



Asian Development Bank



Greater Mekong Subregion

Capacity Building for Efficient Utilization of Biomass for Bioenergy & Food Security in the GMS

TA7833-REG



PROJECT PROGRESS REPORT

July 2013

Landell Mills
DEVELOPMENT CONSULTANTS



KEY DATA

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ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
APMB	Agricultural Project Management Board
AROS	Asian Regional Organic Standard
ASEAN	Association of Southeast Asian Nations
BEFS	Bioenergy and Food Security
CASP	Core Agricultural Support Program
CDM	Clean Development Mechanism
CEDAC	Centre d'Etude et de Développement Agricole Cambodgien
CER	Certified emissions reduction
CFA	Climate-friendly agriculture
CLV	Cambodia, Lao PDR and Viet Nam
IFOAM	International Federation of Organic Agriculture Movements
DAHP	Department of Animal Health and Production, MAFF Cambodia
DARD	Department of Agriculture and Rural Development (MARD Viet Nam)
DCP	Department of Crop Production (MARD Viet Nam)
DMF	Design and Monitoring Framework
EA	Executing Agency
EOC	Environmental Operations Centre
EoI	Expression of Interest
EU	European Union
FAO	Food & Agriculture Organization (United Nations)
GAP	Good Agricultural Practices
GBEP	Global Bioenergy Partnership
GHG	Greenhouse Gas
GMS	Great Mekong Subregion
GOMA	Global Organic Market Access
GoV	Government of Viet Nam
IA	Implementing Agency
ICS	Improved Cookstoves
ICT	Information and communication technologies
IFOAM	International Federation of Organic Agriculture Movements
LML	Landell Mills Limited
MAF	Ministry of Agriculture and Forestry (Lao PDR)
MAFF	Ministry of Agriculture, Forestry and Fisheries (Cambodia)
MARD	Ministry of Agriculture and Rural Development (Viet Nam)
MEM	Ministry of Energy and Mines
MFI	Microfinance Institutions
MIME	Ministry of Industry, Mines and Energy
MOE	Ministry of Education
MoF	Ministry of Finance
MoIT	Ministry of Industry and Trade
MONRE	Ministry of Natural Resources and Environment
MoST	Ministry of Science & Technology
MPI	Ministry of Planning & Investment
NBP	National Biogas Program
NDF	Nordic Development Fund
NFP	National Focal Point (of the Implementing Agency)
NGO	Non-Governmental Organization
NPI	National Project Implementation
PDR	People's Democratic Republic

PGS	Participatory Guarantee Systems
PPP	Public-private partnerships
PPTA	Project Preparatory Technical Assistance
PSC	Project Steering committee
PSD	Private sector development
RETA	Regional Technical Assistance
RfP	Request for Proposals (RfP)
SME	Small and Medium Sized Enterprise
SNV	Netherlands Development Organisation
SOP	Standard operating procedures
SRI	System of Rice Intensification
TA	Technical Assistance
TFP	Technical Focal Point (of the Implementing Agency)
ToR	Terms of Reference
UK	United Kingdom
US\$	United States Dollar
WB	World Bank
WGA	Working Group on Agriculture

1. INTRODUCTION

1.1. SUMMARY

The Greater Mekong Subregion (GMS) Working Group on Agriculture (WGA) oversees regional cooperation in agricultural development under a wider GMS regional cooperation program. In 2007, the WGA conducted a regional study on strategic options for biofuel and rural renewable energy development in the GMS. The study developed into a GMS Strategic Framework and Action Plan for Biofuels and Rural Renewable Energy, which was endorsed at the fifth annual WGA meeting in the People's Democratic Republic of Lao (Lao PDR) in 2008. To implement the framework, GMS countries requested Asian Development Bank (ADB) assistance for bioenergy development, including technology transfer from more advanced countries in the GMS to Cambodia, Lao PDR, and Viet Nam, to diversify the region's energy options while ensuring food security.

In response, the ADB confirmed the 'Capacity Building for the Efficient Utilization of Biomass for Bioenergy and Food Security in the Greater Mekong Subregion (TA7833)' project financed with a grant from the Nordic Development Fund (NDF). This grant is administered by the ADB alongside the agriculture ministries of Cambodia, Lao PDR and Viet Nam in the form of a project for implementation during a period of 42 months (July 2011 to December 2014). The project concept was presented and endorsed by the GMS countries at the annual meeting of the WGA in Viet Nam in 2010. A fact-finding mission in early 2011 concluded broad agreement on the concept paper. TA7833 primarily focuses on Cambodia, Lao PDR and Viet Nam (CLV). The project intends to lay the foundations for potential investment projects to subsequently scale-up successful outcomes.

In December 2011, ADB contracted a consortium of consulting firms led by Landell Mills Ltd (LML) of the United Kingdom to provide technical assistance (TA) to support project implementation by the agriculture ministries. The TA Design and Monitoring Framework is provided in APPENDIX 1:

By June 2012, the agricultural ministries of CLV, in their respective roles as TA7833 Implementing Agencies (IA), had nominated counterpart government staff and resources to lead implementation of TA7833 with support from the Consultants. During the same period, project start-up was mostly concluded with the CLV governments providing office accommodation, etc.

The early TA activities focused on mapping existing implementation structures in CLV for efficient utilization of biomass for bioenergy and food security. The three national workshops were held during February and March 2012 within which key topics for potential studies and pilot projects were prioritized and agreed, along with recommendations on the advantages and disadvantages of both existing and new implementation structures.

Potential implementation partners such as national and international non-government organizations (NGOs), enterprises, public and private centers of excellence and public-private partnership (PPP) modalities have been identified. In each country, potential implementation partners for capacity development have been identified and shortlisted. In addition, pre-selection criteria have been drawn up for TA7833 to identify suitable public and private institutions as:

- i. Distance learning partners;
- ii. Project implementation partners.

This period provided significant input to understanding the current status of priority technologies, policies and standards, in addition to highlighting existing capabilities, priorities and future plans of both Government and key stakeholders. These assessments were built upon the inception workshops and stakeholder meetings in each capital city, initial tri-country missions involving TA experts and the *1st GMS Regional Forum on Harmonization of Standards in Bioenergy and Food Security* in Nanning, China from 1st to 6th July 2012 (see **Report on Proceedings**)¹.

¹ <https://docs.google.com/open?id=0B1wKP1C0cX-jb1gxbm1zVks3c0U>

However, the extended inception phase of the TA and lack of progress on pilot project implementation resulted in the replacement of the TA Team Leader in November. There followed an intensive review process covering work completed to date, development of a comprehensive workplan and schedule and extensive restructuring of the consultant TA team / inputs. These were presented in the revised Inception Report submitted in March 2013.

The following progress report provides a review of the work up to the end of June 2013. Future progress reporting will involve quarterly reports in accordance with the current format and monthly summaries according to the format in Section 2 of this report.

1.2. PROJECT OVERVIEW

TA7833 is a regional capacity development technical assistance project. The project's impact will be to improve the efficient utilization of biomass in Cambodia, Lao PDR and Viet Nam within the wider context of bioenergy and food security. The outcome will be efficiently operating pilot projects in biomass determined by the following outputs:

i) Output One: Enhanced Regional Cooperation on Bioenergy Development to Foster and Safeguard Food Security.

The output will be achieved through a regional approach to climate-friendly agricultural development and mechanisms for harmonizing regulations and ensuring their compatibility with international trade obligations. The TA will support national level working groups to define a road map and policy framework for the introduction of standards and certification for national priorities. The process seeks to build and then support a regional policy sharing dialogue as a step towards supporting shared learning and to understand the potential benefits of moving towards common sets of bioenergy standards, certification and accreditation systems, alongside a traceability and eco-labelling system. A common method of assessing greenhouse gas (GHG) emissions will also be explored. International and regional forums will facilitate progressively higher level dialogue within the region on bioenergy and food security policy issues and encourage the exchange of information and skills in the use of novel technologies. In addition, options for minimizing the cost of certification and traceability for both small-scale producers (households) and end users of products will be analyzed.

ii) Output Two: Climate-friendly, Gender-Responsive Biomass Investment Projects, Pilot Tested through Implementation in Cambodia, Lao PDR, and Viet Nam.

Candidate technologies include, but will not be limited to: biogas & bioslurry; improved cook stoves; biochar production and application, and; climate friendly agriculture value chains. Feasibility studies will be completed for priority topics and used to define pilot projects based on technologies successfully tested on a smaller scale. In addition, business model case studies will be completed for successful projects as a means of identifying potential upscaling modalities. The pilot projects will be used to define future investment options for upscaling in terms of technologies and business modalities if they are identified as being feasible and viable.

iii) Output Three: Enhanced capacity for the efficient utilization of biomass.

The output will raise awareness of the biomass resources and their potential uses amongst officials and policy makers as well as decentralized agencies and supporting civil society groups to enable potential investment options to be fully understood. Gender-sensitive capacity-building will be provided to participating central and local governments, service providers, communities and women's groups. Activities will strengthen institutional and technical capacity to expand biomass investments and ensure sustainable uptake by rural communities. Distance learning methods will be implemented to reach more rural communities and capacity building support will be offered to project stakeholders. Capacity building for ADB safeguards, feasibility assessment and project approval due diligence will be provided.

iv) Output Four: Development and Dissemination of Knowledge Products

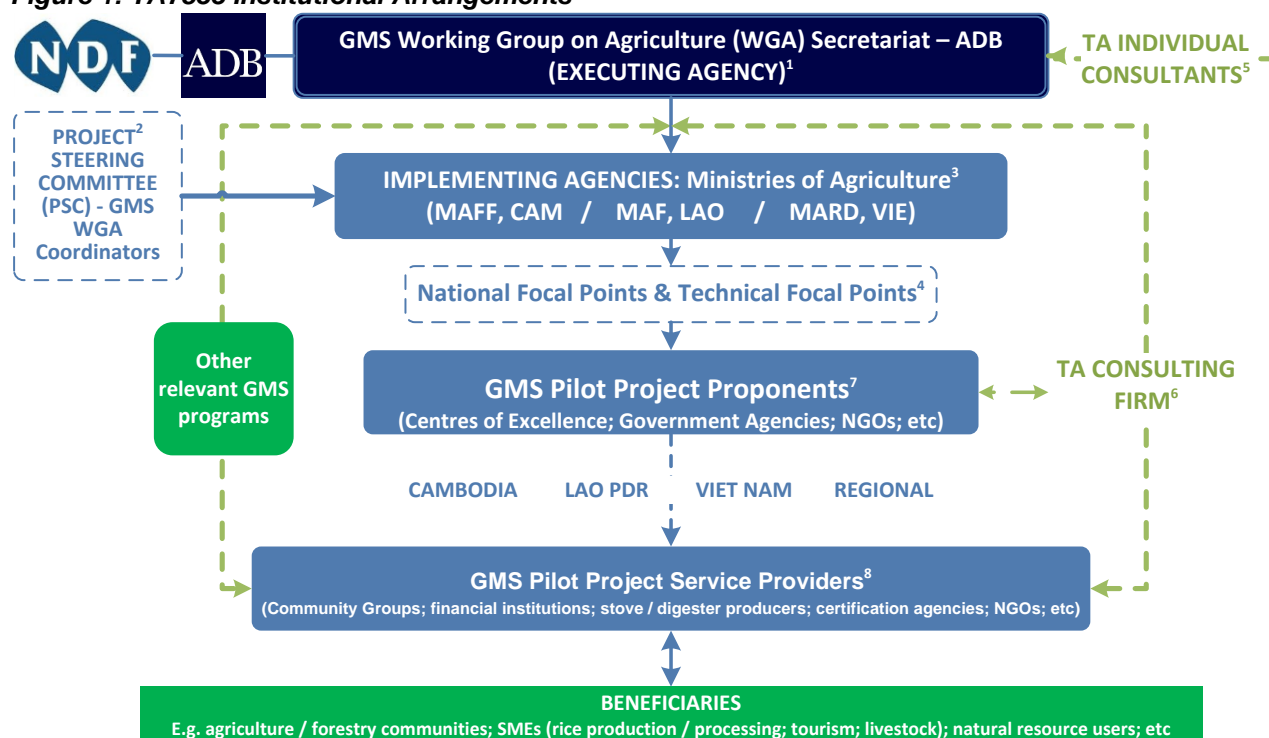
Using output from the Global Bioenergy Partnership (GBEP), the TA will develop a common methodology for assessing the supply of biomass and prioritizing its use for enhancing energy and food security. Knowledge products will be developed to promote knowledge transfer and cooperation between more advanced GMS countries and CLV. An awareness campaign using mass media will be conducted. Baseline surveys will be carried out and a monitoring system established.

1.3. IMPLEMENTATION ARRANGEMENTS

As presented in Figure 1, the *Executing Agency (EA)* for this project is the GMS Working Group on Agriculture (WGA) Secretariat, supervised by staff from the ADB's Southeast Asia Department². A high-level project supervision function is provided by the National Coordinators of the GMS WGA from Cambodia, Lao PDR and Viet Nam, which together form the TA7833 Project Steering Committee (PSC).

The Ministry of Agriculture, Forestry and Fisheries (MAFF), Cambodia; Ministry of Agriculture and Forestry (MAF), Lao PDR; and Ministry of Agriculture and Rural Development (MARD), Viet Nam are the official Implementing Agencies (IA).

Figure 1: TA7833 Institutional Arrangements



The GMS Environmental Operations Center (EOC), Bangkok supports administration of the TA and provides access to regional data and information. The EOC seeks to identify synergies and collaboration with other GMS-wide initiatives such as the ADB's Core Environment Program and Biodiversity Corridor Initiatives.

As of July 2012, each IA (MAFF / MAF / MARD) had identified and officially nominated *national focal point* (NFP) agencies or individuals to lead implementation of TA7833's project activities on behalf of each country according to the wider arrangements detailed in Figure 1. In further discussions with each IA and based on initial lessons learned from TA7833 coordination under

² Dr. Sununtar Setboonsarng, TA7833 Project Officer & Principal Natural Resources and Agriculture Economist, Environment, Natural Resources and Agriculture Division, Southeast Asia Department, ADB

project implementation, additional *technical focal point (TFP)* personnel were identified and recommended to take the lead in technical coordination of country-level activities (Table 1).

Table 1: Government counterpart agencies and personnel for TA7833

ROLE	NAME	POSITION
Cambodia		
Project Steering Committee (GMS-WGA Coordinator)	H.E. SAN Vanty	Under-Secretary of State, Ministry of Agriculture, Forestry & Fisheries (MAFF)
National Focal Point (NFP)	Dr. Sar Chetra	Department of Animal Health & Production, MAFF
Technical Focal Points (TFP)	Biogas - Dr. Sar Chetra	Deputy Director of DAHP
	Biochar - Dr. Chan Saruth	Director of Department of Agricultural Engineering of General Directorate of Agriculture, MAFF
	Biofuel - Mr. Iv Phirun	Deputy Director of Department of Industry Crop of General Directorate of Agriculture, MAFF
	ICS - Mr. Khorn Saret	Deputy Director of Forestry & Community Forestry of Forestry Administration, MAFF
	Standards - Mr. Chheng Uddara	Director, Standards Development, Training & Consultancy Dep., Institute of Standards, Ministry of Industry, Mines & Energy (MIME) ³
Lao PDR		
Project Steering Committee (GMS-WGA Coordinator)	H.E. Phouang Parisak Pravongviengkham	Vice Minister, Ministry of Agriculture and Forestry (MAF)
National Focal Point (NFP)	Mr. Inthadom AKKHARATH	Deputy Director International Cooperation Division Department of Planning, MAF
Technical Focal Points (TFP)	Biogas - Mr. Nivat PHANAPHET	Deputy head of Livestock Management Center, Department of Livestock & Fisheries, MAF
	Biochar - Mr. Lattana PHASAYSOMBATH	Director of Agro-Forestry Training Centre (NAFES), MAF
	Biofuel - Mr. Khamphone MOUNLAMA	Deputy Director of Research Management Division (NAFRI)
	ICS - Mr. Boualom XAYSANAVONG	Technical staff, Ministry of Energy & Mines (MEM)
	Standards - Ms. Nisith KHAMMOUNHEUANG	Head of Standards Division, Ministry of Science & Technology (MoST)
Viet Nam		
Project Steering Committee (GMS-WGA Coordinator)	Mdm. NGUYEN Thi Tuyet Hoa	Deputy Director General, International Cooperation Department (ICD), MARD
National Focal Point (NFP)	Mrs. Ho Thi Minh Chau	Acting Director, Multilateral Cooperation Division, ICD, MARD
NFP Coordinator	Mr. Nguyen The Hinh	Agricultural Project Management Board (APMB), MARD
Technical Focal Points (TFP)	Biogas - Ms. Nguyen Quynh Hoa	Official, Livestock Environment Division, Department of Livestock Production, MARD

³ www.isc.gov.kh

	Biochar - Mr. Vu Tien Dung	Deputy Director of AST project, APMB, MARD
	Biofuel - Mr. Nguyen Tu Hai	Official, Department of Crop Production, MARD
	ICS - Mr. Tran Ngoc Tue	Deputy Head, Biomass Energy Division, Forestry Science Technique Application Centre, MARD
	Standards - TBD	To be determined / nominated by MARD

In addition to the Consultant firm, ADB contracted a *Regional Cooperation and Trade Facilitation Specialist* and *Regional Knowledge Management Specialist* as individual consultants located in the WGA Secretariat that will work with the Consultants during TA7833 implementation, starting from June 2012.

The GMS EOC in Bangkok serves as the facility for administering TA7833 and offers access to regional data and information of relevance. In addition, the EOC plays a key role in identifying synergies with and fostering collaboration with other GMS-wide initiatives such as the ADB's Core Environment Program and Biodiversity Corridor Initiatives

1.4. PROJECT SCOPE AND DEFINITION

Biomass provides a locally available, and renewable, source of energy, particularly in rural areas in CLV, where biomass based energy remains the predominant energy source. In areas endowed with forest and/or agricultural, food processing, agro-industrial and domestic organic residues, bioenergy production is increasingly cost effective and a competitive energy alternative.

The TA terms of reference scope includes the need to improve the quality of country-level data on biomass resources and to strengthen national and institutional capacities to collect, analyze and disseminate information related to efficient utilization of biomass for energy and food security, by focusing on key technologies that contribute to both. TA scope is limited to pilot biomass utilization technologies that use small-scale technology operating at the household and the community level. Institutional and regulatory frameworks, capacity development and knowledge management will reflect the wider biomass utilization subsector needs.

The TA supports the continued strengthening of cooperation between member countries, acting as a catalyst for building development dividends not always possible at the national level. The TA will support dialogue between regional actors (top-down), as well as support the scaling-up of local community-based initiatives (bottom-up). At the regional level, the project facilitates high-level dialogue on a common approach to bioenergy development for pro-poor climate change mitigation, energy self-sufficiency and food security. The project also works with local governments and stakeholders to put in place the human and institutional capacity to increase adoption of technologies to promote the efficient use of biomass for the benefit of rural poor while enhancing food security.

The efficient utilization of biomass requires technologies that transform agricultural and forestry residues, which create environmental problems and pollute waterways when left to decay, to produce bioenergy, biochar and organic fertilizers⁴. Currently, technologies and the required skills for the conversion of agricultural and forestry residues into bioenergy carriers like biogas, wood or straw-based pellets / briquettes and biochar have been promoted by national and international NGOs with mixed results and on a limited scale.

Bioenergy can be generated from biomass either directly or indirectly converted in either: solid, liquid or gaseous forms. Modern bioenergy relies on efficient conversion technologies which are

⁴ ADB's 'Technical Assistance Report 44474-01, Capacity Building for the Efficient Utilization of Biomass for Bioenergy and Food Security in the Greater Mekong Subregion' (ADB, 2011)

increasingly available. The project defines bioenergy as: “...renewable energy from plants and animals. Organic matter containing bioenergy is known as biomass that can produce heat ... or be modified to create cellulosic ethanol. Since almost all bioenergy can be traced back to solar energy, bioenergy has the advantage of being a renewable energy source, and should be harnessed in a sustainable manner.”

ADB's bioenergy policy states that it can only support bioenergy sourced from non-food crops and 'agro-waste'. The TA scope is defined by this policy which requires:

- i. the feedstock is not a food crop;
- ii. any land involved in bioenergy development is unsuitable for food crops;
- iii. no deforestation is associated with bioenergy development, and;
- iv. The net energy balance is positive.

The scope of the TA excludes liquid bioenergy for transportation (transport biofuel as bioethanol or biodiesel).

The scope of biomass feedstock for bioenergy is further limited by CLV government representatives to include only

- i. rice husks,
- ii. straw,
- iii. bamboo,
- iv. nut shells,
- v. fruit waste,
- vi. non-food oil bearing plants,
- vii. animal manure and
- viii. Other agro-waste wherever these are abundant with the potential to create environmental problems⁵.

The development of skills required for production of bioenergy carriers like biochar, briquetting and plant oil targets households and small community-based enterprises as the development of a viable bioenergy market is not possible without the involvement of the private sector. Therefore counterparts and key informants sought by the project include public and private sector enterprises, as well as research centers, universities and vocational training centers in the TA stakeholder group.

⁵ WGA meeting, 12 July 2012, Nanning, China

2. SUMMARY OF PROGRESS AGAINST OUTPUTS

DMF	ACTIVITIES COMPLETED AND OUTPUT CONTRIBUTION PLAN		
OUTPUTS & ACTIVITIES	2012 (ACTUAL)	2013 (PLAN)	2014 (PLAN)
OUTPUT 1: ENHANCED REGIONAL COOPERATION IN BIOENERGY DEVELOPMENT TO FOSTER AND SAFEGUARD FOOD SECURITY			
1. Regional forums for high level dialogue	1st GMS Forum for was successfully accomplished in Nanning in July 2012 and reported in the IR and the Report on Proceedings	<p>2nd GMS Regional Forum on Harmonization of Standards in Bioenergy (November 2013) possibly in Hanoi – to be confirmed. Combined with International Conference.</p> <p>By 30th June No Activities this period</p> <p>The forum is to be planned based on each countries policy road map for standards, certification and labelling for biomass related technologies and climate friendly agriculture that are being developed from the national forums completed during this progress period – see 1.1.</p>	3 rd GMS Regional Forum on Harmonization of Standards in Bioenergy - to be determined, scheduled for mid-Q2 2014
1.1 Testing of mechanisms to facilitate adoption of common set of sustainable indicators, bioenergy and trade standards, certification systems an eco-labelling	Harmonization Roadmap devised and agreed at 1st GMS Forum as initial mechanism for facilitating dialogue and ultimate adoption of common standards. See p12 of Report on Proceedings	<p>3 National policy forums (May 2013) - one in each country prior to next planned Regional Forum, offering more intensive mechanism for national-level dialogue for wider harmonization. The forums will provide a venue for policymakers and public officials to discuss policies and opportunities relevant to their country, and engage with other stakeholders and experts. The forums will provide a process for developing policy strategies that will be presented at the regional forum.</p> <p>The Forums will be used to: - confirm the willingness and</p>	3 National policy forums (before April) one in each country prior to next planned regional forum, offering more intensive mechanism for national-level dialogue for wider harmonization

DMF	ACTIVITIES COMPLETED AND OUTPUT CONTRIBUTION PLAN		
OUTPUTS & ACTIVITIES	2012 (ACTUAL)	2013 (PLAN)	2014 (PLAN)
		<p>feasibility of using a regional pool of compliance inspectors;</p> <ul style="list-style-type: none"> - the purpose and target of eco-mark labels; - Cambodia has identified its first forum subject as biogas, and will be held on May 23rd; - Viet Nam has a first draft of their proposed agenda for May 16th that is awaiting confirmation; - Lao PDR: Agenda options are still being finalized. <p><u>By 30th March:</u></p> <ul style="list-style-type: none"> - Regional biomass resources – proposed assessment methodologies are being reviewed by each country. Options for integrating this within a multi-criteria decision support tool linked to life cycle analysis have been developed and are being reviewed. It is proposed to use these as an integral part of the compendium on biomass under Output 4; - Traceability – no progress; - Participatory Guarantee Systems – Proposed ToR and report outline has been distributed for final comments; - International certification systems reviewed – Report scope and outline agreed and initial data collation complete; <p><u>By 30th June</u></p> <ul style="list-style-type: none"> - three forums completed – one in 	

DMF	ACTIVITIES COMPLETED AND OUTPUT CONTRIBUTION PLAN		
OUTPUTS & ACTIVITIES	2012 (ACTUAL)	2013 (PLAN)	2014 (PLAN)
		<p>each country;</p> <ul style="list-style-type: none"> - forum reports are currently in draft for review; - Report on review of International standards, certification, and labelling is under preparation; - Traceability study – no activity planned; - PGS study – delayed due to expert demobilizing for medical reasons. <p><u>By 30th September</u></p> <ul style="list-style-type: none"> - Working groups formed in each country to prepare national standards and certification roadmaps completed as preparation for the national forum in Q4 2013; - Follow up mission by ICS expert planned for August- September to define national priorities, define an agreed road map, and build a policy dialogue and action matrix; - International review of current state of knowledge regarding standards, certification and labelling will be completed and distributed; - National review of laws and policies updated and reported; - PGS study field work reviewed and outstanding data collection to be agreed. 	
1.2 Annual international workshops on household energy and food security	Not accomplished. Planned to coordinate with FAO-BEFS but postponed to 2013 by order of ADB to	The conference will be linked to the Regional Standards Forum in Q4 2013 to enable PP progress and	

DMF	ACTIVITIES COMPLETED AND OUTPUT CONTRIBUTION PLAN		
OUTPUTS & ACTIVITIES	2012 (ACTUAL)	2013 (PLAN)	2014 (PLAN)
	focus on PP implementation.	<p>findings to be reported including: a) present FS findings; b) present pre-final PP plans for comments and suggestions; c) training & capacity building side sessions on core TA topics.</p> <p><u>By 30th March:</u></p> <ul style="list-style-type: none"> - no progress <p><u>By 30th July</u></p> <ul style="list-style-type: none"> - no progress; <p><u>By 30th September</u></p> <ul style="list-style-type: none"> - agenda, location, speakers, and timing confirmed, advertising underway 	
OUTPUT 2: PILOT TESTED CLIMATE FRIENDLY BIOMASS INVESTMENT PROJECTS FOR WIDER IMPLEMENTATION			
2.0 Conduct biomass assessment and development of criteria for selection of pilot project areas by 2012	<p>*Biomass assessment not accomplished.</p> <p>Secondary data collected and assessment framework initiated but not complete.</p> <p>Review of ICS supply chain and technology</p>	<p>Biomass assessment: Biomass expert will complete assessment with local team members before end of 2013.</p> <p><u>By 30th March:</u></p> <ul style="list-style-type: none"> - Proposed methodology distributed for comment, secondary data and existing assessment studies are being collated <p><u>By 30th June</u></p> <ul style="list-style-type: none"> - Final report available for external comments. - ICS report completed <p><u>By 30th September</u></p> <ul style="list-style-type: none"> - Report distributed and freely available 	

DMF	ACTIVITIES COMPLETED AND OUTPUT CONTRIBUTION PLAN		
OUTPUTS & ACTIVITIES	2012 (ACTUAL)	2013 (PLAN)	2014 (PLAN)
2.1 Implementation of pilot projects in lower cost biogas technologies as investment options involving use bioslurry for high vale crop production	Draft ToR for pilot prepared but not approved.	<p>Pilot FS contracted and completed before June 2013.</p> <p><u>By 30th March:</u></p> <ul style="list-style-type: none"> - Priority topics by country agreed (see APPENDIX 4:); - Terms of reference for feasibility studies prepared and approved by ADB and IAs; - Expression of interest for feasibility studies in Viet Nam and Cambodia received and evaluated – awaiting confirmation by Government; - Lao PDR EOIs currently advertised - EOIs due April 5th. <p>Pilot projects to be contracted and implemented from April through to July and completed in Q1 2014</p> <p><u>By 30th June</u></p> <ul style="list-style-type: none"> - FS in Cambodia and Viet Nam contracted; - Laos PDR had no national EOI despite a second round of advertisement; - TA is awaiting NFP approval for the use of a Viet Nameese contractor for the Bioslurry and Biochar work in Laos – request submitted in May 2013; - WB, AUSAID and GERES/EU have completed reviews of ICS sector for the purpose of undertaking pilot upscaling investments – raises the need for 	Pilot projects reviewed and written up. Proposed subprojects designed and written up for inclusion in follow on loan

DMF	ACTIVITIES COMPLETED AND OUTPUT CONTRIBUTION PLAN		
OUTPUTS & ACTIVITIES	2012 (ACTUAL)	2013 (PLAN)	2014 (PLAN)
		<p>FS and or pilot in ICS for Laos;</p> <ul style="list-style-type: none"> - Proposed value chain focus in biochar linked to aggregated biomass sources such as rice husk and cashew shells identified for Cambodia and Viet Nam; - Value chain business models for potential upscaling case studies identified. <p><u>By 30th September</u></p> <ul style="list-style-type: none"> - 6 FS studies completed and reported; - TORs approved for proposed pilots; - RFPs approved and advertised – contractors shortlisted; - Case studies for climate friendly value chain in rice completed and circulated for comment. 	
<p>2.2 Conduct of reviews to identify appropriate biochar, ICS and biofuel investment modalities by 2012 and implementation of pilot project by 2014</p>	<p>By 30 October - Summary reviews of ICS, Biochar and carbon emissions, the private sector, financing modalities, and the institutional frameworks in CLV completed.</p> <p>By 30 December - Technology commercialization status assessment based on NASA's Technology Readiness Levels (TRL) completed and included in inception report – highlighting the immature nature of biochar and bioslurry technologies for widespread up-scaling.</p> <p>Biofuel technology has been dropped</p>	<p>Individual technical reviews and reports.</p> <p><u>By 30th March</u></p> <ul style="list-style-type: none"> - ICS review drafted and distributed for review; - Biochar Technologies review drafted – awaiting final editing; - Financing modalities for biomass technology – drafted awaiting final editing. <p>To be Finalized by June 30th</p> <p><u>By 30th June</u></p> <ul style="list-style-type: none"> - ICS report completed; - Biochar technology report 	

DMF	ACTIVITIES COMPLETED AND OUTPUT CONTRIBUTION PLAN		
OUTPUTS & ACTIVITIES	2012 (ACTUAL)	2013 (PLAN)	2014 (PLAN)
	based on TA team findings and CLV Government skepticism.	completed; - Financing modality report completed; FS study findings will be linked with expert reviews for a final set of recommendations for scaling-up.	
OUTPUT 3: ENHANCED CAPACITY FOR EFFICIENT USE OF BIOMASS			
3.0 Development of gender- sensitive training programs including distant learning activities, use of these for training local and central govt officials, farmers organization and women's groups (30% women by 2013)	Not accomplished.	Awareness program developed and tested by Q3 2013. FS will develop a capacity building proposal for each pilot that will be developed and delivered during the pilot implementation. Distance-learning activities developed prior to Q3 2013. Study tour and workshops in each country will be used for awareness and training of government officials, and local stakeholders. By 30th March: - Biochar/ICS Regional Workshop and Study tour completed in Siem Reap, CAM with sharing of technology and field trial results (<i>Report on Proceedings under drafting</i>). By June 30th - Awareness program - no progress due to delayed contract variation. By September	

DMF	ACTIVITIES COMPLETED AND OUTPUT CONTRIBUTION PLAN		
OUTPUTS & ACTIVITIES	2012 (ACTUAL)	2013 (PLAN)	2014 (PLAN)
		<ul style="list-style-type: none"> - A total of 3 spotlight on Biomass brochure and newsletters distributed; - Existing video and awareness materials collated for agreed themes and a Q4 expo days in each country agreed 	
3.1 Conduct training in the implementation of the investment project by 2014		Opportunities for in-country training participation in ADB RM training linked to procurement and disbursement will be offered in the last quarter 2013 and 2014.	<p>To be implemented as part of the finalization of subprojects for the loan project.</p> <ul style="list-style-type: none"> - Innovative financing; - ADB project preparation and implementation training; <p>Social baselines finalized from pilot and Pilot FS, triangulated with secondary data and SPRSS prepared.</p>
3.2 Conduct of training in the use of biomass to enhance food security and soil carbon sequestration by 2014	<p>*Support for training of TFP-Biochar x 3 at the IBI Biochar Congress (Sep 2012). See BTORs.</p> <p>*No further formal training accomplished. Target should be 2014 to acknowledge & include learning from TA PPs and KPs, etc.</p>	<p>Training will be initiated during Q2 2013 and will continue through to the end of Q1 2014.</p> <p>Regional study tours relating to:</p> <ul style="list-style-type: none"> - Biochar. Completed in Q1 2013 (Seam Reap) – see above; - Biogas Q3 2013; - ICS Q4 2013. <p>By 30 June</p> <ul style="list-style-type: none"> - no activities. <p>By 30 September</p> <ul style="list-style-type: none"> - First distance learning courses developed for knowledge product themes in Output 4.3. 	<p>Final training programs delivered and evaluations written up.</p> <p>Training resources reviewed updated and finalized.</p>
OUTPUT 4: DEVELOPMENT AND DISSEMINATION OF KNOWLEDGE PRODUCTS			
4.0 Development of methodology for	Not accomplished. This refers to	Methodologies will be assembled and	Methodological framework will be

DMF	ACTIVITIES COMPLETED AND OUTPUT CONTRIBUTION PLAN		
OUTPUTS & ACTIVITIES	2012 (ACTUAL)	2013 (PLAN)	2014 (PLAN)
<p>assessing and prioritizing the use of biomass for energy and food security by 2012 and dissemination of the methodology through regional forums, training, and capacity building by 2014</p>	<p>evaluating if GBEP methodologies are appropriate for adaption and adoption in GMS countries.</p>	<p>reviewed by the TA experts in Q2 2013 with findings presented during 2nd GMS Regional Forum on harmonization between countries and also between the range of donor supported input to biomass assessments.</p> <p><u>By 30th March</u></p> <ul style="list-style-type: none"> - Existing resource assessments for CLV have been compiled, international assessment methods identified and a proposed assessment framework is being reviewed. <p><u>By 30th June</u></p> <ul style="list-style-type: none"> - Draft high level assessment completed and being internally reviewed. <p><u>By 30th September</u></p>	<p>written up and defined in terms of a time bound action plan</p>
<p>4.1 Establishment of baseline information and monitoring and evaluation system for pilot projects by 2012</p>	<p>Not accomplished.</p>	<p>Baselines will be established during the FS for each pilot, and also as part of the pilot implementation reporting and completion.</p> <p><u>By 30th March</u></p> <ul style="list-style-type: none"> - Baseline requirements specified in the pilot feasibility study ToR; - Social baselines in the FS will be triangulated with secondary data. <p><u>By 30th June</u></p> <ul style="list-style-type: none"> - No progress 	<p>Multi-stakeholder, user-focused evaluation forums used to complete and review each of the pilot studies.</p> <p>Training evaluations will be written up and assessed in terms of future needs and capacity building programs.</p>
<p>4.2 Conduct key studies such as life cycle assessments, least cost options, and eco-labelling by 2013</p>	<p>Not accomplished.</p>	<p>Studies will be undertaken during the second half of 2013;</p> <ul style="list-style-type: none"> - Life cycle assessment; 	

DMF	ACTIVITIES COMPLETED AND OUTPUT CONTRIBUTION PLAN		
OUTPUTS & ACTIVITIES	2012 (ACTUAL)	2013 (PLAN)	2014 (PLAN)
		<ul style="list-style-type: none"> - Least cost options. <p><u>By 30th March</u></p> <ul style="list-style-type: none"> - Options have been outlined for using the pilot projects as case studies for lifecycle and least cost assessments and how these could be combined with the biomass assessment framework within a multi-criterion decision framework; - Initial decision parameters are being defined and will be distributed to each Technical Focal Points for their review and comment in April. <p><u>By 30th June</u></p> <ul style="list-style-type: none"> - No Progress 	
4.3 Publication of compendium of good practices in biomass use and booklets containing information on different models of ICS biochar kilns and bio-digesters by 2014	Not accomplished.	<p>Initial draft will be completed during Q2 2013.</p> <p>Booklets will be prepared off the knowledge products contracted for delivery in Q4 2013.</p> <p><u>By 30th March</u></p> <ul style="list-style-type: none"> - Draft outlines for knowledge products in Biochar have been prepared and are being reviewed by potential service providers. <p><u>By 30th June</u></p> <ul style="list-style-type: none"> - No progress 	<p>Peer review and publications.</p> <p>Booklets finalized and distributed</p>
4.4 Analysis of potential climate change scenarios and their likely impact on the availability of different type of biomass and assessment of	Not accomplished.	<p>Frameworks for climate emission and carbon assessment and reporting will be developed during 2013 for peer review in Q4 and integrated with</p>	<p>Finalization of climate emission framework.</p>

DMF	ACTIVITIES COMPLETED AND OUTPUT CONTRIBUTION PLAN		
OUTPUTS & ACTIVITIES	2012 (ACTUAL)	2013 (PLAN)	2014 (PLAN)
need for the development of alternative biomass sources by 2013		<p>standards, labelling harmonization.</p> <p><u>By 30th March</u></p> <ul style="list-style-type: none"> - Climate change framework and emissions assessment is proposed using the TA consortia member Nexus experts through contract variation detailed in the submitted inception report. <p><u>By 30th June</u></p> <ul style="list-style-type: none"> - No progress. <p><u>By 30th September</u></p> <p>Knowledge products for</p> <ol style="list-style-type: none"> i. Food security, Biomass and Rural Energy; ii. Biochar; iii. Biogas and Bioslurry prepared and disseminated; iv. Certification and standards. 	

3. DETAILS OF PROJECT PROGRESS & PERFORMANCE

3.1. PROJECT IMPLEMENTATION PROGRESS

3.1.1. Output 1: Mechanisms for Enhancing Regional Cooperation and Development of Bioenergy and Food Security Harmonized

The 1st GMS Regional Forum on Harmonization of Bioenergy Standards was held in Nanning, China in July 2012. The Forum provided the opportunity to prepare and agree a harmonization roadmap mechanism to engage all the three implementing countries in agreed priorities and procedures for strengthening national and regional institutional co-alignment in the twin areas of bioenergy and food security. The Nanning plan is being enacted and elaborated through ongoing efforts and a series of national forums that were completed in May 2013. These national forums addressed building knowledge and understanding of standards and certification and will be followed up through a series of national level processes that will identify national priorities, conduct of awareness-raising, and, where necessary, preparation of national standards, policies and institutional framework options. The roadmaps will include prioritization for building standards and the necessary elements for advancing the implementation of priority programs including the development of policy and regulatory support. Each national roadmap will provide input to the GMS Regional Forum and future national forums.

The national forums will also be informed from the national review of laws, regulations, policy and plans that will be completed by October 30 2013. Initial drafts were used as input to the 2013 national forums. During the 2013 national forums it was agreed that national priorities would be identified along with a policy action matrix as part of building standards, certification and labelling roadmap and action plan to be presented at the 2013 regional forum. The forums will be reported to regional stakeholders in the 2nd GMS Regional Forum in November 2013. It is envisaged that related activities within the TA will be adjusted to the scope of the national roadmap including the inspectorate development, traceability studies, national guideline development and labelling development.

The study into participatory guarantee schemes (PGS) has collected initial data sets for the case studies. Over the next quarter the case studies will be finalized and the study will be aligned to the roadmap priorities. The study will be used to inform the regional ICS forum in November 2013 to enable participants to consider the role of voluntary schemes within the national processes.

The review of international standards and certification has been drafted and is currently being reviewed and commented on by team members. The study will be finalized and distributed to the NFPs for comment and review prior to final submission. The report will be presented to the proposed ICS task forces as well as the regional ICS forum.

The national guidelines for sustainability has an initial review of the GBEP and BFES indicators and will undertake a comparative study against current indicators for national public sector investment feasibility. The comparative study will provide a set of recommended options for strengthening national feasibility guidelines to reflect the elements of sustainability in food security and biomass energy programs.

3.1.2. Output 2: Mechanisms for Scaling-up Biomass Investment Projects for Bioenergy and Food Security Demonstrated through Pilot Projects

During the inception stage technologies and options for biomass use were identified and prioritized. Draft assessments have been prepared for ICS technologies, biochar production / applications and biogas / bioslurry technologies and their supporting value chains. These assessments are in final editing and will be distributed to stakeholders and partners for use as well as included in awareness-raising, distance-learning and knowledge products.

A review of the private sector and financing modalities has been completed, with the options paper in a final edit stage. Other papers related to Biochar and ICS reviews are attached to this progress report. The financial assessment reviews identified numerous innovative options but is light on the basis for integration of options within the relevant value chains in each country. As such, the report will be strengthened with more input to provide the necessary public-private sector context within which the range of options and technologies could operate. The shortfall will be addressed through the feasibility studies to be completed for each pilot project and the review of business models, where after the report will be circulated for peer review and comments before dissemination.

Country-wide stakeholder consultation in December 2012 identified each country priorities for pilot investments to be implemented by the TA. According to these priorities, concept papers were prepared for the follow-on pilots and used to confirm government commitment. In January 2013 the procurement procedures were negotiated with ADB to enable Consultant Qualification Selection (CQS) procurement procedures to be used, recognizing the highly specific nature of the work required, short time-intervals involved and few potential qualified service providers available.

EOIs were sought in both Cambodia and Viet Nam in February 2013 via ADB's website and local newspapers. Cambodia and Vietnam EOIs were reviewed in March and the ranking outcomes presented to Government for confirmation. The contracting of these feasibilities was completed in May and June 2013 with the FS being scheduled for completion in August and September.

In Laos the request for EOIs to complete the FS's did not attract any expression of interest. In discussion with the NFP the EOI request was repackaged by combining the Biogas and Biochar FS's and increasing the level of inputs. No national EOIs were received, however one was received for the biochar /biogas FS from a Viet Nameese Consulting group. The NFP indicated a Government approval was needed to proceed with the EOI. To date no decision has been communicated to the TA.

On-going work in Laos PDR by the World Bank and AusAid has completed a review of the ICS and Biogas sector in terms of its current status, and identified proposed business models for upscaling the use of existing and new ICS technology. The outcome of this work is a proposed pilot for a revised ICS upscaling business model (total cost of nearly USD 1 million) that will provide proof of concept for a follow-on upscaling investment. In the biogas sector the assessment found significant issues relating to the viability of upscaling due to the cost of digesters, access to other fuel sources, and the cost of appliances. A recommended leasing instrument is proposed to increase the affordability of the technology; however this does not address other constraints in upscaling the biogas sector in Laos PDR. Further funding is proposed by the EU for upscaling of ICS in Laos.

Given the lack of EOIs from Laotian firms, and the significant pipeline of funding into ICS the TA questions the value of the TA including ICS as a pilot. Likewise the findings on biogas suggest upscaling will be severely limited by a range of factors regarding the lack of value of gas to the households. These issues have been raised with the NFP for consideration of the Government.

3.1.3. Output 3: Strengthened Capacity of Project Stakeholders for the Efficient use of Biomass

The TA7833 capacity building program applies a blended approach to activities such as public awareness campaigns, distance-learning methodologies, in-situ and field demonstrations during project implementation. The focus of capacity development generally falls on the pilot project topics as agreed with the IAs and listed in APPENDIX 4:.

The institutional mapping exercise carried out during the inception phase identified a list of existing training service providers relating to biomass-to-energy technologies and improved food production in the GMS (see Inception Report).

i) Awareness-Raising

TA7833 aims to raise awareness of the critical nexus of climate-friendly agriculture, soil quality, bioenergy and food security through a series of macro-level initiatives to drive interest and awareness within key stakeholder groups in the GMS.

Awareness-raising activities were initiated through inception workshops (Cambodia and Lao PDR) and a stakeholder meeting in Viet Nam in February 2012. Participation at these events totaled 121 government and non-government stakeholders (32% women) from across the GMS. In addition to an overview of TA7833 expected impacts, outcomes, outputs and planned activities, the following awareness-raising sessions were presented by the ADB, IAs, TA Team or key resource persons:

- Interrelation of bioenergy and food security sectors;
- Overview of bioenergy technologies (biochar, biogas/bioslurry, ICS and liquid biofuels);
- National status & perspectives on efficient utilization of biomass for bioenergy & food security;
- Working group sessions:
 - a) Sustainability indicators for bioenergy & food security;
 - b) Private sector participation and financing modalities for bioenergy & food security;
 - c) Policy & regulatory coherence for bioenergy & food security.

By 31st March, the TA team had collated and screened a large selection of relevant awareness-raising materials covering these interrelated topics.

By 30th June no further awareness activities had been undertaken.

Significant awareness-raising activities targeted at rural communities have been incorporated into the feasibility study and pilot project design terms of reference – e.g. ICS demos via women unions, etc.

The wider awareness program will utilize hard copy and electronic newsletters and email spotlights that provide facts and updates on key technologies and their use in the GMS. The newsletters will be complemented through a series of expo days in each country during Q4 2013 and Q2 2014, where a range of existing awareness materials will be structured into posters and video presentation that will be provided at each of the IAs or an equivalent location. Outside providers will also be invited to the expo days. Expo days will also be held in the provinces involved in the pilot programs. The combination of newsletter and expo materials will be consolidated onto DVD for wider distribution.

ii) Training

In September 2012, TA7833 provided support for attendance of the TFP-Biochar from CLV (total 3 participants; 0% women) at the International Biochar Initiative (IBI) Congress in Beijing, China. The participants benefitted from presentations and intensive discussions surrounding: a) the application potential of biochar in an agricultural-dominant country; b) biochar and soil processes; c) biochar and climate change mitigation, and; d) biochar production in bigger scale.

From 4th-7th March 2013, TA7833 hosted the *Regional Workshop & Study Tour on Efficient Utilization of Biomass for Biochar Production & Application Biochar* in Siem Reap, Cambodia. The event was attended by 33 government and non-government CLV stakeholders (19% women). Training included topics covered: the production of biochar from rice husks, bamboo and other feedstocks, including at the household level; demonstration of a range of biochar production technologies ranging from small kilns, retorts and multi-purpose ICS that produce biochar as a by-product, and the integration of biochar / ICS technologies to rural household energy and food production systems. In working groups, the participants explored the opportunities and costs for adapting technology to fit a rural household's resources in the GMS and how the knowledge and experience from the workshop could be integrated into TA7833 activities. The participants shared their individual and collective experiences from existing biochar programs, including that of the Japanese Biochar Association (JBA) on behalf of the "Cool Vege" initiative and from each of the

three CLV countries. Finally, the group's learning was consolidated with a field trip to assess trial demonstration technologies and rice / vegetable production plots utilizing biochar.

TA7833 aims to further develop analytical capacity in government stakeholders in CLV countries through training in the application of the FAO's **Bioenergy and Food Security (BEFS)** Analytical Framework and Tool Box⁶. At the request of the NFPs, the Consultant initiated dialogue with FAO to provide regional trainings to government officials and technical staff on the BEFS tools. Specifically the training will introduce the role of BEFS and its capacity to build planning scenarios and strategies as well as how the framework can support the identification of priority investment programs. The training will be linked to the 2013 regional conference.

Additional training will be delivered on the following subjects:

- i. Biochar supply chain development – PRC;
- ii. AROS/Organic Agriculture;
- iii. Biomass Resource Assessments and the use of technology (Thailand Land Department);
- iv. Sustainability indicators;
- v. Innovative financing systems, and;
- vi. ADB investment processing and loan readiness systems.

iii) Distance Learning

Distance learning activities will be focused on the last quarter 2013 and 2014 to enable the materials developed during the implementation of TA7833 to be incorporated.

The distance-learning program will build course materials using a web based platform and distributed through DVDs – the program will be developed by the TA and piloted in each of the Pilot Provinces. The pilot distance learning will be evaluated and then transferred to each Government for their future use. The option of an institute hosting the distance learning courses into the future will be reviewed and the TA will share these with the WGA in 2014. It is proposed to certificate graduates and those graduates excelling from the first programs will participate in a WGA graduation ceremony attached to a regional WGA meeting in 2014. Participants will be identified via TFP nomination and expo days. Knowledge management products will be tailored as resource materials and guidebooks for the courses.

3.1.4. Output 4: Knowledge Products Developed and Disseminated

To date the structure of the biomass compendium is emerging with a desire to have it established as a multi-criteria decision support tool. The concept would use the compendium to build the data sets for the means to assess feedstocks and the use of the feedstock through technically-focused chapters. These chapters would be integrated with lifecycle analysis, least-cost assessment frameworks and social impact assessment and then concluded with a multi-criterion decision support framework.

The biomass resource assessment priorities have been agreed and the experts collated existing assessments of biomass in the countries as well as from the wider region. These were reviewed and then consolidated into the biomass review – high level assessment report. Based on the proposed framework an initial feedstock assessment will be developed using mostly secondary data sources and data collected during the feasibility studies.

Proposed knowledge products for biochar and GHG emissions assessment are in preparation with an initial scope of work under discussion with potential service providers.

Additional knowledge products topics will include

- i. Biomass/Food Security and Energy Nexus;
- ii. Biochar and its use;
- iii. Biogas and bioslurry management;

⁶ www.fao.org/bioenergy/foodsecurity/befs

- iv. ICS;
- v. Soil amendments and biofertilizer;
- vi. Climate friendly value chains;
- vii. Standards and certification;
- viii. Carbon emissions and markets;
- ix. Sustainability indicators.

These will be developed during 3rd and 4th quarter of 2013.

3.2. PROJECT MANAGEMENT

3.2.1. Summary of Consultant TA Team

The first of the international consultants were mobilized in December 2011 and the others thereafter as shown in Table 2.

Table 2: International staff engaged on TA7833 (30th June 2013)

NAME	SPECIALIST POSITION	INPUTS UTILIZED (MONTHS)	INPUTS REMAINING (MONTHS)
SAUNDERS*	Team Leader	3.50	6.70
BARACOL-PINHÃO	Legal Standards & Certification Specialist	4.20	1.67
BLOOMFIELD	Improved Cookstove Specialist	0.73	0.27
SHACKLEY	Biomass / Biochar Technology Specialist	2.20	2.00
YAPP	Private Sector Development Specialist	4.67	1.33
MUNFORD**	Capacity Building & Distance Learning Specialist	0.25	2.75

*Mr. SAUNDERS replaced by Mr. Heinz-Peter MANG in October 2012

**Mr. MUNFORD replaced by Mrs. Elizabeth HUBA in January 2013

i) Cambodia

Cambodian national TA consultants were mobilized from December 2011. The TA7833 project office was set up at MAFF in Phnom Penh in a meeting room on the 3rd floor of the Inspection Department. The procurement of office equipment received ADB approval in March 2012 and was mostly delivered and installed by May 2012. Asset registers have been shared with ADB and the IAs. To allow the undisturbed parallel use of the meeting room for other office work, a room separator was also installed at the cost of the TA, along with minor renovations. This procurement procedure has been completed. Names and positions of the Consultant's current Cambodian national staff are shown in Table 3. To support coordination TA7833 consultants plan to meet with the Implementation Agency every month.

Table 3: Cambodian national staff engaged on TA7833 (30th June 2013)

NAME	SEX	SPECIALIST POSITION	INPUTS UTILIZED (MONTHS)	INPUTS REMAINING (MONTHS)
Moni Ratana MAO	F	National Project Implementation Specialist (NPI)	2.00	9.50
Bona SAM	M	Private Sector Development Specialist	2.12	0.88
Sokheng KEO	M	Project Assistant	Full-Time	

* Ms MAO replaced Mr HEM in June 2013

** Mr. SOUN, Legal, Standards and Certification Specialist, withdrew from the project in March 2012 and remaining inputs were reallocated during the TA team reformulation. Mr. DY, Capacity Building & Distance Learning Specialist, contributed in 2012 but remaining inputs were reallocated during the TA team reformulation. Mrs. HAP, Social Development Consultant, contributed in 2012 but remaining inputs were reallocated during the TA team reformulation.

ii) Lao PDR

The Lao PDR national TA team was mobilized from December 2011. The TA7833 project office was setup at MAF headquarters in Vientiane and has been in use since February 2012. The procurement of office equipment was completed as planned. Names and positions of the Consultant's current Lao national staff are shown in Table 4. To support coordination TA7833 consultants plan to meet with the Implementation Agency every month.

Table 4: Lao PDR national staff engaged on TA7833 (30th June 2013)

NAME	SEX	SPECIALIST POSITION	INPUTS UTILIZED (MONTHS)	INPUTS REMAINING (MONTHS)
Bounthavy CHALEUNPHONH*	M	National Project Implementation	1.00	10.50
Bounthavy CHALEUNPHONH	M	Private Sector Development	2.50	0.50
Mr. Phouvong CHITTANAVANH**	M	Legal, Standards and Certification	0.75	1.25

*Bounthavy CHALEUNPHONH replaced Phonexay KHAMMAVONG in June 2013.

** Mr. Phouvong CHITTANAVANH replaced Mr. THONGDENG in Apr 2013

***Mr. PHOMMAHACK, Capacity Building & Distance Learning specialist, resigned in June 2012 and Mr. CHALEUNPHONH took over these tasks. Ms. VIRAVONGSA, Social Development Consultant, contributed in 2012 but remaining inputs were reallocated during the TA team reformulation.

iii) Viet Nam

The Vietnamese national TA team was mobilized from December 2011 onwards. A TA7833 project office was set up on the 9th floor of the newly relocated APMB of MARD in Tay Ho, Hanoi and has been in use since February 2012. Names and positions of the Consultant's current Vietnamese national staff are shown in Table 5. To support coordination TA7833 consultants plan to meet with the Implementation Agency every month.

Table 5: Vietnamese national staff engaged on TA7833 (30th June 2013)

NAME	SEX	SPECIALIST POSITION	INPUTS UTILIZED (MONTHS)	INPUTS REMAINING (MONTHS)
Li Thi THOA*	M	National Project Implementation Specialist	4.00	12.52
LINH Le Thi My	F	Private Sector Development Specialist	1.23	1.77
NGUYEN Minh Bao	M	Legal, Standards and Certification Specialist	1.75	1.73
VU Trang	F	Project Assistant	Part-Time	

*Mrs. LI Thi Thoa replaced Dr. NGUYEN Tu Siem on 31 July 2012.

**Mrs. HO, Capacity Building & Distance Learning Specialist, contributed in 2012 but remaining inputs were reallocated during the TA team reformulation. Ms. HA, Social Development Consultant, contributed in 2012 but remaining inputs were reallocated during the TA team reformulation.

3.3. PROJECT DISBURSEMENT

Table 6: Summary of TA7833-REG Project Disbursement Summary (30 June 2013) / US\$

Category	Budget	VO#2	Expenditure	Balance
1200 Equipment	90,000	90,000	24,559	65,441
1300 Seminars, Workshops & Training	560,000	560,000	75,498	484,502
1400 Studies, Surveys & Reports	925,000	925,000	650	924,350
TOTAL	1,575,000	1,575,000	100,707	1,474,293

4. LESSONS LEARNT, STRATEGIC ISSUES & RECOMMENDATIONS

Below we provide a critical review of key issues identified and provide advice and proposals for relevant strategies and broad initiatives for addressing said issues.

ISSUES ENCOUNTERED	RECOMMENDATIONS & REMEDIAL ACTIONS
<p>Regional cooperation Lack of operational procedures for ADB implementation and procurement in Regional Technical Assistance Projects</p>	<p>WGA standard operating procedures (SOPs) covering the role of the public sector in Regional TA projects and the basis for their engagement for services supported by an ADB OSFMD agreement for the procurement systems and documentation required.</p> <p>Other issues need to address: incentives for Government staff participation (facing various requests for fees to officials for providing services such as bid evaluations, as well as per diems for field visits); translation and agreement of common language for RETAs (English); provision of project office facilities; etc.</p> <p>SOPs are under preparation by TA7833 Regional Cooperation Specialist for discussion at WGA10 in April 2013.</p> <p>By June 2013:</p> <p>No SOPs have been provided. The lack of counterpart funding allocated to the TA and the ineligibility of ADB TA funds to be used for counterpart costs will increasingly place the implementation of the TA at risk as future field work will require decentralized counterpart participation, policy dialogue will necessitate working groups or task forces and the pilot implementation will require engagement of public agencies and institutes.</p>
<p>Implementing Agency engagement Official IA counterpart staff nomination and resource allocation process was only completed on 08 June 2012, resulting in delays in completing the inception phase and commencing implementation.</p> <p>The ADB and Consultant have raised concerns about these initial delays in TA inception and implementation and their knock-on effect on the project performance – e.g. the DMF references milestones in 2011, even though the contract was not signed until December 2011.</p>	<p>Such constraints are to be expected due to the complex regional nature and innovative, pioneering approach of TA7833. All parties continue to work hard to recover the lost time.</p> <p>Enhancing opportunities for communication and collaboration are considered prime approaches for enhancing engagement and the Consultant has proposed monthly meetings at priority pilot project sites to achieve this goal.</p>
<p>TA Team leadership TA7833 complexity (different perspectives on immature technologies; difficult regional cooperation and varying IA priorities; specification to use innovative financing mechanisms; etc.) led to a loss of direction by TA Team Leader and a lack of project progress.</p>	<p>Team leader replaced and TA team and approach streamlined. Revised work plan elaborated and distributed to project partners.</p> <p>The TA TL has required the conclusion of a long outstanding contract variation and to ensure adequate resources are available for the Inception Report work plan submitted in January. This contract variation has now been approved.</p>
<p>Immature technologies The ToR specify up-scaling of a wide range of technologies, however many of these are not</p>	<p>Liquid biofuels such as jatropha-derived biodiesel will not be included in TA activities due to key concerns about the feasibility of jatropha, lack of</p>

<p>sufficiently mature for up-scaling.</p>	<p>farmer / government commitment and interest and the broad-based questions regarding the potentially negative correlation between jatropha production and food security.</p> <p>Biochar and bioslurry technologies are also assessed to be too immature and as such the targets for their adoption in the DMF are considered too optimistic.</p> <p>Pilot projects will focus on demonstrating production and management of the more immature technologies and how these products can be integrated into greener value chains.</p>
<p>Scale of technology</p>	<p>The preference for household-level technology, while appropriate for ICS, may be inappropriate for biochar and to a lesser extent bioslurry.</p> <p>The financial viability of such technologies will determine the extent of their adoption.</p> <p>However TA findings and expert opinion currently suggests that the viability of small-scale technology that has adequate safeguards may be insufficient to generate viability and attract investment and adoption.</p> <p>Experience in Thailand and China suggest that the biochar and bioslurry sectors emerge from a demand for biofertilizer from specialist agents that collect from product catchment areas. Further discussion is ongoing on the correct scale for these two technologies as a part of the feasibility studies.</p>
<p>Donor crowding within the ICS sector</p>	<p>The ICS sector has a range of players many of whom offer subsidies and grants for the adoption of ICS technologies. The continued investment from the WB, EU and other ADB TAs that offer more concessional investment makes a purely commercial value chain less likely. The TA is focusing its ICS pilots on stove producer risk reduction through skill development, and demand aggregation through women's unions.</p>
<p>Innovative financing mechanisms The purpose of the TA is to pilot implementation mechanisms. The assumption being that innovative implementation mechanisms will support up-scaling initiatives more effectively. Numerous innovative financing mechanisms were identified by the TA in 2012 and provisionally endorsed by the ADB and team leadership in relation to proposed potential pilot implementation modalities. However, rigorous internal review has revealed that: (i) the nature of the modalities is not fully understood by all project parties; (ii) the complex institutional requirements for options including revolving funds and social merchant banking are not in place; (iii) the constraint of timelines for outcome-based funding would ensure that the TA would be closed prior to outcomes being achieved, making financing impossible; (iv) the TA resources are too limited to adequately finance the required investment funds</p>	<p>The TA has modified its position on innovative financing and will limit its modalities to a focus on the use of output-based financing to offset the business and market risk of stove producers.</p> <p>The financing modality for biogas and biochar will continue to emerge throughout the pilot Feasibility Studies and their implementation.</p> <p>Private-sector stakeholders and financing institutions will continue to be targeted for relevant awareness-raising and capacity building activities so as to raise the profile and confidence levels of potential future investors re. TA7833-relevant themes.</p>

<p>including development bonds and social merchant banks at sufficient scale; (v) the risk averse nature and novelty factor of national and regional private sector stakeholders for engaging in such innovative modalities, and; (vi) the questionable performance of some of the proposed mechanisms, across a range of scenarios (e.g. Nepal), and the degree to which critical success factors are represented within the GMS – e.g. social merchant banking is a mix of financing modalities that individually are used in other ADB loan projects, many of which require 1-2 years to establish.</p>	
<p><i>Laos capacity for Feasibility studies</i></p>	<p>The continued lack of expression of interest in Laos Feasibility along with the range of donor feasibility and upscaling in ICS and Biogas suggests that movement direct to piloting of technology may be necessary</p>

APPENDIX 1: DESIGN & MONITORING FRAMEWORK

Design Summary	Performance Targets & Indicators with Baselines	Data Sources & Reporting Mechanisms	Assumptions and Risks
<p>Impact</p> <p>Improved use of biomass in Cambodia, the Lao PDR, and Viet Nam</p>	<p>By 2020:</p> <p>5% increase in production of clean bioenergy from biomass (2011 baseline: 0.1%)</p> <p>5% increase in use of by-products of bioenergy systems (bio-slurry and biochar) (2011 baseline: 0%)</p>	<p>Project baseline and benchmark surveys.</p> <p>Periodic surveys and annual reports of agriculture and energy ministries of Cambodia, the Lao PDR, and Viet Nam⁷</p>	<p>Assumptions</p> <p>The governments of Cambodia, the Lao PDR, and Viet Nam remain committed to regional cooperation in clean bioenergy and food security.</p> <p>Risk</p> <p>Private sector investment is constrained by over-regulation.</p>
<p>Outcome</p> <p>Efficiently operating pilot projects in biomass use</p>	<p>By 2014:</p> <p>At least two investment modalities for biogas and bioslurry (Cambodia and the Lao PDR); three for biochar (Cambodia, the Lao PDR, and Viet Nam); two for improved cookstoves (the Lao PDR and Viet Nam); and three for inclusive supply chain of certified biofuel and organic crops in (Cambodia, the Lao PDR, and Viet Nam)</p>	<p>Project completion report.</p> <p>Annual reports from agriculture ministries of Cambodia, the Lao PDR, and Viet Nam.</p>	<p>Assumptions</p> <p>The central and provincial governments remain committed to working with the poor in remote areas.</p> <p>Risk</p> <p>Pilot projects are not successfully implemented.</p>

⁷ Ministry of Agriculture, Forestry and Fisheries (Cambodia); Ministry of Agriculture and Forestry (Lao PDR); and Ministry of Agriculture and Rural Development (Viet Nam)

Outputs	By 2014:		Assumptions
1. <i>Enhanced regional cooperation in bioenergy development to foster and safeguard food security</i>	Mechanism tested for harmonizing at least three bioenergy standards ⁸ and certification systems, and a common method of assessing greenhouse gases	Consultants' reports and document records of agriculture ministries of Cambodia, the Lao PDR, and Viet Nam Agricultural household survey reports of Cambodia, the Lao PDR, and Viet Nam	The consulting team is given timely access to records, information, personnel, and relevant geographic sites.
2. <i>Pilot-tested climate-friendly biomass investment projects for wider implementation</i>	Construction of at least 500 bio-digesters, 600 biochar kilns, 75,000 improved cookstoves; and introduction of at least 300 farmers to sustainable certification standards	Benefit and impact monitoring reports Project review missions	Local officials, technicians, and lead farmers are available to participate in training Development partners and the private sector are keen to participate in the TA activities.
3. <i>Enhanced capacity for efficient use of biomass</i>	Increased capacity for gender-sensitive investment among at least 500 government officials, 400 service providers, and 3,000 lead farmers (i.e., at least 55% of those to be trained will be women and at least 70% of those trained will have increased capacity)		Risks Cambodia, the Lao PDR, and Viet Nam cannot agree on harmonized standards and certification systems
4. <i>Development and dissemination of knowledge products</i>	Methodology for assessing and prioritizing the use of biomass for bioenergy and food security Compendium of good practices in biomass use		

⁸ Including standards set by such organizations as the Global Alliance on Clean Cookstoves and the Roundtable on Sustainable Biofuels, along with quality assurance from regional quality assurance centers to be established for biogas, improved cookstoves, bio-char, etc.

Activities with Milestones	Input
<p>1.0 Holding of regional forums to facilitate high-level dialogue within the region on bioenergy and food-security policy issues, by 2011.</p>	<p>Total cost: \$4.6 million equivalent.</p>
<p>1.1 Testing of mechanisms to facilitate adoption of common sets of sustainable indicators, bioenergy and trade standards, certification systems, and eco-labelling systems, by 2012.</p>	
<p>1.2 Holding of annual international workshop on household bioenergy and food security to foster exchange of information, particularly between more advanced Greater Mekong Subregion countries and Cambodia, the Lao PDR, and Viet Nam.</p>	
<p>2.0 Conduct of biomass assessment and development of criteria for the selection of pilot project areas, by early 2012.</p>	
<p>2.1 Implementation of pilot projects in lower-cost biogas technologies as investment project with a component involving the use of bio-slurry for high-value crop production, by 2012.</p>	
<p>2.2 Conduct of reviews to identify appropriate biochar, improved cookstove, and biofuel investment modalities, and implementation of pilot project, by 2013.</p>	
<p>3.0 Development of gender-sensitive training programs, including distant learning modalities, and use of these programs in the training of central and local government officials, farmers' organizations, women's groups, and service providers (of which at least 30% are women), by 2012.</p>	
<p>3.1 Conduct of training in the implementation of the investment project, by 2013.</p>	
<p>3.2 Conduct of training in the use of biomass to enhance food security and soil carbon sequestration, by 2013.</p>	
<p>4.0 Development of methodology for assessing and prioritizing the use of biomass for energy and food security, by 2011, and dissemination of the methodology through regional forums, training, and capacity building by 2012.</p>	
<p>4.1. Establishment of baseline information and monitoring and evaluation system for pilot projects, by 2012.</p>	
<p>4.2 Conduct of key studies, such as studies on life-cycle assessments, least-cost options, and eco-labelling, by 2013.</p>	
<p>4.3 Publication of compendium of good practices in biomass use and booklets containing information on different models of improved cookstoves, biochar kilns, and bio-digesters, by 2014.</p>	
<p>4.4 Analysis of potential climate change scenarios and their likely impact on the availability of different types of biomass, and assessment of need for the development of alternative biomass sources, by 2013.</p>	

APPENDIX 2: WORK PLAN

Tasks and Activities	2013												2014																							
	Aug			Sept			Oct			Nov			Dec			Jan			Feb			Mar			Apr			May			Jun					
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Output 1: Enhanced regional cooperation in bioenergy development to foster and safeguard food security																																				
1.1 Identify & recommend policy, standards and indicators for bioenergy technologies & climate-friendly agriculture																																				
<i>i</i>	Facilitation of national forums on policy and standards for bioenergy technology and climate-friendly agriculture																																			
	Cambodia / Lao PDR / Viet Nam																																			
	Activity/Forum report																																			
	National roadmap elaboration (through a task force to be set up with help of NFP/TFP/NPIs)																																			
<i>ii</i>	Facilitation of regional dialogue on policy and standards for climate-friendly agriculture, bioenergy & food security																																			
	GMS Forum on Policy, Standards & Indicators for Bioenergy, Food Security & Climate-Friendly Agriculture																																			
	Development / update of a roadmap for regional dialogue																																			
	Training of national staff and key stakeholders																																			
<i>iii</i>	Development of national guidelines on sustainability indicators																																			
	Review national sustainability requirements for public sector investment (social/economic/environment)																																			
	Comparative analysis with GBEP with recommendations/guidelines for strengthening national guidelines (feeds)																																			
1.2 Establish systems to support eco-product development & cross border trade																																				
<i>i</i>	Establishment of national pools of capable standards quality control inspectors																																			
	Collate national databases of existing and potential inspectors / bodies for priority commodities from roadmap																																			
	Conduct training needs assessment & prepare training plan for approval																																			
	Contract and deliver training																																			
	Training evaluation																																			
<i>ii</i>	Study on the feasibility of a CLV traceability system																																			
	Review need for traceability for priority commodities (done by task force as part of roadmap prep)																																			
	ToR preparation/approval/contract																																			
	Implementation																																			
	Delivery of final report																																			
<i>iii</i>	Study of need for labels																																			
	Review need for labels (or just chain of custody) for priority commodities (from roadmaps)																																			
	If no existing label, and a need, provide training/guidelines on what a good label should include																																			
1.3 Inform & enhance biomass, bioenergy & food security policy dialogues relating to standards operationalization & quality control																																				
<i>i</i>	Review of international standards and certification systems on bioenergy and climate-friendly agriculture																																			
	Initial draft for team inputs/comments																																			
	Delivery of knowledge product																																			
<i>ii</i>	Review of Voluntary Certification Systems (incl. PGS) as a tool for upscaling in CLV																																			
	Desk study of international experience																																			
	Desk study of country level secondary sources																																			
	Field study																																			
	Consolidation of findings																																			
	Draft paper for review																																			
	Completion / Submission of case studies																																			
	Delivery of final report (feeds into roadmap and vice-versa (1.1) as to what is possible + use as part of upscaling - feeds into 2.4)																																			
<i>iii</i>	Review of relevant national laws, regulations, policies and plans																																			
	Study implementation (take from inception report and updates/extras from NPIs)																																			
	Initial comments																																			
	Recommendations and completion																																			
	Delivery of knowledge product (feeds into gaps for policy matrix/roadmap)																																			

Tasks and Activities	2013												2014																																																											
	Aug				Sept				Oct				Nov				Dec				Jan				Feb				Mar				Apr				May				Jun																															
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																																
Output 2: Pilot-Tested Climate Friendly Investments for wider Implementation																																																																								
2.1 Selection of Priority Technologies																																																																								
2.2 Pilot Feasibility studies and due diligence																																																																								
<i>v</i> Feasibility study implementation (including government consultation at start)																																																																								
<i>vi</i> Specify due diligence (incl sustainability safeguards) and social baselines for pilot projects (and follow-on investment projects)																																																																								
<i>vii</i> Business model case studies focusing on climate-friendly value-chains																																																																								
2.3 Pilot implementation and monitoring																																																																								
<i>i</i> Definition of terms of reference																																																																								
<i>ii</i> Procure/approve/contract implementation service providers (CQS/SSS)																																																																								
<i>iv</i> Pilot implementation (will include a training element for farmers/communities/gov)																																																																								
<i>v</i> Final Report Review and Consultation																																																																								
2.4 Regional investment subproject model formulation																																																																								
<i>i</i> Stakeholder Meeting to review each subproject - lessons learned proposed outputs - draft DMF - subproject model specification, implementation arrangements																																																																								
<i>ii</i> Regional meeting to share lessons and approaches																																																																								
<i>iii</i> Final preparation of core subprojects for follow-on investment programs																																																																								
2.5 Development of a social baseline for the proposed investment project																																																																								
<i>ii</i> Social survey completed by FS service providers																																																																								
<i>iii</i> Consolidation of social survey findings, plus secondary data, into pilot TORs																																																																								
<i>iv</i> Draft SPRSS report for each investment loan (TBD)																																																																								

Tasks and Activities	2013												2014																							
	Aug			Sept			Oct			Nov			Dec			Jan			Feb			Mar			Apr			May			Jun					
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Output 3: Enhanced Capacity for Efficient Use of Biomass																																				
3.1 Develop and deliver awareness-raising program																																				
<i>i</i> Develop & deliver awareness-raising material on efficient use of biomass for bioenergy & food security																																				
Plan awareness-raising program strategy and plan																																				
Email flyers/spotlight on...(email as widely as possible)																																				
Review what videos...etc are available at int/national level																																				
Create design of posters and subcontract design for first expo day (use flyers as a basis)																																				
Subcontract design & delivery of info-video series																																				
Manage delivery of multimedia awareness-raising program ('expo days' in each country)																																				
Collate feedback, evaluation findings and experiences																																				
Incorporate lessons learned & key resources into compendium (4.2)																																				
3.2 Develop and deliver capacity building program																																				
<i>i</i> Training, Workshops and Study Tours																																				
Biochar study tour - PRC (Hangzhou+) (and follow-on events in each country led by study-tour participants)																																				
BEFS Approach - w. conference 2013, Viet Nam																																				
AROS/Organic agricultural value chains, Lao PDR?																																				
Biogas, bioslurry & CFA (SRI) - Viet Nam?																																				
Biomass resource assessment - Land Development Dept, Kasetsart Uni, Thailand?																																				
Sustainability indicators - w. conference 2014, Lao PDR?																																				
Innovative financing mechanisms / Private sector engagement																																				
ADB investment project readiness & implementation																																				
Incorporate lessons learned & key resources into compendium (Output 4)																																				
<i>ii</i> Distance learning for Provincial Officers																																				
Prepare DL courses and modules with self-learning plus on-line test (based on KPs and 3.1 materials)																																				
Identify participants																																				
Send DVD to provinces where have pilots. Test on-line																																				
Evaluate and provide (project/GMS) certification																																				
Package-up and offer to AIT, ADBI...etc. as future hosts																																				
Training of inspectors (see Output 1) - TBD if distance learning																																				
3.4 Organize annual international conference on household bioenergy and food security																																				

Tasks & Activities	2013												2014																																			
	Aug				Sept				Oct				Nov				Dec				Jan				Feb				Mar				Apr				May				Jun							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
OUTPUT 4: DEVELOPMENT & DISSEMINATION OF KNOWLEDGE PRODUCTS																																																
4.1 Studies and Assessments for Development and Dissemination of Knowledge																																																
<i>i</i> Agricultural Biomass Resource Assessment in CLV																																																
<i>ii</i> Complete a least costs assessment of available biomass technologies (feeds into compendium)																																																
<i>iv</i> Conduct a lifecycle assessment for alternative biomass resources and technologies (feeds into 4.2 and 2.4)																																																
4.2 Compile compendium of best practice in efficient utilization of biomass																																																
Develop a proposed scope and outline of compendium																																																
Update scope based on comment																																																
Identify international, regional and national best practices (examples) for inclusion																																																
Review examples and select for inclusion write up																																																
Distribute for reviews and include comments																																																
Peer review draft																																																
External peer review																																																
Finalise and distribute																																																
4.3 Develop & disseminate knowledge products to support efficient biomass utilization technology (Resource books feed into awareness raising (flyers/videos/distance learning))																																																
Prepare Biomass/Food Security/Energy KP - Greg (10-15pgs)																																																
Prepare Biochar KP - Simon Shackley																																																
Prepare Biogas / Bioslurry KP - Jason Yapp/Thoa																																																
Prepare ICS KP - Ewan Bloomfield/Sam Bryan																																																
Prepare Soil Amendments KP - Simon/Bounthavy/Sam Bona																																																
Prepare CFA value chains KP - Lindsay																																																
Certification and standards KP - Greg/Lindsay from 1.3 (I)																																																
Prepare Carbon Assessment KP - Sam Bryan																																																
Prepare Sustainability Indicators KP - Jason/Lindsay/Simon - see 1.1 (iii)																																																

APPENDIX 3: REPORTS & DELIVERABLES

1. IMPROVED COOKSTOVE REPORT

See separate document.

2. BIOMASS ASSESSMENT REPORT

See separate document.

APPENDIX 4: LIST OF PROPOSED PILOT PROJECTS & FEASIBILITY STUDIES

SUBJECT	FEASIBILITY STUDY	PILOT PROJECT
CAMBODIA		
Improved Cook Stoves (ICS)	Feasibility Study for a Planned Pilot Investment Project for Scaling-Up Adoption of Improved Cook Stoves in Cambodia	As described in FS ToR. Exact focus to be determined based on feasibility study recommendations
Biogas / Bioslurry	Feasibility Study for a Planned Pilot Investment Project for Scaling-Up Proven Biogas Technology and Efficient Bioslurry Management Practices	As described in FS ToR. Exact focus to be determined based on feasibility study recommendations
Biochar	Feasibility Study for a Pilot Investment Project Demonstrating the Production and Use of Biochar as a Soil Amendment	As described in FS ToR. Exact focus to be determined based on feasibility study recommendations
LAO PDR		
Improved Cook Stoves (ICS)	Feasibility Study for a Pilot Investment Project to Scale-Up or Build Efficient Value Chains for Improved Cookstoves	As described in FS ToR. Exact focus to be determined based on feasibility study recommendations
Biogas / Bioslurry	Feasibility Study for a Pilot Investment Project to Scale-Up Efficient Bioslurry Management Practices within the Lao PDR National Biogas Program	As described in FS ToR. Exact focus to be determined based on feasibility study recommendations
Biochar	Feasibility Study for a Pilot Investment Project to Demonstrate Rice Mill / Farmer Association Joint Ventures for Biochar & Climate-Friendly Rice Production	As described in FS ToR. Exact focus to be determined based on feasibility study recommendations
Biomass	Feasibility Study for a Pilot Investment Project to Scale-Up Integration of Eco-Friendly Biomass in the Organic Vegetable Value Chain	As described in FS ToR. Exact focus to be determined based on feasibility study recommendations
VIET NAM		
Improved Cook Stoves (ICS)	Feasibility Study for a Planned Pilot Investment Project for Scaling-Up Improved Cook Stove Use	As described in FS ToR. Exact focus to be determined based on feasibility study recommendations
Biogas / Bioslurry	Feasibility Study for a Pilot Investment Project to Scale-Up Efficient Bioslurry Management Practices within the Viet Nam National Biogas Program	As described in FS ToR. Exact focus to be determined based on feasibility study recommendations
Biochar / Climate-Friendly Rice Production	Feasibility Study for a Pilot Investment Project to Scale-Up the use of Biochar from Rice Husks in Climate-Friendly Rice Production	As described in FS ToR. Exact focus to be determined based on feasibility study recommendations

Table 7: Status of Feasibility Contracts

SUBJECT	CONTRACTOR & CONTACT	START DATE	DELIVERABLE DEADLINES	BUDGET / US\$
CAMBODIA				
#1: Feasibility Study for a Pilot Investment Project Demonstrating the Production and Use of Biochar as a Soil Amendment	CelAgrid - Mr. KHIEU BORIN [khieu_borin@celagrid.org; +85512828942; +85523223640].	16 July 13	23/07: Inception/WP 27/08: Draft Final 19/09: Final Report	19,955 (998 Inc.)
#2: Feasibility Study for a Planned Pilot Investment Project for Scaling-Up Adoption of Improved Cook Stoves in Cambodia	Mekong TT - Mr. PROM NGA [ngaprom@mekongthinktank.com]; +855 12 345 222	08 July 13	15/07: Inception/WP 19/08: Draft Final 10/09: Final Report	21,270 (1,013 Inc.)
#3: Feasibility Study for a Planned Pilot Investment Project for Scaling-Up Proven Biogas Technology and Efficient Bioslurry Management Practices	Mekong Carbon - Mr. Sar Samnang [sarsamnang7@gmail.com; +85512481169].	12 July 13	19/07: Inception/WP 23/08: Draft Final 17/09: Final Report	22,081 (1,052 Inc.)
VIET NAM				
Feasibility Study for a Pilot Investment Project to Scale-Up the use of Biochar from Rice Husks in Climate-Friendly Rice Production	VIDECO - Mrs. Le Thi Khue [info@videco.vn; +84 4 37186457]	12 July 13	19/07: Inception/WP 23/08: Draft Final 17/09: Final Report	25,857 (1,293)
Feasibility Study for a Planned Pilot Investment Project for Scaling-Up Improved Cook Stove Use	EPRO - Mr. Pham Minh Cong [cong.pm@eprovn.com; Phone: +84989807832]	09 July 13	16/07: Inception/WP 20/08: Draft Final 12/09: Final Report	26,490 (1,324)
Feasibility Study for a Pilot Investment Project to Scale-Up Efficient Bioslurry Management Practices within the Viet Nam National Biogas Program	BTC - Mr. Nguyen Quang Khai [khaitruc@vnn.vn; khaibtc@yahoo.com; +84437187672].	09 July 13	16/07: Inception/WP 20/08: Draft Final 12/09: Final Report	21,913 (1,095)
LAO PDR				
Feasibility Study for a Planned Pilot Investment Project for Building Improved Cook Stoves Value Chains	n/a			
Feasibility Study for a Planned Pilot Investment Project for Scaling-Up Proven Biogas Technology and Efficient Bioslurry Management Practices	n/a			
Feasibility Study for a Pilot Investment Project to Demonstrate Biochar via Rice Mill - Farmer Association Joint Ventures	n/a			