop cultivation shall be implemented by research contractors under the supervision of CPMU, PPMUs and LIC.
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III.2.2 Target groups

Table 2: Key training areas and target groups

Key Training Areas	Project Target Groups
A. Capacity Strengthening for Project Management	
Training on the Project management and procurement	Officials of CPMU, PPMUs; representatives of relevant agencies of MARD
Training on accounting	Accountants of CPMU, PPMUs; representatives of relevant agencies such as MoF, Department of Finance under MARD, State Treasury at same level
Training on project manual	Officials of CPMU, PPMUs; representatives of relevant agencies of MARD
Training on gender and ethnic minority group awareness	Officials of CPMU, PPMUs; representatives of relevant agencies such as commune women association, representatives of ethnic minority group in the commune, district, etc.
B. Capacity development for implementation of project activities	
Training on the deployment of database	Officials of CPMU, PPMUs; representatives of

management software of biogas plants	relevant agencies of DLP under MARD
Training on the operation of e-library system	Officials of CPMU, PPMUs; VAAS
Study tour abroad to learn about low carbon agricultural production technologies	Staff of MARD, CPMU and PPMUs
Training for research staff	Research staff of the relevant research institutes, DARD, research centers, etc.
Training for technicians and contractors of biogas plants	Technicians of 10 provinces, biogas contractors of the Project
Training for masons/installers of biogas plants for the local people	Masons/installers of biogas plants in 10 provinces
Training on operation and maintenance of biogas plants in a proper, effective and safe manner.	Training for the local people who registered for construction/installation of biogas plants in 10 project provinces
Training on the capacity development for the staff utilizing the environmental monitoring equipment.	Training for environmental monitoring and managing staff in the Project provinces
Training on the livestock waste management and low carbon agricultural production technologies for reducing the environmental pollution, lower GHG emission, higher income for the local people.	Training for extension staff and farmers in 10 provinces and other relevant stakeholders Training for relevant stakeholders through research projects and demonstrations

III.3 Providing training and guiding rules

III.3.1 Approach and Methodology

The training courses are designed according to the detailed activities of each project component. Time for implementation of the training and strengthening contents are considered within the time frame of the Project implementation and selection of the content and topic.

A pragmatic, practical approach to training will be followed. The courses will be a combination of formal classroom based courses, workplace based training activities, as well as field study, demonstration and practice. Moreover, in complying with the objective of the Project to institutionalize participation of different stakeholders at different levels, training methods will be “participatory” as far as possible. This means that more focus and practice will be given to learner-centered training techniques (i.e., focus on “what participants need to learn” rather than on “what presenters need to teach”). It is important that “training by doing” is applied as far as possible.

The training courses will be conducted at the appropriate time. It will be close with the implementation of project activities (it means that the training activities will be planned closely with the schedule that the lessons could be applied and it is planned to coincide with request for application of biogas technological development and livestock waste management.

III.3.2 Training schedule and location

Guidelines on practice will be implemented at the demonstrations or farms that have implemented and operated well, ensuring that the trainees can acquire the knowledge via practice.

CPMU organizes the training for provincial officers and relevant organizations in 3 regions of North, Middle and South of Vietnam, making the travelling easy for the trainees in 10 provinces to participate the training courses and reducing the cost.

Schedule of training from 2 – 5 days, depending on the topics and training contents.

III.3 Trainers, teaching program and materials- document

III.3.1 Trainer

The training courses on project management, training on ToT will be provided by the experienced trainers with relevant expertise invited from agencies at central level by CPMU.

The training courses are conducted by the province; the trainers will be the participants of ToT training courses or trainers have a lot of practical experiences in province. In addition, some training courses require the profound expertise, the provinces can invite the trainers from the agencies at central level to provide training.

III.3.2 Training program and materials- document

With each training course, based on the content of the training course, the organizer (CPMU, PPMUs) will make the program and preparation of teaching materials-document will be outsourced by the experienced experts. For the training courses which have professional content or in the new field that has not been disseminated widely or for the trainees of good expertise, the teaching materials will be reviewed by Technical Council of Vietnam Academy of Agricultural Sciences (VAAS).

The training materials will be including the manuals, handouts, exercises as requested, communications documents (posters, flyers, brochures, etc.) to stimulate the interest and motivation for the trainees and other persons if necessary. The training materials should be designed suitably with different subjects, regions and need to focus on gender and ethnic minority issue.

III.3.3 Trainee

Trainee participated training course were selected based on criteria for each specific training course by CPMU and PPMU.

III.4 Training monitoring and evaluation

Monitoring and evaluation of the training in different periods of the master training plan are required to ensure the quality of training. Result of training evaluation after each

course and annual evaluation will be considered and used as the basis of further input in improving successfully annual training plan. The activity of post-training evaluation will be set up to ensure the quality of training content and applied with the target groups.

The detailed monitoring and evaluation of training course was mentioned in TNA and after completetion each course, the evaluation form attached in Appendix 1 will be deliveried to each trainee to evaluate training course.

V. ESTIMATED BUDGET

Based on estimated trainee in TNA, the budget is calculated in line of project budget. In fact, the training budget of the project is limited so the number of trainee will be reduced and the estimated budget for whole training activities of project is attached in Appendix 2.

APPENDIX 1: EVALUATION FORM

TRAINING COURSE EVALUATION SHEET

(For Trainees)

Training course : ……

Organizer: ……

Location: ……

Trainer : ……

	Content	Excellent	Very good	Good	Fair
	Part 1: Training course				
1	Overall assessment for the course				
2	Clear goals				
3	Achieved skills and knowledge				
4	Applicable knowledge for working				
5	Trainees get promptly support when needed				
6	Condition of equipment and classroom				
7	Reasonable duration				
	Part 2: Trainer				
9	Professional knowledge of trainer				
10	Teaching methods				
11	Experience in developing curriculum				
12	Capacity of answering questions				
13	Capacity of attracting trainees to actively participate in the course				
14	Curriculum directly focuses on specific goals				
15	Suggestive content and based on experience of trainees				
16	Quality of materials provided by trainer				
	Part 3: Self-assessment				
17	Discuss to contribute and develop the course				
18	Learning attitude and level of concentration during the course				
19	Knowledge level of trainee about the issues of the course				
20	Full attendance during the course				

Trainee's signature

(Optional)

APPENDIX 2: ESTIMATED BUDGET FOR TRAINING ACTIVITIES

No.	Name of training course	Target groups	Expected output	Implementated course	Implementation planning (no. of courses)			Total of courses	Total participants	Location	Estimated budget
					2016	2017	2018				
1	Training on project management & procurement	Staff of CPMU, PPMUs, representatives of relevant organisations (Financial department, planning department…under MARD)	Understand requirement of Vietnamese Government and ADB on project management, tendering, contracting and procurement.	01				01	64	Vinh city, Nghe An province	11,200
2	Training on accounting	Accountants of CPMU, PPMU, representatives of relevant organisations and authorities	Understand financial management and accounting procedures of the Project.	01	01			02	60	Kien Giang province and Nha Trang city	18,100
3	Training on project implementation manual	CPMU and PPMU, representatives of relevant organisations	Understand project as well as method to implement project activities and monitoring,	01				01	44	Vung Tau city	11,572

			evaluation system.								
4	Training on gender and ethnic minorities	CPMU, PPMUs, representatives of Commune People Committees and Women Unions of communes in 10 project provinces	Understanding best practices in low carbon agriculture targeting gender and EM.		03	03		06	300	Provinces in Project areas	48,600
5	Training technician to facilitate technically the people	CPMU, PPMUs, technicians at provincial and district level in 10 project provinces	Understand technical requirements and	26	2	3		31	500	Project provinces	243,350
6	Training on operation and maintenance of the biogas plants	Farmer households (in 10 project provinces) have registration to construct/ install the biogas plants	Understand clearly the advantages of the plants, to know how to operate and maintain the plants properly, efficiently and safely.	1201	350	400	215	2,166	65,000	Project provinces	1,717,698

7	Training on construction/ installation of the biogas plants for masons	Masons in 10 project provinces	Mason can understand technical drawing and can construct/ install the biogas plants to ensure the plants operate properly and safely.	11	5	4		20	500	Project provinces	90,000
8	Training on low – carbon agricultural production, livestock waste management	Extension staff, farmers and management officers at communes and districts in project provinces and relevant organisations	Understand livestock management (red worm raising, biological bedding, composting, etc.) to reduce the environmental pollution, GHG reduction, increase the income for users.	98	50	52	20	220	7.700	Project provinces	594,000
9	Training on medium and large biogas plants for engineers and contractors	CPMU, PPMUs, engineers and contractor	Understande principle and design of M&LBP, can consulting for livestock farms to construct M&LBP and the	02		01		03	70	Project provinces	16,770

			contractors understand technical requitements of project								
10	Training on using database management software	CPMU, PPMU, other relevant organisations such as QSEAP, LISEAP, Department of Livestock Production	Traineee can easier access data to manage the database of the biogas plants in the provincial projects		1	10		11	330	Project provinces	38,500
11	Training on environmental monitoring equipment	Officers of PPMUs and any relevant organisations that use the environmental monitoring equipment	Understand the way to use environment monitoring equipment and can use it in the field.			03		03	60	Project provinces	13,500
12	Training on environmental safeguard	Offciers from CPMU, PPMU	Understand on environment protection and safeguard			03		03	150		24,300

13	Training researchers of institutes in the Project area	Researchers of specialised institutes and DARD in the Project area	Understand low – carbon agricultural production technology, biogas value chain, carbon credit management mechanism and can integration of the trained knowledge into assigned tasks.		03	03	03	09	315	Hanoi and HCM city	85,500
14	Training on operating the e-library system	CPMU, PPMU and Officers of the beneficiary organisations from the e-library system	Understand the e-lab system, how to operate and use the system efficiently.			03		03	75	Hanoi, HCM city	25,500
15	Overseas study tour	CPMU, PPMUs, project managers at Ministries	Lessson learned for developing countries have same condistion on CSAWMP.			02		02	40	Japan, Taiwan	191,000
	Total										**3,129,590**

APPENDIX 3: TRAINING NEEDS ASSESSMENT

MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT (MARD)

ASIAN DEVELOPMENT BANK (ADB)

LOW CARBON AGRICULTURAL SUPPORT PROJECT (LCASP)

REPORT ON

TRAINING NEED ASSESSMENT

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ABBREVIATION

ADB	:	Asian Development Bank
CPMU	:	Centre Project Management Unit
CSAWMP	:	Climate smart Agriculture waste management practice
DARD	:	Department of Agriculture and Rural Development
DMF	:	Design and Monitoring Framework
LCASP	:	Low carbon agriculture support project
MARD	:	Ministry of Agriculture and Rural Development
M&E	:	Monitoring and evaluation
PPMUs	:	Provincial Project Management Units
TNA	:	Training need assessment

I. BACKGROUND

According to the General Statistics Office in 2014, the gross domestic product (GDP) in 2014 reached 5.98% compared to 2013, of which the agriculture, forestry and fisheries, forestry sector has increased 6.85% higher than the 2.64% of 2013. The production value of agriculture, forestry and fisheries in 2014 at constant prices in 2010 were estimated at 830 trillion, increased 3.9% compared to 2013, of which agriculture had reached 617.5 trillion, increasing 2.9%; forestry had reached 23.9 trillion, up 7.1%; aquatic products had reached 188.6 trillion, up 6.8%. These growths contributed to economic prosperity as well as poverty reduction achievement in rural communities. However, this development led to seriously stressing the environment. Discharging untreated livestock waste carries high level of pathogens which pollutes water resources; endangers both human and animal health; and emits greenhouse gases. In order to minimize the impact on the environment of the agricultural sector and develop a sustainable agriculture production, efficient and friendly environment, Ministry of Agriculture and Rural Development (MARD) has been carried solutions to utilize agricultural waste, direct transfer of clean technology, livestock waste management. In addition, the Vietnam Government had proposed donors to help Vietnam in the formulation and implementation of projects related to sustainable agricultural development[1]. "Low carbon agriculture support project" (LCASP) is project under the International Cooperation Strategy of the Asian Development Bank (ADB) and the Government of Vietnam passed on 26 September 2012 in the official letter No. 1547/TTg-QHQT.

The project have 4 components with the target till 2019 as (i) livestock waste effluents in water resources is reduced by at least 50%; (ii) (ii) GHG emissions are reduced by about 0.2 tons of CO2 equivalent annually per cubic meter capacity of biogas plants; (iii) at least 70% bio-slurry is converted to organic fertilizers; (iv) at least 80% energy produced by BVCs is utilized, (v) daily workload of women and children is reduced by 1.8–2 hours, on average.

The Project conducted a first training needs assessment in 2014 addrssing the capacity needs to meet the project objectives. It was in the initial stage of the Project and training contents with expected outcomes are assessed and trainings are delivered accordingly. However, with a satisfcatory Project implementation and expereince gain by various project perfromace ac tivities, there is still high demand of training with new skills and lossons learend in the project. Hence it is timely to conduct TNA at this stage. Moreover, Mid-term Review of the Government of Viet Nam and ADB in September 2016 provided a clear way forward in various activities including training. Some of the training that was assessed before such as LBG will not continue.

To validate these targets, raining needs assessment (TNA) has been conducted. Primary focus of this training need assessment/analysis has been to determine the gap in

[1] Decision No. 106/QD-TTg dated 19 Jan., 2012 for approving the scheme on orientations for attraction, management and use of official development assistance and other preferential loans of donors during 2011-2015

capabilities of municipal authorities, various institutions, operators and consultants in climate smart agriculture waste management praactices (CSAWMP).

II. TRAINING NEED ASSESSMENT OBJECTIVE AND METHODOLOGY

II.1 Objective

The purpose of conducting a needs assessment is to validate the hypothetical judgment training need assessing training gap of the stakeholders at this stage of the Project with actual training needs to ensure that solution addresses the most needed subjects and effectively focuses the appropriate resources, time and effort toward targeted solutions. Training need assessment is to identify the gap between the model situation and the actual situation and the way in which it can be bridged.

As the gaps are identified, they are evaluated to determine the manner in which the gaps can be bridged. Some situations will indicate training needs. Some may need non–training solutions (e.g., financial aspects, institutional strengthening, providing the right tools etc.) incldung information dissemination. The results of training needs analysis will highlight the subject wise need to bridge the gap to, help in the preparation of training modules and facilitate in the development of CSAWMP Program.

The goal of the TNA is to provide all stakeholders of LCASP with the knowledge and skills required to meet the Project objectives. The training objectives are to:

- Develop the capacities of masons/installers, technicians, biogas contractors and relevant stakeholders in the construction work and technical support to the local people in the biogas plant construction
- Raise the awareness of the local people who have the demand for biogas plant construction of the benefits of biogas plants, skills of operation, maintenance and utilization of them in a safe and effective manner.
- Develop the capacity of the extension staff, farmers and relevant units on the low carbon agricultural production technologies and livestock waste management (such as red worm raising, composting, utilization of bio-bedding, etc.) for livestock evironment reduction.
- Develop the capacity of managerial staff, research staff concerning the low carbon agricultural production technologies, biogas value chain, effective utilization of biogas, operation/maintenance/repaire of biogas plant, carbon credit market, CDM for the sake of GHG emission reduction and planning for integrating the acquired knowledge into the profesional areas or assigned tasks.
- A number of training courses on the strengthening of project managerial staff and implementation of database software, utilization of e-library system, enviromental monitoring equipment, etc.

II.2 Methodology

- Explore and study secondary information from following reports:

+ Report on potential, technology, production, consumption and proposal of model of organic fertilizer production from agricultural waste for LCASP in 2014 of the 10 project provinces.

+ Report on implementation status, proposal of low carbon rice production orientation and transforming inefficient rice cultivation land into other crops;

+ Report on survey result, confirmation of potential households for building biogas plant in the 10 project provinces.

+ Final report of LCASP in 2014 by Central Project Management Unit (CPMU) and Provincial Project Management Units (PPMUs).

+ A survey of the potential demand for small, medium and large biogas value chains (SM&LBVC).

- Colligate the needs, contents of training program and module for 10 provinces and stakeholders at workshop on "Building training module and program on agricultural waste management in Do Son, Hai Phong dated 23 September 2014.
- Discuss, take comments from CPMU, VAAS and 10 provinces.

III. KEY FINDINGS

III.1 Biogas potential and situation of utilization livestock waste

The Project completed a survey of the potential demand for SM&LVCs in April 2015 which revealed that around 961,250 livestock households (hhs) of which 82,489 hhs have biogas, 878,892 have not biogas. Among livestock household, 203,742 hhs farming operations with more than 10 pigs, or equivalent in cattle exist, 3,177 hhs with from 100 to 1000 pigs and 132 hhs having more than 1000 pigs in the project provinces. These constitute the potential SBVCs users.

For small biogas plant

According to baseline survey, biogas households had installed small biogas plants (SBPs) and noted that they have had a positive impact on the household's bio-physical environment as well as its socio-economic conditions. However, in fact the nutrient-rich slurry is not used as fertilizer but rather released to the environment through gradual permeation from the collection ponds and they think that SBPs were omnipotent digestion and can treat all livestock waste so they input all raw livestock waste into digestion, it leads to the biogas diestion were stuck and leakage gas. To hep biogas users fully understand biogas technology and well treatment surplus livestock waste, the biogas users need to be trainl operation and maintenance of biogas digestion as well as the methods to treat livestock waste.

82,489 biogas households need to be trained on

i. A guidebook on constructing/installing a SBP;
ii. A guidebook on operating a SBP;
iii. Methods to treat livestock waste as producing composting, feed for worm production (earthworm) or biological bedding…

In the absence of a SBP, households rearing pigs would discharge the effluent directly or indirectly (through a siltation pit) into open water sources, it leads to environmental pollution. These livestock hhs should be advised to construt biogas digestion to partly treat livestock waste. To help them understand benefits of biogas technogoly, the project should conduct many activities to promote biogas technology via television, radio, newspapers…and invite them to participate communication workshop on introduction this technology. When they are aware of the benefits of this technology, the project should also train suppoting staff as (i) mason/composite companies to hep them contruct/install biogas plant and (ii) technician to guide technical issue, moniroting quality control during construction, instruction livestock waste to use appropriate methods for treatment livestock waste.

878,892 non biogas households need to be trained on:

i. Benefit of biogas technology
ii. A guidebook on constructing/installing a SBP;
iii. A guidebook on operating a SBP;
iv. Methods to treat livestock waste as producing composting, feed for worm production (earthworm) or biological bedding

500 mason should be trained on:

i. Construction/ installation of the biogas plants

500 technicians should be trained on:

i. Biogas technology and monitoring quality control of biogas plants;
ii. Livestock waste management practices
iii. Using database management software

For medium and large biogas digestion

In 10 project provinces have about 3,300 livestock farms with ranges from 100 pig above. In fact, some provinces had constructed medium and large biogas plant (M&LBP) but the operation was poor. The livestock farm households only think that they constructed medium and large biogas plants out of compliance with environmental regulations. These farms have limited access to technologies or financial incentive to utilize the biogas effectively. Consequently, a significant fraction of the biogas is released to the atmosphere, negating the environmental benefits of biogas production. The majority of investors in MBP or LBP only use the gas for cooking. A few have invested in generators to covert biogas into electricity but many of them have encountered mechanical failures caused by corrosion of generator engines due to the high sulfur content in biogas. In the absence of converting biogas into electricity, M&LBP generate amounts of biogas that far exceed the daily fuel requirements for cooking of a farm. Becasuse the biogas households did not how to utilize biogas so M&LBP do not result in significant tangible returns to the investment. Furthermore if excess biogas from M&LBP is released to the atmosphere, the net effect of the plant in terms of reducing GHG emissions is negligible. This can be addressed by flaring the excess gas, however farmers are reluctant to flare the excess biogas due to several incidents of

accidental fires. These livestock farm should be instructed to (i) minimize the waste loads discharged into a biogas plant such as by separating solids to produce biofertilizer or adopting on farm water saving measures (e.g. sprinklers to cool pigs or biological bedding) and/or (ii) by using biogas for purposes other than cooking (e.g. heating, lighting, etc.) or generating electricity to meet the farm's requirement (for cooling, etc.). The Project should also provide more technical support to M&LBPs (i.e. technicians and certified masons) during the design, construction and especially during the operational phase of the plant. M&LBPs supported by the Project should be closely linked with the demonstration activities and with the application of research pilots under Output 3. These above solutions are still new in Vietnam and need more study for suitable regions. To do this, the project should mobilize researchers, extention worker to cooperate with livestock farm to design demonstration in several provinces where the specific practice is considered relevant and scalable. To share and communicate positive results to relevant parties, the project should also to develop a system (e-library) to disseminate information regarding CSAWMP.

To ensure that livestock waste well treated for compliance with MONRE's Circular No. 4/2016 titled Introduction of National Technical Regulation on Environment QCVN-62, the Project have responsibility to enhance strengthening the monitoring capacity of relevant agencies to handover and monitor the constructed biogas plants and environmental monitoring of biogas plants.

3,300 livestock farms need to be trained through demonstrations and research packages on

i. A guidebook on constructing/installing and operation M&LBP;
ii. Using machine for seperation solid and liquid livestock waste for producing composting
iii. Operate and mainternace biogas generation…

Biogas contractors should be trained on:

i. Medium and large biogas technology.

Technicians should be trained on:

i. Biogas technology and monitoring quality control of biogas plants;
ii. Livestock waste management practices
iii. Using database management software

Researcher and DARD, extension staff should be trained either by training workshops or through research packages on:

i. Raising awareness for application of low – carbon agricultural production technology;
ii. Using database management software
iii. Environmental monitoring equipment

III.4 Capacity of stakeholders

Most of CPMU and PPMU have ever worked for some projects which are either completed or on-going within the province. Each project requires specific requirements, especially on CSAWMP, the field is still new for Vietnam. The project had requested "a CPMU and 10 PPMUs established and operational with adequately skilled staff and facilities in MARD by first quarter of 2013" and "strengthening the capacity and providing equipment for relevant agencies to manage national biogas database". To meet this requirement, the project should be trained CPMU and PPMU staff on project implementation, procurement, accounting, study tour…and database for ovelaping amont biogas projects as well as to support carbon market.

In other hand, to well manage constructed biogas digestion for overlaping among biogas project, the Project has developed a software package to facilitate the merger of data from multiple biogas plant databases into single national biogas database. To ensure effective management of that database, the project should train both CPMU and PPMU staff on using database software.

CPMU, PPMU and DARD staff should be trained on:

i. Project implementation, management, procurement and accounting.
ii. Small, medium and large biogas technology and livestock waste management pratices
iii. Awareness on environment protection
iv. Gender and ethnic minorities
v. Using database management software
vi. Environmental monitoring equipment

Relevant parties should be trained on:

i. Environmental monitoring equipment

IV. PROPOSE ACTIVITIES FOR CAPACITY STRENGTHEN

To meet LCASP requirement, relevant stakehoders should be trainded for capacity strengthen on project management and implementation as well as CSAWMP.

IV.1 Targer group and main training topic

To address these constraints, significant capacity building inputs have been designed training course for four key groups as:

- Livestock households:
- Masons/composite biogas plant installers/biogas companies and technicians
- Researchers and extension worker as well as some relevant agency staff such as NBP
- Staff of CPMU, PPMUs and DARDs in 10 provinces.

The detailed topic is expressed in the table 2.

Table 2: Key training needs by target groups

Key Training Areas	Project Target Groups	Improve Knowledge Gap
A. Capacity Strengthening for Project Management		
Project management and procurement	Officials of CPMU, PPMUs; representatives of relevant agencies of MARD	New decrees, regulations updates, introduction to updated templates, efficient management skills, cost effectiveness, effective communication and coordination
Project accounting	Accountants of CPMU, PPMUs; representatives of relevant agencies such as MoF, Department of Finance under MARD, State Treasury at same level	Accounting procedures in changing context, introduction to templates, update on decrees and other relevant topics
Project implementation manual	Officials of CPMU, PPMUs; representatives of relevant agencies of MARD	Strengthening project management including M&E system with improved formats and reporting
Gender and ethnic minority awareness	Officials of CPMU, PPMUs; representatives of relevant agencies such as commune women association, representatives of ethnic minority group in the commune, district, etc.	Awareness raising from the LCASP learning addressing shortcomings, strengths and weaknesses. Understanding best practices in low carbon agriculture targeting gender and EM.
B. Capacity development for implementation of project activities		
Database management software of biogas plants	Officials of CPMU, PPMUs; representatives of relevant agencies of DLP under MARD	Practical application and familiarization of the operation and management
Operation of e-library system	Officials of CPMU, PPMUs; VAAS	Familiarization of the system and operation, information collection for library, information flow, updating, target audience need assessment and web based resource mobilization

Study tour abroad to learn about low carbon agricultural production technologies	Staff of MARD, CPMU and PPMUs	Advance technology on BG, CSAWMP, GHG reduction and others that can adapt to Viet Nam condition
CSAWMP research	Research staff of the relevant research institutes, DARD, research centers, etc.	Research relevancy, methodology, approaches addressing new areas in CSAWMP and innovative research in climate change
Biogas technology	Technicians of 10 provinces, biogas contractors of the Project	Improve the technolgy from the lessons learned from the project
Biogas plants for the local people	Masons/installers of biogas plants in 10 provinces	Improve the technolgy from the lessons learned from the project
Operation and maintenance of biogas plants in a proper, effective and safe manner	Training for the local people who registered for construction/installation of biogas plants in 10 project provinces	Effective and efficient use of biogas addressing safety and health hazards. Familiarization and benefits biogas
Capacity development for the staff utilizing the environmental monitoring equipment.	Training for environmental monitoring and managing staff in the Project provinces	Introduction to environmental monitoring equipments and practical application with record keeping
Livestock waste management and low carbon agricultural production technologies for reducing the environmental pollution, lower GHG emission, higher income for the local people.	Training for extension staff and farmers in 10 provinces and other relevant stakeholders	Improve the CSAWMP and low carbon agricultural production technologies with LCASP lessons and address the effective technological applications

IV.2 Training method

To ensure the knowledge and skills needed to implement project, based on specific groups, the training courses will be designed as following:

- ***Classroom-based lecture/workshops***: A combination of traditional classroom methods and workshops will be used to receive instruction and apply knowledge and skills, especially on the Project management systems and processes required for the Project (e.g., ADB and

GoV policies on subproject preparation and implementation). It is understood that theory alone does not guarantee full understanding of concepts being learned; hence workshops will be an important as a part of the training methodology.

- ***Home-based training***: this type of training will be applied for the people on the operation of the biogas plants. Due to residential topographical feature, households are scattered in the parts of province, terrain is difficult for travel, it is impossible to gather a training class for the people. Therefore, the technician of the Project must come to each household to propagate and support technically for the people about the operation and maintenance of the biogas plants (applied for mountain provinces).

The courses will be a combination theory and practicle as well as field study, (if needed). Moreover, in complying with the objective of the Project to institutionalize participation of different stakeholders at different levels, training methods will be "participatory" as far as possible. This means that more focus and practice will be given to learner-centered training techniques (i.e., focus on "what participants need to learn" rather than on "what presenters need to teach"). It is important that "training by doing" is applied as far as possible.

The training courses will be conducted at the appropriate time. It will be close with the implementation of project activities (it means that the training activities will be planned closely with the schedule that the lessons could be applied and it is planned to coincide with request for application of biogas technological development and livestock waste management.

CPMU organizes the training for provincial officers and relevant organizations in 3 regions of North, Middle and South of Vietnam, making the travelling easy for the trainees in 10 provinces to participate the training courses and reducing the cost. Training can be schedule from 2 to 5 days, depending on the topics and training contents.

IV.3 Monitoring and evaluation of training and capacity strengthening

Monitoring and evaluation of the training in different periods of the master training plan are required to ensure the quality of training. Result of training evaluation after each course and annual evaluation will be considered and used as the basis of further input improving successful annual training plan. The activity of post-training evaluation will be set up to ensure the quality of training content and applied with the target groups.

IV.3.1 Monitoring the training input

For the implementation cost: accountants of PPMUs and CPMU will monitor the training cost to ensure the compliance of ADB and Vietnamese Government finance regulations. The organizers of training at national level as well as provincial level shall comply in terms of the time, budget, material and logistics for the training courses.

IV.3.2 Monitoring the output of training

Each training activity will record the numbers of courses conducted, trainees (male, female, ethnic minorities), and name list and contact details. Meanwhile, the trainees are possibly required to prepare the integration plan of trained knowledge into the assigned

tasks. This is considered to be a sustainable way to apply trained knowledge and skills from the training courses. At the end of the course, to be suitable with the principle of the participatory training, the trainees will be required to evaluate the training. This can be conducted via informally oral feedback or answering some questions of evaluation at the end of training course. The organizing committee prepare the evaluation forms in advance to apply for every training which will be conducted. The trainees will evaluate the level of knowledge acquisition, trainer qualification as well as comment on the training courses through evaluation forms.

Trainer or training coordinators of CPMU/ province is required to design and do a quick check before and after the training courses (written test or practice), applying with each training activity. The result will be summarized and provided in the training report prepared after each training activity/ course.

IV.3.3 Ensuring quality of training content and implementation

To ensure quality of training, the training proposal and materials need to be prepared well before conducting the training courses. The training organizer requires the trainers/ training consultants of each topic to send the copy of training programs and materials in advance to check whether the training objectives and contents consistently with training design or not. Also, the modules of vocational training and researchers must be appraised by the professional council. These training materials must be copied and provided to the trainees. The training space designed for learning (both psychological and physical aspect) should be carefully considered when planning the training activities in order to stimulate the learning and participation of the trainees. Therefore, the training coordinators of PPMUs and CPMU must ensure venues and materials for training to be suitable with different training program that will be conducted. To farm households, open space, prepferably near BG or related training site, is comfortable and preferable.

IV.3.4 Report on training completion

Training specialist of LIC will provide the supporting tool through the monitoring and evaluation table and follow up with the training coordinator of CPMU relating to the completion report on capacity strengthening for the sake of the efficient evaluation of the training courses conducted as well as following the training implementation indicators within project DMF framework.

Training completion report will be prepared by M&E consultant and applied by PPMUs and then submitted to CPMU to follow up the progress of training and completing the capacity building and training indicators within DMF framework. The result of training will be measured in terms of the number of training courses completely conducted, numbers of trainees trained and effectiveness of training methodology as well as training materials used.

IV.3.5 Assessment of Training impact

Training impact concerns with changes in behavior, knowledge, skills and application of the target groups and how those changes make the difference at targeted provinces and

communes. For the biogas plants, the Project wants to see all the training activity and project cycle, the biogas plants whether are developed in accordance with specific local condition and management, usage, operation, troubleshooting of the biogas plants to be efficiently and safely after project completion. Whether the low carbon farming technologies are applied successfully and maintained, developed after the Project completion and what are the tangible benefits of improving socio–economic condition of the users' especially environmental impact and gender safeguards. Training impact is evaluated closely or near end of project completion period.

APPENDIX 1: PROPOSED TRAINING NEEDS RELATING TO LCASP

No.	Name of Training courses/ activities	Target groups	Estimated number of beneficiaries	Expected outputs	Method of training
1	Training on project management & procurement	Staff of CPMU, PPMUs, representatives of relevant organisations (Financial department, planning department…under MARD)	CPMU: 10 PPMU: 5 each Relevant partners: 5 ***Total: 65***	Understand requirement of Vietnamese Government and ADB on project management, tendering, contracting and procurement.	- Theory - Case study - Discussion - Q&A
2	Training on accounting	Accountants of CPMU, PPMU, representatives of relevant organisations and authorities	CPMU: 7 APMB: 2 PPMU: 5 each Relevant partners: 3 ***Total: 62***	Understand financial management and accounting procedures of the Project.	- Theory - Case study - Discussion - Q&A
3	Training on project implementation manual	CPMU and PPMU, representatives of relevant organisations	CPMU: 5 PPMU: 4 each Relevant partners: 5 ***Total: 50***	Understand project as well as method to implement project activities and monitoring and evaluation system.	- Theory - Case study - Discussion - Site visit - Q&A
4	Training on gender and ethnic minorities	CPMU, PPMUs, representatives of Commune People Committees and Women Unions of communes in 10 project provinces	CPMU: 5 PPMU: 7 each CPC: 5 each WU: 5 each ***Total: 175***	Understanding best practices in low carbon agriculture targeting gender and EM.	- Theory - Case study - Discussion - Site visit - Q&A
5	Training technician to facilitate technically the	CPMU, PPMUs, technicians at provincial and district level in 10	CPMU: 7 PPMU: 20 each	Understand technical requirements and	

	people	project provinces			
6	Training on operation and maintenance of the biogas plants	Farmer households (in 10 project provinces) have registration to construct/ install the biogas plants	Al least 70% of potential livestock household (82, 489) will be trained. ***Total is 57,742***	Understand clearly the advantages of the plants, to know how to operate and maintain the plants properly, efficiently and safely.	- Theory - Case study - Discussion - Site visit - Q&A
7	Training on construction/ installation of the biogas plants for masons	Masons in 10 project provinces	Each district must have at least 5 mason. The total district of 10 project provinces is 106. ***Total: 530***	Mason can understand technical drawing and can construct/ install the biogas plants to ensure the plants operate properly and safely.	- Theory - Case study - Discussion - Exercise - Site visit - Q&A
8	Training on low – carbon agricultural production, livestock waste management	Extension staff, farmers and management officers at communes and districts in project provinces and relevant organisations	Extention staff: 20 each Famer: 800 each Management officer: 10 each Relevant partners: 5 ***Total: 8,305***	Understand livestock management (red worm raising, biological bedding, composting, etc.) to reduce the environmental pollution, GHG reduction, increase the income for users.	- Theory - Case study - Discussion - Exercise - Site visit - Q&A
9	Training on medium and large biogas plants for engineers and contractors	CPMU, PPMUs, engineers and contractor	CPMU: 4 PPMU: 5 each Contractor: 2 each ***Total: 74***	Understande principle and design of M&LBP, can consulting for livestock farms to construct M&LBP and the contractors understand technical requitements of project	- Theory - Case study - Discussion - Exercise - Site visit - Q&A
10	Training on using database	CPMU, PPMU, other relevant	CPMU: 10	Traineee can easier access	- Theory

	management software	organisations such as QSEAP, LISEAP, Department of Livestock Production	PPMU: 20 each QSEAP: 30 LIFSAP: 30 DLP: 2 ***Total: 270***	data to manage the database of the biogas plants in the provincial projects	- Discussion - Exercise - Q&A
11	Training on environmental monitoring equipment	Officers of PPMUs and any relevant organisations that use the environmental monitoring equipment	PPMU: 5 each Relevant partners: 10 ***Total: 60***	Understand the way to use environment monitoring equipment and can use it in the field.	- Theory - Case study - Discussion - Exercise - Site visit - Q&A
12	Training researchers of institutes in the Project area on CSAWMP, Biogas value chains, carbon credit	Researchers of specialised institutes and DARD in the Project area	Researcher: 300 (for 3 regions) DARD: 4 each ***Total: 340***	Understand low – carbon agricultural production technology, biogas value chain, carbon credit management mechanism and can integration of the trained knowledge into assigned tasks.	- Theory - Case study - Discussion - Exercise - Site visit - Q&A
13	Training on operating the e-library system	CPMU, PPMU and Officers of the beneficiary organisations from the e-library system	CPMU: 5 PPMU: 2 each Officer: 50 ***Total: 75***	Understand the e-lab system, how to operate and use the system efficiently.	- Theory - Case study - Discussion - Exercise - Q&A
14	Overseas study tour	CPMU, PPMUs, project managers at Ministries	CPMU: 8 APMB: 5 PPMU: 2 each MARD Departments: 15 ***Total: 43***	- Lessson learned for developing countries have same condistion on CSAWMP.	Study tour in abroad