



CAVAC Six Monthly Report July – December 2013

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ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
AIF	Agribusiness Innovation Fund
AQIP	Agricultural Quality Improvement Project
ATSA	Agriculture Technology Services Association
AWP	Annual Work Plan
BANTIC	Banteay Thleay Irrigation Community
BEE	Business Enabling Environment
BHH	Bayon Heritage Holding Group Co., Ltd
CARDI	Cambodian Agricultural Research and Development Institute
CAVAC	Cambodia Agricultural Value Chain Program
CDRI	Cambodia Development Resource Institute
CMAC	Cambodian Mine Action Centre
DAE	Department of Agricultural Extension
DCED	Donor Committee for Enterprise Development
DFAT	Department of Foreign Affairs and Trade
EIA	Environmental Impact Assessment
EMS	Environmental Management System
EMP	Environmental Management Plan
EU	European Union
FCRMA	Federation of Cambodian Rice Miller Associations
FGD	Focus Group Discussion
FLD	Farmer Livelihood Development
FWUC	Farmer Water User Community
FWUG	Farmer Water User Group
GDA	General Directorate of Agriculture
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GPS	Global Positioning System
HARVEST	Helping Address Rural Vulnerabilities and Ecosystem Stability
HPC	Heng PichChhay
IEA	Initial Environmental Assessment
IFDC	International Fertiliser Development Centre
IPM	Integrated Pest Management
IRL	Indochina Research Limited
ISC	Irrigation Service Centre
ISF	Irrigation Service Fee
KAP	Knowledge, Attitude and Practice
MAFF	Ministry of Agriculture, Forestry and Fisheries
M&E	Monitoring and Evaluation
M4P	Making Markets Work for the Poor
MODE	Minority Organisation for Development of Economy
MSG	Maly San Group Co., Ltd
MTR	Mid-Term Review

NGO	Non-Governmental Organisation
NSC	National Steering Committee
O&M	Ownership & Management
PDA	Provincial Department of Agriculture
PDD	Project Design Document
PDWRAM	Provincial Department of Water Resources and Meteorology
PLOVIC	Plov Touk Irrigation Community
PWS	Private Water Seller
QAI	Quality At Implementation
QBIT	Queensland Biological Information Technology Group
RGC	Royal Government of Cambodia
SC	Secondary Canal
SIF	Supplementary Investment Fund
SPC	Saigon Plant Protection Joint Stock Company
SPM	Srov Pouch Meas, Co., Ltd.
TAF	The Asia Foundation
TNA	Training Needs Assessment
TOT	Training of Trainers
UQ	University of Queensland
US	United States
UXO	Unexploded Ordnance
VVOB	Flemish Association for Development Cooperation and Technical Assistance

1 INTRODUCTION

By the end of 2013, CAVAC has almost completed its fourth year of implementation. The progress made so far gives the Program the confidence that the expected results as outlined in the Project Design Document (PDD) and the Mid-Term Review (MTR) report are still likely to be achieved.

The outputs that were aimed for in the 2013 Annual Work Plan (AWP) are largely achieved for the Agribusiness and Irrigation component activities as well as for the Provincial Department of Agriculture (PDA) supported activities. Efforts to explore ways to improve the Business Enabling Environment (BEE) have been less encouraging.

While the early years of the Program had an emphasis on learning, exploring and testing opportunities to improve markets that are relevant for the poor, in 2013 the Program has evolved its focus to achieving maximum sustainable impact within the areas where it is active. 2013 is likely to be the last year of major portfolio adjustments, a focus that will change to intervention improvements in 2014.

In 2013 the Program prepared itself for the last two years of implementation during this phase of the contract. The Irrigation component selected, designed and contracted all irrigation schemes for which construction will be initiated during December 2013 and the first months of 2014. The group of companies where the Agribusiness component has been engaged, is also unlikely to be greatly extended over the next two years.

This report will show the first signs of impact on farmers, mainly as a result of the irrigation activities. The report will also describe signs of sustainable impact in the rest of the program, though the first impacts on farmers due to agribusiness activities are only expected to be captured during 2014.

The report will start with describing the progress against each component as per the 2013 AWP followed by an explanation of progress on Effectiveness, Efficiency, Sustainability, Monitoring and Evaluation (M&E), Gender Equality and Risk Management. These chapters are written to be cognisant with the Department of Foreign Affairs and Trade (DFAT)'s QAI reporting requirements. The annexes contain a summary of each intervention, financial information and data on activities led by the PDAs.

2 SUMMARY OF PROGRESS AGAINST OBJECTIVES

2.1 Agribusiness and Information Systems

Within the Agribusiness and Information Systems component, a number of new contracts have been signed ready for implementation. Innovations including: a number of activities working to further develop fertiliser information systems, a new extension and input supply model within the vegetable market and the development of a pest and disease management system to work across a range of technological platforms are being developed.

CAVAC's focus in the first years of implementation was to develop a broad portfolio of interventions across all markets. A change in this approach had led to a narrowing of emphasis in areas where the potential for success is limited and a refocusing on markets and interventions which show more promise in terms of potential impact. Examples of this during the reporting period can be seen in the declining resources working on rice seed and momentum building within the fertiliser and pesticide markets. This changing focus and the adjustments made to exsisting innovations has been the result,

in part, of efficiency gains within the team. The changes to the management structure within the component team have provided a clear strategy for guiding implementation for the remainder of the program period. CAVAC staff have been organised into three units which have a focus on particular markets in the areas of: Inputs; Information; and Vegetables and Rice Export. The following outlines progress made in these units over the past six months.

2.1.1 Input Unit

CAVAC's work within the **fertiliser market** has continued to grow with increasingly active partnerships which will lead to a larger outreach to farmers within Cambodia. Following on from the successful group workshop held earlier in the year, CAVAC is working on a number of new agreements which will increase the effectiveness of the capacity building on information systems already provided in early 2013. New agreements have been made with Papaya and Maly San Group to develop the capacity of staff to improve an information system appropriate for their context. This will include advice aimed at increasing the quality of field demonstrations and farmer meetings conducted by company staff. Negotiations on providing similar assistance to Anachak and Lay Seng are continuing, with hopes of finalising negotiations early in the next reporting period. Lay Seng is estimated to be the second largest fertiliser dealer in Cambodia and as such would significantly add to the outreach of CAVAC's activities within the fertiliser market. Negotiations with Five Stars has proven unsuccessful due to the company's lack of commitment to quality information tailored towards their customers. Given this, CAVAC has decided to discontinue support. However, negotiations with two companies that source their fertiliser from Thailand show CAVAC's increasing geographical reach.

Progress in the **pesticide market** remains steady with a number of major developments underway. The University of Queensland (UQ) has been contracted to develop a rice pest and disease diagnostic tool which will produce a user friendly platform, compatible with a range of technology devices, to identify pests and diseases relevant to Cambodian farmers. The technology will be distributed to pesticide companies and call centres to assist farmers in optimising the use of inputs and to ensure continual updates to the platform to keep pace with the changing context. The development of this diagnostic tool will be led by CAVAC's Information Unit which will facilitate testing of the content, terminology and access requirements by Cambodian farmers. The tool is the culmination of significant research efforts in identifying the most important crop protection requirements of farmers. The ability to offer this tool to crop protection companies will enable CAVAC to significantly add to the number of partners in the crop protection market.

CAVAC is in the process of finalising contracts with An Giang (contract to be signed in mid-January 2014) and Nokor Thom. These agreements will cover a suite of activities which aim to increase the knowledge of retailers in crop protection techniques. Activities will include corporate systems development, capacity building of staff and integration of the diagnostic tool into systems which provide quality information for Cambodian farmers.

In the same vein, progress has been made with the PDA crop protection retailer training activities. The training manual developed by the General Directorate of Agriculture (GDA) is almost complete and the training needs of rural retailers have been assessed and analysed so that the training can respond to seasonal and regional differences in pest occurrence. Once the manual is completed and the PDAs

approve the training content, CAVAC and the PDAs will proceed with the implementation of the training, expected in the first half of 2014.

CAVAC decided earlier this year that **rice seed** was no longer a priority market for the Agribusiness and Information Systems team. The two reasons for this are: firstly, farmers' rice seed exchange practices make it difficult for CAVAC to intervene effectively to generate impact; and secondly, the analysis of existing interventions showed that the main issues were of a policy nature and beyond the scope of CAVAC. The private sector is seeking solutions for the constraints in this market with one of the most important pathways through large scale millers. CAVAC is already supporting Baitong and Golden Daun Keo in developing solutions through the Rice Export Unit. Given this, the Input Unit is currently not pursuing any new rice seed interventions but rather has increased its emphasis on the two remaining input markets of crop protection and fertiliser.

2.1.2 Information Unit

CAVAC works to develop and promote improved and more accessible information channels for Cambodian farmers. CAVAC works with partners on a number of fronts to: increase awareness of the benefits of providing quality programming to the sizable rural population; increase access for farmers to private and public market players; and provide reliable information to farmers which will assist them to make decisions on how to increase their productivity.

CAVAC works with multiple companies working within the **media** sector including Delight Cambodia, Indochina Research Limited (IRL) and Feedback Research. The activity with Delight to produce a local television program aimed at a rural audience is progressing as planned. The first episodes have been developed and it is likely that the program will be on CTN, a well-known local TV channel, starting in March 2014. Encouragingly, there has been significant interest from sponsors. Depending on the results of negotiations with other sponsors, CAVAC may consider providing some limited gap funding for three months to ensure broadcasting.

Agreement with the two research companies, IRL and Feedback Research, contracted during the last reporting period, are proceeding according to schedule. IRL has completed its first wave of research which will help sponsors identify market reach within the rural population. IRL presented its findings to interested buyers during an event held in September. It is hoped that this research will provide the data required to stimulate competition within the media to attract the large rural audience in Cambodia and provide content tailored to their specific needs. Feedback Research has also completed its first wave of research which will introduce television ratings into the rural Cambodian television market. The first research was conducted in September and October across six provincial areas. It is expected that this data will be available for interested buyers in January 2014.

CAVAC is also in the process of redesigning linking events which have been previously held in each of the three CAVAC focus provinces. It is expected that the next events will be held in 2014 with the same intention of linking model farmers to wider sources of knowledge within both the private and public sectors. Based on feedback from the previous events, the CAVAC team is working on a new format to be trialled to encourage further interaction between key groups. Based on successes of this format CAVAC hopes to bring the events beyond the three CAVAC target provinces of Takeo, Kampong Thom and Kampong Thom.

As previously reported, CAVAC has redesigned **model farmer training** to create different programs based on the need of wet and dry season farmers. For the wet season training, CAVAC has kept the same training format, however the content has been adapted to create a more demand driven product. While fertiliser and weed control remain the main sources of content for the training package, seed storage has been replaced with several modules on crop protection from which farmers can make a selection on the basis of their requirements. The dry season training has undergone significant changes to be transformed into different activities altogether. The model farmer team has developed a system of information dissemination where (super) model farmers share their successful innovation stories with other farmers using a roadshow format. The farmers themselves describe how they have optimised production methods. These innovation stories will be documented in a booklet which farmers can refer to when copying practices.

To provide motivation to farmers to continue their innovation, the team is developing some ideas aimed at challenging farmers to work on some of the key issues in Cambodian rice farming today. Ideas such as a 'challenge fund' and competition will be more fully developed in the next reporting period. Potential key issues to be worked on could include how labour saving techniques and rat control. Success stories will then be disseminated through the process highlighted above.

2.1.3 Vegetables and Rice Export Unit

The Vegetables and Rice Export Unit has seen its workload increasing significantly within the **rice export** market. Current interventions with Baitong and the Federation of Cambodian Rice Miller Associations (FCRMA) are continuing while two new interventions are currently being designed with Golden Daun Keo and Baitong. The new agreement with Baitong focuses on the rice seed purification segment of its business, working to generate access to varieties that are currently not being produced by the Cambodian rice seed sector to increase the quality of milled rice for the export market. The agreement with Golden Daun Keo will provide access to expertise in seed production and quality control of paddy purchased by the company to ensure uniformity of seed and quality milling processes for export quality rice.

Within the **vegetable** market, the first assessment of the East West Seed activity with CAVAC showed positive changes for Cambodian farmers and retailers. Initial evidence shows that retailers want to sell East West Seed inputs and associated products (including seedling trays, plastic mulch, trellising nets and an improved range of pest and disease control solutions) and that farmers are now adopting East West Seed's introduced inputs and techniques. Farmers have indicated that they are keen to adopt these new technologies because of their labour saving potential. The contract with Pacific Seeds, which was postponed earlier in the year, will restart in January 2014. This contract will expand similar activities as those of East West Seed towards areas in Battambang and Siem Reap.

A new agreement has also been reached with Pacific Seeds to establish a 'Unimart' model, which is an integrated input retailer concept and an extension training centre. This model has been tested in other international markets but will be the first of its kind in Cambodia. The first unit will be established in Battambang in January 2014. These interventions have assisted to bring new and established players into the Cambodian vegetable market and aim to sustainably increase the availability of both information and inputs to vegetable farmers. Significant capacity building of new Cambodian staff by

international experts and access to products manufactured by multinational companies will increase the quality of information and products provided to retailers.

Table 1 below provides a list of CAVAC's partners across Agribusiness and Information Systems.

Table 1: List of companies / partners CAVAC has been working with as at 31 December 2013

Company / Partner	Market / Support System
Srov Pouch Meas, Co. Ltd. (Mr. Iv Vanna)	Rice seed
Mr. Sokunthea (Medium Seed Producer)	Rice seed
Four Rice Seed Production Associations (Champey, Kvek Meanrith, Boeung Nimul and Po Samroang)	Rice seed
Small seed producers	Rice seed
Nokor Thom	Pesticide
SPK	Pesticide
An Giang	Pesticide
Pesticide retailer training with PDAs	Pesticide
Heng Pich Chhay	Fertiliser
Ye Tak	Fertiliser
Bayon Heritage	Fertiliser
Capacity building for Fertiliser Company Trainers (12 companies committed so far: Ye Tak Group, Papaya, Hoang Long, My Agro Business, Heng Pich Chhay, Phkay Pram, Doung Chhive Agricultural Development, Ung Suy Kimly, Anachak Fertiliser Company, CARIS, and Davanphumi)	CAVAC is currently working on further agreements with Ye Tak, Heng Pich Chhay and six others of the 12 companies
Papaya	Fertiliser
Malysan Group	Fertiliser
Anachak (Negotiating)	Fertiliser
Lay Seng (Negotiating)	Fertiliser
Baitong Kampuchea, Plc.	Rice export
Federation of Cambodian Rice Miller Associations	Rice export
Golden Daun Keo	Rice export
East West Seed International	Vegetable
Pacific Seeds	Vegetable
Advanta / Pacific Seeds	Vegetable
Vegetable seed retailers	Vegetable
Delight Cambodia	Media
Indochina Research Limited	Media
Feedback Research	Media
Asia Master	Media (wider market)
Website development for the Cambodian Agricultural Research and Development Institute	Media (wider Market)
Helpdesks with the three PDAs	Media (Wider market)

Working with GDA and PDAs

The 2013 AWP also includes support to the three target PDAs and the Ministry of Agriculture, Forestry and Fisheries (MAFF) through a contract with the GDA. CAVAC has continued to work with the PDAs and GDA on fostering an effective and productive relationship despite some delays and disruptions due to the national election and the transition of the government, particularly at the national level.

Within the past six months, CAVAC has continued to work with the PDAs to implement agreements supporting their priorities. At the end of December, 27 contracts have been signed with some implementation and on-going monitoring of progress continuing into 2014. Contracts completed during the reporting period include the establishment of agricultural cooperatives and conducting farmers' meetings or workshops on the pesticide and fertiliser law. Contracts continuing implementation include dry season rice field demonstrations and field days which are scheduled to be completed early in 2014. The implementation of these contracts by the three PDAs has reached thousands of farmers across the three target provinces each year. Please refer to Annexes 2 and 3 for quantitative progress of these activities in detail.

There have been delays to the implementation of CAVAC's contract with the GDA. This agreement covers eight major activities in the area of rice production ranging from field experiments to provincial forums on topics including pest management, post-harvest technology and creating a national dialogue on the Royal Government of Cambodia (RGC)'s policies, seed law and regulations. It is hoped that more consistent implementation of this project will begin in early 2014. Further support to MAFF has been provided through working with GDA to develop a Rice Pest Management Manual, which is expected to be completed early in 2014, and through support to printing and dissemination of technical materials to researchers and farmers.

CAVAC has worked closely with the target PDAs and MAFF to make adjustments to the PDAs' portfolio of activities in 2014, ensuring that they align with MAFF's priorities for the New Year. CAVAC and the PDAs have agreed that MAFF recommendations will be reflected in the 2014 activities including support to monitoring the effectiveness of activities already undertaken.

Please refer to Table 2 below for the list of contracts signed with the PDAs within this reporting period and Annexes 2 and 3 for quantitative progress.

Table 2: List of contracts signed with the three PDAs based on their priority areas in 2013

Signed Contracts	PDA
Agricultural cooperative establishment	Kampong Thom PDA
Medium and late mature rice demonstrations	Kampong Thom PDA
Laser land leveling	Kampong Thom PDA
Rice seed production group establishment	Kampong Thom PDA
Rice seed production demonstrations	Kampong Thom PDA
Post harvest training	Kampong Thom PDA
Dry season rice demonstrations	Kampong Thom PDA
PDA staff capacity building – study tour	Kampong Thom PDA
PDA staff training on rice seed production	Kampong Thom PDA
Early rice demonstrations	Takeo PDA
Agricultural cooperative establishment	Takeo PDA
Medium mature rice demonstrations	Takeo PDA
Late mature rice demonstrations	Takeo PDA
Laser land leveling	Takeo PDA
Integrated pest management – Farmer field schools	Takeo PDA
Rice seed production training and demonstration	Takeo PDA

Signed Contracts	PDA
Farmers' meetings	Takeo PDA
Pesticide/fertiliser law workshops	Takeo PDA
PDA staff capacity building – study tour	Takeo PDA
Medium and late mature rice demonstrations	Kampot PDA
Agricultural cooperative establishment	Kampot PDA
Laser land leveling	Kampot PDA
Dry season rice demonstrations	Kampot PDA
Durian planting demonstration	Kampot PDA
Pesticide/fertiliser law workshop	Kampot PDA
PDA staff capacity building – study tour	Kampot PDA
PDA staff capacity building – training	Kampot PDA

2.2 Research

As a new addition to CAVAC's work, 2013 saw the establishment of two research funds which provided Cambodian based researchers support to develop action research on topics of interest for the Program. The two topics chosen included: Pesticide Management Action Research Fund; and the Gender and Agricultural Development Research Fund.

The **Pesticide Management Action Research Fund** aims to encourage studies which aim to find practical solutions for farmers on how to manage pests more effectively. In June of this year four proposals were awarded under this fund. Final papers have been submitted in December 2013 and January 2014 on the following topics:

1. Effects of organic and inorganic fertiliser on insect pests prevalent in rice;
2. Farmers' technologies on vegetable pest control;
3. Examining the negative impacts and financial barriers in pest management among farmers and retailers; and
4. Pest damage simulation: the effects of flag leaf damage on rice yield of different rice varieties.

A seminar to disseminate research findings to relevant stakeholders will be conducted in January 2014. This seminar will create further dialogue on operationalising the research conducted and determining interest and possible topics for further examination.

Details on the **Gender and Agricultural Development Research Fund** is included in Section 5: Gender Equality.

2.3 Irrigation

2.3.1 Introduction

Over the last six months, CAVAC has continued to finalise schemes originally started in 2012 and during the first half of 2013, commenced construction of three new schemes and completed designs for the 2014 schemes.. The team working on Operation and Maintenance (O&M) continued

establishing the Farmer Water User Communities (FWUCs) at new schemes, provided follow-up support to the FWUCs and started a research project looking at innovative ways CAVAC can support the sector. The Irrigation and Water Resource Management team also conducted a new round of Supplementary Investment Fund (SIF) activities, providing support to local communities to dredge two sections of a large canal in Takeo province.

2.3.2 Survey, design and construction

2011 and 2012 schemes

CAVAC and the Provincial Departments of Water Resources and Meteorology (PDWRAMs) continued improvements to the yet to be completed 2011 and 2012 schemes. Improvements at So Hang and Tumnub Lok in Takeo were completed in August/ September as planned. At O'Kak in Kampot, improvements were halted as early rain disrupted construction with work to resuming at the end of December.

For some of the completed schemes, private water sellers (PWSs) and the community have identified support required to develop secondary canals. CAVAC has worked together with FWUCs and PWSs to complete surveys and designs of these secondary canals and will further develop distribution systems and drainage with partners in the next reporting period.

2013 schemes

During this reporting period, construction continued on four of the 2013 schemes including Hay Saun in Kampot, Rokar Chhouk in Takeo and Secondary Canal 2 (SC2) and 3 (SC3) of the 6 January Canal in Kampong Thom. Progress on all the four schemes was slow mainly due to an increase in infrastructure activity leading up to the national election and stoppages due to the onset of the wet season. Work at all canals resumed in December for completion in the first half of 2014.

The surveys, designs and contracts for three other schemes identified in the 2013 AWP, Reservoir 77 and Chamlong Chrey schemes in Kampot and Secondary Canal 1 (SC1) in Kampong Thom, were completed. Construction of the two schemes in Kampot started in October and construction of SC1 in Kampong Thom started in December with completion of all three schemes expected during the dry season of 2014.

Two schemes identified in the 2013 AWP, Canal 11 and Canal 87 in Takeo province, were cancelled in early 2013 due to the identification of land loss issues.

SIF projects

Grants were provided to two FWUCs (Banteay Thleay Irrigation Community [BANTIC] and Plov Touk Irrigation Community [PLOVIC]) through the SIF grant scheme. The grants provided support to dredge two separate sections of the same canals for increased access to irrigation. This work was completed in August. During implementation of the grants CAVAC also provided training to BANTIC and PLOVIC to increase the quality of construction supervision.

In September, CAVAC started negotiations for further access of SIF funds by FWUCs to encourage canal improvements. Discussions have been held with relevant FWUCs and local authorities on

designs and cost estimates for new SIF activities. CAVAC expects these SIF applications to be submitted in early 2014.

2.3.3 Operation and Maintenance (O&M)

Within the O&M activities, CAVAC continued to support the PDWRAMs in the establishment and training of FWUCs at CAVAC canals. CAVAC staff provided capacity development to O&M staff at the PDWRAMs in aspects of FWUC management. They also provided follow-up support and on-the job training to FWUCs and facilitated scheme development before, during and after construction activities.

In an effort to be part of a growing segment of the irrigation sector looking towards longer term solutions to the constraints for O&M within Cambodia, CAVAC has initiated research looking at the role of the private sector in the delivery of O&M services. Data collection has been completed with the final report expected in February 2014. The research will highlight the different practices of private sector actors such as PWSs and provide a set of recommendations for the successful development of public private partnerships within the sector. CAVAC expects that practices documented through this research will be shared with FWUCs, public sector partners and other relevant stakeholders to provide needed information to a growing debate within the field.

In Kampot, CAVAC concentrated O&M activities on scheme improvement through established FWUCs and water sellers where available. At Chamlong Chrey, a great deal of time was also spent on consultations with the future beneficiaries of the scheme which comprises of a pumping scheme attached to a network of primary, secondary and tertiary canals. An operational plan for this scheme was established using a small-scale model and testing operational practices in the field.

In Kampong Thom, a contract was signed with the Irrigation Service Centre (ISC) to carry out follow up training for existing FWUCs and to establish the FWUC at the 6 January scheme in collaboration with the PDWRAM. Numerous discussions were held with farmers, local authorities and PWSs on the improvements of the existing schemes at Angko and Thnoat Chum. These schemes required improvements to allow the FWUCs to manage and operate the schemes to their maximum potential. Types of additional structures, canal alignments and O&M issues were discussed before designs were finalised.

2.3.4 Selection of schemes for 2014 and 2015

The selection of schemes for 2014, which will be the last year for construction of new schemes under the current CAVAC Program, has been conducted in consultation with the three PDWRAMs and Ministry of Water Resources and Meteorology (MOWRAM). Consensus was reached on the final list of projects for each of the three target provinces and is provided at Table 3.

In Kampong Thom, one additional scheme was selected, designed and tendered. The Boeung Leas pumping station will begin construction in January 2014. This scheme, combined with the completion to the 6 January canals (SC1, SC2 and SC3) and improvements of Thnoat Chum and Angko, will keep the team fully occupied during the remaining duration of the Program.

In Takeo, CAVAC has selected a new large scheme (2,000 ha) at Wat Thmey. The scheme will include a pumping scheme to allow for gravity irrigation through an existing canal network which will be rehabilitated. This new scheme, the on-going schemes (Rokar Chhouk and Tumnub Lok) in the

province and the SIF projects outlined in the section above will be the focus of implementation for the remainder of the current Program.

In Kampot, one new scheme, the Hay Saun extension, has been selected. The scheme will pump water from the end of the existing Hay Saun scheme into a distribution network of main and secondary canals. As in the other two provinces, existing schemes will be improved through construction of secondary canals and the completion of the canal lining at the O’Kak scheme.

During the reporting period, CAVAC’s team in collaboration with the PDWRAMs and some external consultants, worked tirelessly to prepare for construction of these activities. The O&M team organised meetings with farmers and local authorities to discuss conceptual designs, farmers’ expectations and issues related to land loss. CAVAC and PDWRAM engineers and consultants worked on detailed surveys, designs and environmental impact assessments. The team managed to complete all the required designs, risk management assessments and tendering for nine activities, with all contracts signed in December. Construction of these schemes is expected to start in January 2014.

Table 3: Status of CAVAC schemes as of 31 December 2013

Scheme name	Status of canal construction (Contract-based)
2010	
Krapum Chhuk – Takeo	Completed
Prey Tonle – Kampot	Completed
2011	
Krapum Chhuk Extension (1.5 km) – Takeo	Completed
Tumnub Lok – Takeo	Completed
Kveng Tayi – Takeo	Completed
Thnoat Chum – Kampong Thom	Completed; further scheme improvements during 2014
Angko and its extension – Kampong Thom	Completed; extension and improvements during 2014
Thnoat – Kampot	Completed; additional work on distribution canals needed
Sbov Andeth – Kampot	Completed; additional work on distribution canals needed
O’Kak – Kampot	Completed; additional work still to be completed
2012	
So Hang – Takeo	Completed
Prey Rumdeng – Takeo	Completed
Prey Leu – Kampot	Completed
Spean Touch – Kampot	Completed
SIF Banteay Thleay – Takeo (Building a secondary canal)	Completed
SIF Plov Touk – Takeo (Building a secondary canal)	Completed
2013	
Rokar Chhuk – Takeo	50% complete; final completion expected by June 2014
Canal 11 – Takeo	Cancelled due to land loss issues
Canal 87 – Takeo	Cancelled due to land loss issues
Hay Saun – Kampot	60% complete; final completion expected by June 2014
Reservoir 77 – Kampot	50% complete; final completion expected by June 2014
Chamlong Chrey – Kampot	20% completed; final completion expected by June 2014
Canal 6 January (Secondary Canal 2) – Kampong Thom	80% complete; final completion expected by February 2014

Scheme name	Status of canal construction (Contract-based)
Canal 6 January (Secondary Canal 3) – Kampong Thom	80% complete; final completion expected by February 2014
Canal 6 January (Secondary Canal 1) – Kampong Thom	Just started; final completion expected by June 2014
SIF Banteay Thleay – Takeo (Dredging the main canal)	Completed
SIF Plov Touk – Takeo (Dredging the main canal)	Completed
2014	
Hay Saun extension 1&2 – Kampot	To be started in January 2014
Boeung Leas – Kampong Thom	To be started in January 2014
Wat Thmey – Takeo	To be started in January 2014
SIF Takeo – Scheme improvements and canal maintenance	To be started in January 2014
Improvements to existing schemes	To be started in January 2014

2.4 Business Enabling Environment (BEE)

Improving the dialogue between the private and public sectors is CAVAC's main focus within the BEE component. CAVAC is still learning and experimenting with an aim to determine the most feasible activities to contribute to addressing BEE issues surrounding agriculture with limited progress on planned activities being made in 2013.

In August, work started with The Asia Foundation (TAF) to implement a set of follow up activities from the three provincial public-private dialogues implemented in 2012. The new agreement focused on identifying champions within the three CAVAC target provinces who would be willing to work on a BEE issue affecting their local community with support from the TAF team. Due to personnel resourcing constraints and a delay in the start of implementation due to the national election there has been limited progress so far. Discussions with TAF on the future of activities with CAVAC will commence in January 2014.

In the 2013 AWP, CAVAC reserved budget for the Policy Support Funding Facility to support the RGC's policy related initiatives. CAVAC has not received any requests in 2013 for use of this budget. However, CAVAC has a contract with the GDA of MAFF on the rice value chain improvement project as outlined in section 2.

CAVAC also supported capacity building for provincial government counterparts from the three target PDAs. PDA Kampong Thom and PDA Takeo received capacity building on rice seed production techniques in Thailand. PDA Kampot received capacity building support on Project Cycle Management in Thailand for two senior staff and a larger study tour to China on use of extension services in rice based farming systems.

In November 2013, CAVAC participated in a tri-partite exploratory mission between the Australian, Cambodian, and Chinese governments. The delegation visited CAVAC's irrigation schemes and members of the CAVAC team were integral members of the mission held to examine the possibility of tri-partite collaboration on irrigation work.

3 CAVAC'S APPROACH TO EFFECTIVENESS, EFFICIENCY AND SUSTAINABILITY

CAVAC has been designed to include many elements of the Making Markets Work for the Poor (M4P) approach. This is an approach where effectiveness, efficiency and sustainability are three key elements linked to achieving impact. A sustainability criterion as defined by the Program is a pre-condition for all activities, with effectiveness and efficiency criteria combined to ensure maximum impact. For CAVAC, the likelihood of effectiveness is largely determined by addressing the right issues with the right tools and for efficiency it is related to the capacity of the Program to address these issues through quality partners.

3.1 Effectiveness

The ultimate measure of effectiveness is sustainable impact. Three years into the Program, CAVAC is able to demonstrate tangible impact within the Irrigation and Water Resource Management component and can demonstrate signs of impact as a result of Agribusiness and Information Systems component activities. CAVAC will start the process of capturing this impact in a credible way in 2014.

As outlined in the Program Design Document (PDD), CAVAC aims to reduce poverty in Cambodia. CAVAC's contribution to this goal is to increase rural incomes from agriculture, either directly for farmers or indirectly from the increased rural purchasing power of farmers. Towards the end of the Program, CAVAC will quantify the link between increased production and income, however at the current stage of implementation the focus of CAVAC's M&E system is to determine effectiveness using the four elements of impact as outlined below.

Outreach: This is the number of households that have changed agricultural practices because of CAVAC's activities. CAVAC is interested in both direct and indirect impacts (farmers that copy from neighbours). At the current stage of the Program, it is unlikely that significant indirect impact has taken place yet.

Increased productivity: A direct consequence of increased productivity includes increasing yields and income. For CAVAC's irrigation schemes, it is possible to calculate the increased production of rice due to increased access to water for irrigation. For Agribusiness activities the first surveys which will be used to capture increased productivity will take place in 2014.

'Static'¹ sustainability: This level of sustainability requires evidence of the continuation of the innovation after CAVAC's support has been withdrawn. Examples of this could include continued access to water for irrigation through proper maintenance of schemes, continued advice to farmers by trained retailers or continued adoption of a new seed variety by a farming community. At the current stage of implementation, CAVAC is able to see initial signs of static sustainability including active FWUCs which have developed maintenance plans and are active in fee collection or retailers that see their sales increase because of their increased capacity to provide correct advice to farmers.

¹ The terms 'static' and 'dynamic' sustainability are not commonly used by practitioners. CAVAC has introduced them to clarify two levels of sustainability: sustainability of the innovation and sustainability of a system able to create new innovations.

‘Dynamic’ sustainability: Is the reflection of the sustainable impact that CAVAC aims to achieve. A CAVAC activity achieves an impact which is dynamically sustainable if the market players keep on innovating after the withdrawal of support. For example, if CAVAC works with a company to produce new varieties of rice seed, the intervention is considered sustainable if the company continues to interact with retailers or seed producers and introduce new varieties which reflect the on-going needs of the market. Though this is clearly CAVAC’s aim, it will not be easy to see many signs of this level of sustainability during the implementation phase of the Program.

Irrigation

As outlined in the irrigation section above, as at the beginning of 2014 the total scope of the irrigation investments has become clear and with reasonable accuracy it is possible to estimate the total command area. Table 5 shows the most recent estimates of command areas. This table also shows the area which has come under cultivation during 2013. CAVAC is in the process of completing a number of landholding surveys to assist the FWUCs in water free collection by providing surveys for all schemes in the next six months. These surveys will be able to give the most accurate command area for each scheme CAVAC has constructed.

At completion of the schemes it may take a few years before all the potential command area is being cultivated as farmers may still have doubts about the reliability of water or the profitability of farming in the dry or early wet season. Though all signs show that long term profitability of rice farming is promising (increasing demand and reducing supply worldwide) issues such as price fluctuations, initial lower yields, government interventions in countries like Thailand and the availability of labour could influence profits and farmers willingness to invest in crop production.

CAVAC’s MTR preparation report explains how to calculate the production volume from the area under cultivation. It also explains how to derive the production value and the profits from this. In the first quarter of 2014, CAVAC will finalise an in-depth study on profitability that allows for a better calculation of volume and value within the period of a year.

For the schemes that rely on gravity to operate, the first test of sustainability will be the ability of the FWUC to operate the scheme. For all other schemes maintenance is almost a synonym for sustainability. Without sufficient maintenance, most schemes will not have enough water for irrigation in five to ten years’ time. CAVAC supports a model whereby a FWUC collects sufficient fees to conduct maintenance in the future. An active FWUC with collected fees in the bank are good early signs of sustainability. There are however several other models towards maintenance and sustainability. When the need for maintenance is eminent water sellers, farmers or communities could put money together in an ad hoc way. It is also possible that the government maintenance fund supports maintenance and guarantees sustainability.

A few of CAVAC’s earlier schemes are likely to have higher maintenance costs and rely on problematic FWUCs, for example Krapum Chhuk and Thnoat Chum. Therefore, it is possible that the chances of these schemes being in working order in ten years time are not high. Across most CAVAC schemes, however, FWUCs have been established and with some further support are likely to be able to collect the funds required for major repairs. Table 5 provides more details on the situation at each scheme.

Agribusiness

Assessing the outreach, impact and sustainability in Agribusiness support to farmers is not only far more complex, it also takes a greater amount of time for the changes in business practices to reach farmers and even more time for farmers to adopt these recommendations to their required contexts. It is estimated that it generally takes between 3 to 4 years from the time of first engagement with companies, through supporting companies to change their engagement with farmers to farmers adopting the better practices. More information on this can be found in Section 2.5 of the 2014 AWP. In December 2013, CAVAC was able to estimate the initial outreach for some interventions, but these are expected to be just a small proportion of the final outreach. These figures are listed in Table 4.

CAVAC has developed two tools to measure change in farmer practices and yields and to attribute these to CAVAC's activities. One is for fertiliser applications and one for crop control. The CAVAC team will start applying these tools in 2014 allowing for a better assessment of the effectiveness of CAVAC's agribusiness activities. These results of these assessments will be available in one years' time. Table 4 gives an overview of the initial outreach and explains when the impact surveys will take place.

Table 4: Agribusiness Overview

			Code	Content	Status	Outreach end 2013	2014	2015	2016		
Rice	Inputs	Seed	Inp 10.2	Mr. Vanna; Commercial seeds	Stopped	20 large farmers	Expected to increase				
			Inp 11.2	Providing training to small seed producers	Finished	93+ 84					
			Inp 11.3	Support associations – modern variety for wet season rice	Ongoing						
			Inp 12.9	Seed producer Sokunthea	Started	Too early to measure	Too early to measure	Survey			
			Inp 12.10	Dry season rice seed market	Not yet started	Too early to measure	Too early to measure	Survey			
		Pesticides	Inp 10.3	Saigon Plant Protection Joint Stock Company (SPC)	Never started						
			Inp 11.4	Support to local pesticide company, Nokor Thom	Finished	2315 (estimate)	Survey in July				
			Inp 12.1	Extension strategy for Norkor Thom	Ongoing	Too early to measure					
			Inp 12. 2	Retailer training – SPK	Finished	4000 (estimated)	Survey in August				
			Inp 12.13	Pesticides with An Giang	Signed	Too early to measure	Too early to measure	Survey			
			Inp 13.4	Pesticides retailer training with PDAs	Preparation started	Too early to measure	Too early to measure	Survey			
		Fertiliser	Ext 10.1	Support to input supplier Heng Pich Chhay	Finished	Too early to measure	Survey in December				
			Inp 12.8	Capacity building – Heng Pich Chhay	Started						
			Inp 12.4	Support to fertilizer companies (12)	Finished	Too difficult to attribute					
			Inp 12.5	Fertiliser forum	Still planned						
			Inp 12.6	Organic fertiliser, Bayon Heritage Group	Finished						
			Inp 10.1	Ye Tak – Phase I	Finished	Too early to measure	Survey December				
			Inp 12.11	Ye Tak – Phase II	Started	Too early to measure					
			Inp 13.6	Maly San Fertiliser Company	Started	Too early to measure	Survey at end 2014				
				Papaya Fertiliser Company	Started	Too early to measure	Survey at end 2015				
	Model farmers		Ext 10.3	Model farmers	Ongoing	Model farmer households trained: 14189 (3 years) farmers reached: ?	Survey in the first quarter				
	Media		Ext 11.1	Delight Cambodia	Ongoing	Too early to measure	Survey in December, only the outreach				
			Ext 13.1	Support to media research companies	Started	Too early to measure					
	Wider markets			Inp 13.2	Supporting input companies to run Help Desk	Planned	Wider market impact is expected to increase sustainability, but not the outreach or impact in the short run.				
				Ext 10.2	Magazines	No partners, closed					
				Res 11.1	Cambodian Journal of Agriculture	Closed					
				Ext 11.5	Linking event	Finished					
				Ext 11.6	Supporting a private call centre	Finished					
	Export			Mar 11.1	Rice and Rice Seed Production for Export, Baitong	Ongoing	178	Will increase			
				Mar 11.2	Feasibility study of warehouse receipt system	Closed, no interest					
				Mar 12.1	Export promotion, support to federation	Ongoing	Too early to say				
	BEE	Government support	Ext 11.2	Support to MAFF for extension material	Finished	With financial support from CAVAC, the 3 PDAs reached about 7,400 farmers in 2012 and 12,500 farmers in 2013. CAVAC did not validate all the data and does not assess how many farmers have changed practices. CAVAC will not measure impact. MAFF requested the PDAs to measure impact in 2014.					
			RGC 13.1	Support to PDAs	Started						
			RGC 13.2	GDA support							
			Public Private Dialogue		Three contracts with TAF						
Vegetables			Inp 12.3	East West Seed	Ongoing	730 (estimated)		Cluster based survey			
				Pacific Seeds	Will "restart" in 2014			Cluster based survey			

Table 5: Irrigation Overview

Scheme			Location			Year	Length	Scheme Potential		Irrigated Area At Present (Ha)					FWUC
No	Name	Type	Province	District	Commune	Year of Constr.	Main Canal Length (Km)	Command Area (Ha)	Households (No)	Dry Season Irrigated	Early Wet Season Irrigated	Recession with Suppl. Irrigation	Establishment Compl./ Ongoing	Training Compl./ Ongoing	Likelihood of Functional FWUCs and Action of CAVAC
						1	2	3	4	5	6	7	8	9	
1	Krapum Chhuk	Canal	Takeo	Koh Andeth	Krapum Chhuk	2010	5.5	500	400		247	336	C	C	Water sellers are active. The FWUC is not functioning well. CAVAC will try but success is far from certainty.
2	Kveng Tayi	Canal	Takeo	Koh Andeth	Prey Yutka	2011	5.2	700	560		553	669	C	C	Water sellers are active. The FWUC is not functioning well. CAVAC will try but success is far from certainty.
3	Tumnob Lork	Canal	Takeo	Koh Andeth	Pech Sa and Krapum Chhuk	2011	14.8	1,500	1,200		702	1,267	C	C	Promising; CAVAC will continue to support.
4	Prey Rumdeng	Canal	Takeo	Kirivong	Prey Rumdeng	2012	6.9	2,149	1,719		957	1,340	C	C	Water sellers are active. Power struggles make it hard to establish functioning FWUCs. CAVAC will monitor and wait for opportunities.
5	So Hang	Canal	Takeo	Borey Chulsar	Borey Chulsar	2012	8.7	1,447	1,158	724		1,447	C	C	
6	Banteay Thleay	Canal	Takeo	Koh Andeth	Various	2012	5.3	836	669		585.2	836			SIF – Cost-sharing between FWUC and CAVAC
7	Plov Touk	Canal	Takeo	Kirivong	Various	2012	6.9	1,986	1,589		1390.2	1,986			SIF – Cost-sharing between FWUC and CAVAC
8	Rokar Chhouk	Canal	Takeo	Prey Kabas	Char and Snor	2013	2.3	521	417				O	O	Promising; CAVAC will continue to support.
9	Banteay Thleay	Canal	Takeo	Koh Andeth	Various	2013	Dredging (6.15 Km)								SIF – Cost-sharing between FWUC and CAVAC
10	Plov Touk	Canal	Takeo	Kirivong	Various	2013	Dredging (6.81 Km)								SIF – Cost-sharing between FWUC and CAVAC
11	Wat Thmey	Canal	Takeo	Prey Kabas	Char and Snor	2014	7.0	1,800	1,440						Pumping scheme; no concerns as of now
12	Prey Tonle	Canal	Kampot	Banteay Meas	Prey Tonle	2010	3.2	300	240		284	284	C	C	Small schemes; need some follow up activities.
13	O'Kak	Canal	Kampot	Banteay Meas	Tuk Meas Khang Lech	2011	2.9	250	200	250	250	250	C	C	Active FWUC; further support from CAVAC
14	Sbov Andeth	Canal	Kampot	Banteay Meas	Sdach Kong Khang Cheung	2011	6.8	1,200	960	185	924	924	C	C	Promising; CAVAC will continue to support.
15	Thnoat	Canal	Kampot	Banteay Meas	Thnoat Chong Srang	2011	6.8	1,650	1,320		817	817	C	C	Active FWUC; further support from CAVAC
16	Spean Touch	Canal	Kampot	Kampong Trach	Prey Kreuz	2012	6.6	1,250	1,000		706	706	C	C	Active FWUC; further support from CAVAC
17	Prey Leu	Canal	Kampot	Banteay Meas	Banteay Meas Khang Lech	2012	3.9	950	760	200	200	200	C	C	Active FWUC; further support from CAVAC
18	Hay Saun	Canal	Kampot	Banteay Meas	Sdach Kong Khang Cheung	2013	3.8	457	366				O	O	Too early to say
19	Chamlong Chrey	Pump	Kampot	Banteay Meas	Sdach Kong Khang Lech	2013	1.7	350	280				O	O	Too early to say
20	Reservoir 77	Reservoir	Kampot	Chum Kiri	Sre Cheng	2013	1.5	1,000	800				O	O	Too early to say
21	Hay Saun Extension	Canal	Kampot	Banteay Meas	Sdach Kong Khang Tbong	2014	4.2	499	399				O	O	Too early to say
22	Thnoat Chum	Canal	Kampong Thom	Baray	Thnoat Chum	2011	7.3	900	720		542	542	C	C	Difficult schemes; FWUC development will depend on canal development.
23	Angko	Canal	Kampong Thom	Kampong Svay	Kampong Kor	2011	3.5	1,200	960		650	650	C	C	Complete redesign; work with the FWUC to be restarted
24	6 January SC3	Canal	Kampong Thom	Santuk	Taing Krasang	2013	4.6	266	213	200	691	691	O	O	These schemes will get special support from the Irrigation Service Centre as they are more complex to operate.
25	6 January SC2	Canal	Kampong Thom	Santuk	Taing Krasang	2013	4.1	691	553	100	266	266	O	O	
26	6 January SC1	Canal	Kampong Thom	Santuk	Taing Krasang	2013	1.7	230	184				O	O	
27	Boeung Leas	Canal	Kampong Thom	Stung Sen	O'Kanthor	2014	0.5	350	280		100	250	O	O	
	Totals							22,982	18,386	1,659	9,864	13,461			

Notes:

Column 3: Revised potential areas based on available water resources and complete scheme development (distribution systems)

Column 4: Revised potential number of households having access to irrigated water with the assumption that each household has 1.25 hectares of land.

Columns 5, 6 and 7: Area irrigated at present. Full development over time depends on construction of secondary/tertiary canal systems (by CAVAC, FWUCs and PWSs) and farmers' adaptation to crop intensification.

3.2 Efficiency

Efficiency has continued to be a main focus for CAVAC. Efforts have been made to enhance efficiency across the Program as well as within each specific component. Given this, CAVAC has, generally, achieved the outputs outlined in the 2013 AWP. Efficiency has been achieved through the framework of continuous learning and the restructure within the technical team as outlined in the previous six monthly report.

During the reporting period CAVAC held a workshop with technical staff to reflect on efficient work practices. The workshop focused on setting common, realistic objectives within each component and looking at how individuals can best manage their workloads to ensure task allocation is reflective of the strengths and weaknesses within each team whilst still allowing space for the creativity required of the team. The workshop gave the team a common understanding of CAVAC's focus moving forward and provided a grounding for expectations around each activity, allowing staff to review and rearrange priorities.

The restructure of resources both within the Agribusiness and Information Systems team and Irrigation and water Resources Management team has continued to bring efficiencies to the work program. Assigning staff with specific market or province focused responsibility has created greater ownership of tasks and allowed staff to build their knowledge and experience around specific areas of expertise. In order to ensure that innovation is not lost through specialisation, CAVAC has also conducted regular cross unit learning to further stimulate good knowledge management. Functioning knowledge management systems also strengthens the capacity of each individual team member and allows effective knowledge transfer to new team members. This has enabled new team members to learn quickly to be ready to contribute effectively within their teams.

As outlined in the 2013 AWP, the Agribusiness and Information Systems component has worked constructively to refocus the overall management of its intervention portfolio over the last year. In all of the support markets there are more potential partners to work with than CAVAC's current resources can manage. Whilst this is a good position to be in, it does force CAVAC to make choices. CAVAC's portfolio decisions have put emphasis on optimising the use of resources to achieve the greatest impact of Program activities. As part of this process, CAVAC has focused on ensuring that engagement with partners under this component represents the most efficient means of support and that priority is given to partners who remain responsive and align with wider program goals.

As a result of these portfolio decisions, CAVAC has been able to implement similar interventions with more than one partner at the same time. This increases CAVAC's likelihood to generate large-scale impact and provides efficiencies against CAVAC's resources, budget and procurement activities. For example, as participatory retailer training has been acknowledged by all partners in the fertiliser market as an effective way to provide embedded information, CAVAC implemented a group fertiliser training for 12 fertiliser companies in early 2013. CAVAC has continued to work with five of these partner companies in rolling out information services using the knowledge acquired from the group training. To ensure the quality and consistency of advice, CAVAC has hired one consultant who is based within the CAVAC headoffice to provide support to these companies to improve their information services and participatory delivery methodology. This adviser is available to consult on a range of CAVAC activities and is also working to increase the capacity of CAVAC staff in this area.

Within the Irrigation component, eight schemes were proposed for construction as outlined in the 2013 AWP. During the year, progress was made against all but two schemes, which were cancelled due to land issues. As CAVAC enters the final years of implementation, the timeliness of scheme construction and selection of quality contractors have become paramount. A number of methods have been employed to ensure efficiencies throughout the design, tendering and construction process. This includes significant time and resources allocated to increasing the capacity of partners to make joint decisions on the design and technical implementation of schemes. Increasing the quality of the design process will lead to more efficient and timely construction. CAVAC has tried a number of approaches to increase the value for money of bids received and the quality of contractors selected including more focused briefing sessions and site visits for tenderers, highlighting work planning requirements and providing price benchmarks which ensure tenders reflect a fair market price. CAVAC has also engaged larger numbers of site supervisors and has included a selection process to ensure the experience of site managers provided by contractors is taken into account so that decisions can be taken quickly and implemented directly on site.

CAVAC's support to provincial priorities of the three target provinces has progressed in accordance with the 2013 AWP. Activities conducted by the PDAs align with the priorities of the RGC, particularly the Policy Paper on the Promotion of Paddy Production and Rice Export. By the end of December 2013, 27 contracts have been signed. Contracts include field demonstrations, laser land levelling and agricultural cooperative establishment. CAVAC's willingness to support national priorities is the same as that for the provincial priorities but those activities were held back by the RGC's election priorities and the transition of the new government. The contract on the GDA-led rice value chain improvement project signed in 2013 was delayed and started in December 2013. However, CAVAC has provided continuous support throughout the period to assist MAFF in its publication of agricultural materials.

3.3 Sustainability

As an M4P program, CAVAC sets sustainability as a pre-condition of its implementation process. The process towards sustainability takes time and requires a number of steps, as outlined in section 3.1 above. Although achieving sustainable impact can only be confirmed after the completion of the Program, CAVAC has observed signs towards the first level of sustainability, 'static' sustainability.

Within agribusiness activities, static sustainability generally relates to CAVAC's partners' retention of the business models CAVAC has introduced to them. When the CAVAC team works with a partner to change practices, for example to improve information systems for agricultural products, an indication of static sustainability is that the company continues to incorporate changes into its everyday work because it is satisfied with the model. At this point of implementation the Program does not have a clear understanding of the level of uptake of CAVAC innovations to determine sustainability. However, CAVAC has some positive indications of the static sustainability which can be illustrated through some examples below.

- CAVAC started working with Nokor Thom by supporting the company to build the capacity of its information services staff. On completion of the capacity building activities a number of significant changes have been observed including recruitment of additional staff to provide product information services for farmers and retailers, modification of information materials to be more user-friendly and the start-up of a customer service telephone service. In 2012, Nokor

Thom approached CAVAC for further support to develop an information system strategy. On completion of the strategy, Nokor Thom has continued to discuss further collaboration with CAVAC. The fact that Nokor Thom has continued to come to CAVAC for support shows its interest in improving information services and the willingness to optimise the benefits of this embedded information service business model.

- East West Seed International has completed its first phase of implementation on vegetable demonstration plots and extension training. An assessment of this phase of activities shows that there is a trend towards farmers' adopting new techniques and varieties introduced by the company. A number of farmers interviewed indicated that they have already adopted, or plan to adopt, the techniques passed on by East West Seed trainers. Interviews with input retailers showed that some have expanded, or plan to expand, the varieties they have available due to increased demand by farmers. Some other input retailers have also shown interest in selling East West products because they have seen the impact on their neighbours' businesses. These are positive first signs that CAVAC's intervention with East West is generating a knowledge and practice change within its target communities, which may further lead to a larger scale change and sustainability in the long run.
- CAVAC's interventions with Ye Tak have enabled the company to realise that retailers are the most effective channel of information for farmers. With CAVAC's support, Ye Tak has shifted from conducting national level training to provincial level training and has improved training content to focus on application techniques of fertiliser rather than merely a promotional campaign. Ye Tak has also invested in building a permanent technical team within the company. CAVAC's current support to Ye Tak is to mentor the company in its retailer training and retailers' field demonstrations to define good practice standards for the company to continue implementing these activities on their own. Based on the current agreement, CAVAC is supporting the company to conduct seven retailer training sessions with the company confirming that it plans to conduct 20 sessions each year on its own after the intervention.

Within the irrigation sector, sustainability means that each irrigation scheme will be maintained by the community for long-term use. Achieving this is a very challenging process with many factors impacting the ability of a community to provide effective O&M into the future. CAVAC has continued working with the PDWRAMs to establish a FWUC/FWUGs at each CAVAC scheme and to provide training to these groups in appropriate O&M measures applicable for each scheme. CAVAC has also invested in land-holding surveys for the FWUCs, which will enable more accurate data on irrigated areas and contribute to the fee collection processes. In 2013, CAVAC has invested further resources in the FWUCs through building offices for them to help professionalise their operations and to enhance their image within the community as effective financial managers and O&M service providers.

The quality of schemes is a main factor contributing to the scheme sustainability. The better the quality of a scheme is, the less maintenance it will require in the future. CAVAC and PDWRAMs have continued working closely from scheme selection to scheme design and construction to ensure good quality schemes. In 2013, more investment has been made to develop schemes in which the future maintenance requirements are taken into account, leading to increased likelihood of scheme

sustainability. The community has also been more involved in the feasibility study and design of each scheme increasing their ownership of the scheme and thus sustainability.

In 2013 CAVAC also started construction on an innovative design which provides communities with gravity-fed irrigation schemes. As these schemes usually have more complex designs they require full cooperation from the FWUCs from the beginning of the process to make sure they have the ability to operate the schemes. Therefore, it is essential for CAVAC and the PDWRAMs to focus on the quality of capacity building provided to the FWUCs. At one of these schemes in Kampong Thom, CAVAC has contracted the ISC to work on FWUC establishment for new schemes and to build the capacity of all new and existing FWUCs on a regular basis.

CAVAC has continued to accumulate knowledge on O&M to contribute to wider sustainability within the irrigation sector. CAVAC has begun work on a study on the role of the PWSs in irrigation scheme development. CAVAC hopes that this study will generate knowledge that will be useful for CAVAC to improve its efforts to realise sustainability in the irrigation sector. Additionally, CAVAC has been working closely with PDWRAMs on both the engineering and O&M elements of each scheme. This helps to build the capacity of the PDWRAMs which are permanent players within the sector. In Kampong Thom, the ISC will work hand-in-hand with the PDWRAM staff, which will help transfer knowledge, skills, and experience to Kampong Thom PDWRAM's FWUC specialists.

The models of sustainability within the irrigation sector are varied and can be influenced by a number of dynamics within the sector. Based on the current status of most schemes, it is likely that they will not need a large amount of maintenance in the next 5–7 years. A possible scenario is that by then the fees may have been collected up to a level that is sufficient for the maintenance needed for the schemes at that time. Several other scenarios can also emerge due to the continual changing of the dynamics within the water sector. For example, the price of paddy may go up, and farmers may be willing to contribute more to maintenance, or PWSs may not pay to the FWUCs directly but will take care of the scheme maintenance themselves.

As environmental sustainability is as important as economic sustainability, CAVAC has continued to assess all new interventions for possible negative environmental impacts. For irrigation interventions, CAVAC has followed all the steps from the Initial Environmental Assessments (IEAs) during the feasibility study period to the Environmental Impact Assessments (EIAs) after the design process and onwards to the implementation of the Environmental Management Plans (EMPs) during the construction and O&M phases. CAVAC has also continued to keep the Environmental Management System (EMS) updated as a central repository of environmental work related documents.

4 MONITORING AND EVALUATION (M&E)

The M&E activities of all CAVAC's interventions are progressing as scheduled. As reported in the previous reporting period, CAVAC received a very positive report by auditors of the Donor Committee for Enterprise Development (DCED) showing that CAVAC's M&E system is in line with the DCED standard protocol. The results can be seen on the DCED's and CAVAC's websites.

Irrigation activities: CAVAC is currently updating the command area data and in collaboration with the FWUCs will monitor how much area is under cultivation for the dry, early wet and wet season crops at CAVAC irrigation schemes. A timeline for the first available data can be seen at Table 5.

Through its active involvement with the FWUCs, CAVAC will monitor the likelihood of future maintenance requirements for each scheme.

Over the previous years of implementation, CAVAC has conducted regular in-depth studies on two schemes to better understand what happens behind the scenes. The study reveals how operational and fee issues are settled and how the economic benefits go beyond farmers.

Agribusiness activities: Adoption of changes does take some time within the Agribusiness and Information Systems component. CAVAC first engages with companies to change their business model and ultimately their interaction with farmers. Farmers may then go on to adopt the advice, generally in concurrent stages of early adopters, followers and late adopters. As most farmers produce rice only once a year, these changes are expected to take many years to achieve scale.

The two main indicators that CAVAC will need to capture in 2014 are changes in fertiliser practices leading to higher yields and profits as well as changes in pesticide practices that also should lead to higher yields and profits. In both cases it is complex to attribute changes to CAVAC supported activities. Quasi-experimental designs are not that feasible. As outlined above CAVAC has developed two tools which look at changes within the fertiliser and pesticide markets for assessments to begin in 2014.

With a system of impact logics, CAVAC is monitoring the indicators that identify changes at the provider level. Findings of these assessment are discussed in the regular three-monthly review meetings. These discussions help staff to identify progress of intervention and design possible changes to implementation as necessary.

Environment: The EIAs that CAVAC has conducted all contain recommendations to mitigate and monitor environmental impacts. These recommendations have been translated into operational plans that are being monitored. At the end of 2013, CAVAC was on track with the monitoring and mitigation activities.

PDA contracts: As in the previous year, CAVAC financially supports the three PDAs to conduct training and other activities that are government priorities. CAVAC monitors the outputs but leaves further impact measurement to the government.

5 GENDER EQUALITY

CAVAC has continued addressing gender issues using its existing gender strategy as it is still relevant. CAVAC's strategy on gender has three elements: 1) continuous learning to inform and improve CAVAC's decisions; 2) intervening whenever possible to enhance the effectiveness of CAVAC's interventions; and 3) ensuring that gender issues are integrated in order to avoid negative impacts to gender equality.

There are several types of gender issues within Cambodia ranging from domestic violence to maternal health issues. Even within the agricultural and rural development sectors, the range of gender issues is broad. Although most are outside of CAVAC's framework to address, CAVAC felt the need to support the learning process to contribute to gender knowledge development within the agricultural and rural development sectors. A research fund was launched in mid-2013 to support the generation of gender specific information within the agricultural and rural development sectors. Six studies have

been awarded, including: agricultural income and gender; comparative study of gender constraints in high-input and sustainable vegetable farming; the role of gender for indigenous rice farmers in Mondulhiri; livestock and gender in rural Cambodian households; social and economic impact on gender in mechanised agriculture; and understanding the Knowledge, Attitude, and Practice of gender equality in youth education and work in rural areas. The final reports of these research studies have been submitted in late December 2013 or early January 2014. The results of the studies will be presented in a seminar to relevant stakeholders on 16 January 2014. It is hoped that a robust debate around the issues presented will lead to possible follow up activities for CAVAC and partners to continue to contribute to.

CAVAC has continued to strive to boost the Programs effectiveness through the continuous learning and adjusting process. CAVAC's retailer training interventions within the input supply markets have been adjusted to reach retailers at the village level where main retailers are pre-dominantly females. However, CAVAC has observed that the participation of female retailers was still lower than expected even after this adjustment. CAVAC's task forces have continued discussing how to engage female retailers in training and how to ensure that knowledge is passed on by male attendees to women within their households. CAVAC will continue to work on specific solutions to this issue. In the vegetable market, East West Seed has incorporated some flexibility within its intervention to allow for small training or coaching sessions in order to engage busy vegetable collectors, of which approximately 60 per cent are women, into its capacity building plan. This approach may provide some lessons for wider application.

Continuous efforts have also been made within the irrigation sector in order to ensure that there is good female representation within the FWUCs. Within the 13 FWUCs/FWUGs that have been established and provided training on the operation and maintenance of irrigation schemes, five FWUCs have elected one female representative and one FWUC has two women elected to the committee management.

In CAVACs analysis of water beneficiaries, it has been found that female-headed households constitute approximately 5 per cent of all water users for irrigation purposes. Some irrigate their rice fields using their own pumps and those who do not own pumps ask for help from their relatives. As females, they face more challenges than men in their irrigation work. One of their challenges is that they sometimes have to irrigate their rice fields at night due to limited entitlements provided by the community. Even though no incident has been reported yet, this work may expose female-headed households to security risks. CAVAC will work with relevant PDWRAMs and FWUCs/FWUGs to ensure that female irrigators are given the opportunity to irrigate during the day.

6 RISK MANAGEMENT

At the current phase of program implementation a number of the operational risks that have previously been highlighted in the CAVAC Risk Management Plan have decreased in likelihood or severity of impact on implementation. In the remaining two years (including the contract extension period) of implementation the team will focus on ensuring relationships with both the public and private partners remain responsive and constructive. Systems put in place to increase the quality and efficiency of

CAVAC activities will continue to be monitored and improved especially as timeliness becomes a factor towards the end of implementation, especially for infrastructure activities.

6.1 Operational risks

Within the Agribusiness and Information Systems component there are two main areas of risk which have been identified as issues for consideration. Throughout the reporting period, CAVAC staff spoke to a number of Programs and donors active within the Cambodian agriculture sector to ensure that CAVAC activities are not negatively impacted by organisations providing non-market based subsidies impacting CAVAC target groups. Through continued interaction with donor organisations CAVAC will continue to monitor this risk. To assist with this, CAVAC plans to hold group meetings with donor representatives working in the sector involving both managers and Cambodian experts towards the beginning of next year.

Reports pertaining to the start-up of a new agricultural program working with the PDAs in CAVAC target provinces, has increased awareness of the possibility of a lack of absorptive capacity due to increasing workloads for PDA staff. CAVAC staff will work closely with PDAs and the RGC team implementing the new program to ensure realistic budgeting and management of CAVAC PDA activities and compliance with CAVAC contractual and financial management requirements. Progress of PDA activities will continue to be monitored with close collaboration with both the PDA activity manager and the Provincial Coordinator to continue current levels of effective communication between the stakeholders.

Within the Irrigation and Water Management component, the long term sustainability of schemes and the ability of the stakeholders to commit to future O&M requirements of CAVAC schemes remain an area of risk. CAVAC continues to work with partners to facilitate discussions on innovative and practical responses to this issue. Engagement with MOWRAM and PDWRAMs on O&M funding mechanisms is due early next year and further research by CAVAC into other avenues for provision of services such as PWSs and increasing the capacity of FWUCs through organisations such as ISC are positive steps to finding solutions. CAVAC's strategy of choosing schemes with strong FWUCs who are receptive to CAVAC interventions has been successful however further work in the next two years needs to be done to ensure these groups have the skills required and access to wider funding for continued sustainability.

Within the reporting period, CAVAC has continued to work with local communities to successfully manage the high risk issues of land loss due to canal construction and unexploded ordnance (UXOs) at construction sites. During 2013, two schemes have not gone forward due to concerns over land loss from local farmers and a number of designs have been modified to ensure whole of community support for the scheme. The Cambodian Mine Action Centre (CMAC) has concluded scans for UXOs at two CAVAC sites including Reservoir 77 in Kampot and Boeung Leas in Kampong Thom where a total of 82 items were removed.

During the last six months CAVAC's Irrigation and Water Management and Procurement teams have worked to a strict tendering timetable with the aim of starting work on the 2014 and remaining 2013 schemes in late December 2013 or early January 2014. All schemes will need to be completed by June 2015 so that defects liability periods on all construction activities are completed by the end of the

contract. For this reason, 2014 will be the last year that new construction activities will be tendered (although smaller secondary canals or rehabilitation may take place in 2014 and 2015). Early contracting and mobilisation, greater resources engaged in site supervision and contractually ensuring the capacity of site management from the contractor perspective have been put in place to help increase timeliness at all schemes. The focus on building the capacity of provincial and national stakeholders on increasing the quality of scheme design will also positively impact the likelihood of scheme completion in the required timeframe. Whilst the CAVAC team has worked hard to make the best of the time remaining for required construction tasks, risks relating to a possible early onset of the wet season and possible flooding at sites remain a concern.

EIAs have been completed for all schemes mobilising at the end of 2013 or beginning of 2014. No significant environment impacts were found at any of these sites and monitoring plans have been put in place to ensure compliance to the EMS requirements. In September a regular monitoring visit raised questions regarding the quality of the water at Spean Touch canal (completed in 2012). Based on testing conducted by the College of Agriculture and Applied Biology – Can Tho University, it was found that acid sulphate soils were a problem in the area surrounding the canal. CAVAC is looking at contracting expertise in the management of this issue to provide guidance on management options into the future.

Misappropriation of Program funds continues to be a focus of risk management measures for the financial and procurement management systems. A review of the Fraud Control for Projects training program was conducted with all Phnom Penh and provincially based staff and processes around the use of petty cash for provincial staff were strengthened during the reporting period. In the remaining years of implementation the risk of personnel moving on to other longer term positions is a risk which will continue to shape human resource management practices.

6.2 Reputation and relationship risks

As outlined above, the continuation of constructive relationships with program partners is a focus of CAVAC Program Management. The relationship with RGC has continued to grow, with positive signs for continued collaboration especially with improvements in the communication between CAVAC staff and MOWRAM and PDWRAM partners.

However, with current personnel changes within MAFF following the national election and a new Co-Chair for the National Steering Committee (NSC) only recently confirmed, possible changes to the expectations and requirements of MAFF regarding the Program could be possible. Once a meeting with the new Co-Chair from MAFF has been arranged CAVAC will seek to reaffirm a close working relationship with the Co-Chair and ensure a continued understanding of the Program and support provided to RGC partners. The delays in confirming a Co-Chair for MAFF has delayed the NSC meeting held to approve the AWP. It is hoped that this meeting can be held quickly in the New Year to confirm implementation of 2014 AWP activities.

CAVAC continues to foster relationships with both Cambodian based development partners and overseas implementers to promote information and lessons learnt sharing within the broader development community. Both management and technical staff have benefited from sharing their experiences with and hearing from those working both within the Cambodian context and

implementing market development programs overseas in both formal and non-formal settings. CAVAC is planning to continue this dialogue with events and meetings currently being organised for next year. It is hoped that a follow up activity to the event held in Thailand will allow further exchanges between implementers working in market development programs in a range of contexts.

ANNEX 1: INTERVENTION UPDATE

Number	Intervention Title	AWP
RICE SEED MARKET		
Inp 10.2	Improving quality and availability of commercial seed	1.2
Inp 11.2	Providing training to small seed producers (production knowledge)	1.2
Inp 11.3	Supporting associations to promote modern wet season rice seed varieties and market access for rice seed	1.2
Inp 12.9	Strengthening production knowledge to enhance availability of good quality rice seed in the market	1.2
Inp 12.10	Dry season rice seed market	1.2
FERTILISER MARKET		
Ext 10.1	Supporting a fertiliser company to improve its information services to farmers	1.2
Inp 10.1	Supporting a fertiliser company in providing training to retailers	1.2
Inp 10.3	Supporting a fertiliser company in quality assurance	1.2
Inp 12.4	Supporting fertiliser companies in staff capacity building	1.2
Inp 12.6	Supporting a fertiliser company to provide better training to farmers	1.2
Inp 12.8	Supporting a fertiliser company in staff capacity building and pilot retailer training	1.2
Inp 12.11	Supporting a fertiliser company in its retailer training and retailers' field demonstrations	1.2
Inp 13.6	Supporting a fertiliser company in improving its field demonstrations	1.2
Inp 13.6	Supporting a fertiliser company in improving its field demonstrations and farmer meetings	1.2
PESTICIDE MARKET		
Inp 11.4 and Inp 12.1	Supporting a local pesticide company through capacity building for technical staff and information system strategy development	1.2
Inp 12.2	Supporting a pesticide company to provide better training to farmers	1.2
Inp 12.13	Supporting a pesticide company in its pesticide wholesaler / retailer training	1.2
Inp 13.4	Pesticide retailer training in partnership with PDAs	1.2
RICE EXPORT MARKET		
Mar 11.1	Technical assistance on rice and rice seed production for export markets	1.2
Mar 12.1	Export promotion – support to the federation's market linkages	1.2
Inp 13.3	Improving Golden Daun Keo Rice Mill's quality of paddy of export varieties	1.2
VEGETABLE MARKET		
Inp 12.3	Vegetable farmers' practice change – East West Seed International	1.2
Inp 12.3	Vegetable farmers' practice change – Pacific Seeds	1.2
Inp 12.7	Vegetable seed retailer outlet training	1.2
Inp 13.7	Support to an integrated retailer unimart	1.2
MEDIA MARKET		
Ext 11.1	Support to a media agency to produce a quality agricultural TV program (drama)	1.2
Ext 13.1	Support to media research companies	1.2
MODEL FARMERS		
Ext 10.3	Activities with model farmers to improve role and knowledge of model farmers	1.2
WIDER MARKET		
Ext 11.3	Assisting training and information system support providers with training materials, capacity building and promotion	3.2
Ext 11.5	Linking events	1.2
Ext 11.6	Supporting a private call centre	1.2

Number	Intervention Title	AWP
IRRIGATION CONSTRUCTION		
Takeo		
Irr 10.1	Development and construction of an irrigation scheme: Krapum Chuk canal, Takeo province	2.3
Irr 10.3	Development and construction of an irrigation scheme: Tumnub Lok canal, Takeo province	2.3
Irr 10.4	Development and construction of an irrigation scheme: Kveng Tayi canal, Takeo province	2.3
Irr 12.3	Development and construction of an irrigation scheme: So Hang canal, Takeo province	2.3
Irr 12.4	Development and construction of an irrigation scheme: Prey Rumdeng canal, Takeo province	2.3
Irr 12.5	SIF: Support to BANTIC and PLOVIC in rehabilitating two secondary canals in Takeo	2.2
Irr 13.1	Development and construction of an irrigation scheme: Rokar Chhuk canal, Takeo province	2.3
Irr 13.2 and Irr 13.3	SIF: Support to BANTIC and PLOVIC in dredging their main canal in Takeo	2.2
Kampot		
Irr 10.2	Development and construction of an irrigation scheme: Prey Tonle canal, Kampot province	2.3
Irr 10.6	Development and construction of an irrigation scheme: Sbov Andeth canal, Kampot province	2.3
Irr 10.7	Development and construction of an irrigation scheme: O'Kak canal, Kampot province	2.3
Irr 10.8	Development and construction of an irrigation scheme: Thnoat canal, Kampot province	2.3
Irr 12.1	Development and construction of an irrigation scheme: Spean Touch canal, Kampot province	2.3
Irr 12.2	Development and construction of an irrigation scheme: Prey Leu canal, Kampot province	2.3
Irr 13.1	Development and construction of an irrigation scheme: Hay Saun canal, Kampot province	2.3
Irr 13.1	Development and construction of an irrigation scheme: Chamlong Chrey canal, Kampot province	2.3
Irr 13.1	Development and construction of an irrigation scheme: Reservoir 77, Kampot province	2.3
Kampong Thom		
Irr 10.12	Development and construction of an irrigation scheme: Thnoat Chum canal, Kampong Thom province	2.3
Irr 10.13	Development and construction of an irrigation scheme: Angko canal, Kampong Thom province	2.3
Irr 13.1	Development and construction of irrigation schemes: Secondary Canals 1,2, and 3 of the 6 January canal, Kampong Thom province	2.3

Legend

Res = Research
Ext = Extension
Gen = Others

Inp = Input Markets
Irr = Water and Irrigation

Mar = Production Markets
Bee = Business Enabling Environment

INTERVENTION UPDATE: Int. No: Inp 10.2 AWP No: 1.2 Date: 31 December 2013	
Name:	Improving quality and availability of commercial seed
Summary:	<p>The seed production business requires intensive capital investment, skilled production knowledge, effective and efficient human resource management and good branding. CAVAC intended to contribute to the growth of seed businesses through its support on building seed producers' capacity to produce and market quality seed.</p> <p>In 2011, CAVAC started partnering with a seed producer in Kampong Thom, Srov Pouch Meas Co., Ltd. (SPM). CAVAC's intended intervention plans with this partner were divided into two phases: 1) Technical Assistance and Business Development; and 2) Business Expansion.</p> <p>CAVAC's activities with SPM in the first phase included:</p> <ul style="list-style-type: none"> – Conducting a study on the intellectual property rights for non-Cambodian rice varieties; – Hiring an international seed production specialist from Vietnam to train key technical staff of SPM in seed production techniques; and – Hiring a company to develop a Rice Seed Business Plan for SPM. This plan assisted the company's strategic direction and informed methods to seek new partners. <p>CAVAC's second phase of support to SPM on business expansion was put on hold due to land tenure issues faced by the company.</p> <p>In early 2013, SPM approached CAVAC again to request equipment support. This request was analysed and reviewed and was not approved as CAVAC understood that the rice seed business was not a priority for SPM given that it had many businesses.</p>
Achievements to Date:	<p>Activities completed to date include:</p> <ul style="list-style-type: none"> – A study was completed on the intellectual property rights for non-Cambodian rice varieties. – A rice seed business plan for SPM was developed in order to provide strategic directions and inform methods for the company to seek business partners. – A rice seed production manual was developed. – Rice seed production training for technical staff (theoretical and practical concepts) was held. – SPM's Agribusiness Innovation Fund (AIF) application on the business expansion assistance project was approved but it has not progressed due to the company's land tenure issues. – In September 2013 CAVAC conducted an assessment on the progress of SPM's rice seed production and on farmers' buying SPM's seed. The assessment found that the rice seed market was still unfavourable and uncertain. Constraints such as unpredictable floods, which often destroy paddy fields and a volatile paddy price, mean that farmers are reluctant to buy good quality seed.
Next Steps:	Continue conducting M&E activities on the first round of activities.
Lessons Learnt:	<p>SPM has faced land tenure issues because some of its dry season rice cultivation areas are situated in Zone 3 of the Tonle Sap area, a zone where cultivation is not allowed. This is a reminder for CAVAC that before reaching an agreement with any new partner, it is necessary to physically check and confirm the location of production land.</p> <p>It is hard to find committed partners in the rice seed market as the rice seed business is costly as well as risky. CAVAC should focus on looking at price volatility constraints before a rice seed production intervention can be introduced.</p>

INTERVENTION UPDATE: Int. No: Inp 11.2 AWP No: 1.2 Date: 31 December 2013

Name:	Providing training to small seed producers (production knowledge)
Summary:	<p>This intervention aimed to provide individual small seed producers with training in appropriate seed production techniques.</p> <p>It was expected that the training would enable small seed producers to increase their production of modern varieties, resulting in greater adoption among smallholder farmers through seed purchase or exchange, thereby leading to higher yield.</p>
Achievements to Date:	<p>Three rice seed production training sessions were conducted for 61 dry and wet season seed producers (including four PDA staff members) in Takeo and Kampong Thom.</p> <p>After the training, an informal assessment was conducted with some of the trained seed producers. The assessment revealed that most smallholder producers had knowledge on proper rice production techniques and practiced some of those techniques, but had less access to information on appropriate use of inputs, including fertiliser and pesticide, compared to trained seed producers contracted with the Agricultural Quality Improvement Project (AQIP) and large scale producers (2-10 hectares).</p> <p>Follow-up phone calls in May 2013 found that some producers were producing modern varieties and exchanged their seed with other farmers' paddy or sold it at the paddy market price. This has helped increase farmers' access to modern varieties.</p> <p>In October 2013 CAVAC started conducting M&E activities which are currently ongoing.</p>
Next steps:	CAVAC will not support further interventions with small seed producers given the culture of exchanging paddy with seed. However, CAVAC will continue M&E activities to monitor the outcomes of the training and to measure the impact at the farmer level.
Lessons Learnt:	<p>Some neighbouring farmers of the trained seed producers have provided feedback that some of the production techniques, such as single row planting, were useful for their paddy production – using less seed and producing higher yields.</p> <p>Exchanging paddy for good seed presents challenges to seed producers. To CAVAC, the culture of paddy exchange allows a faster and wider spread of new varieties that provide higher yields to farmers; therefore it is, in a way, beneficial, especially in areas where farmers are still producing traditional varieties.</p>

INTERVENTION UPDATE: Int. No: Inp 11.3 AWP No: 1.2 Date: 31 December 2013	
Name:	Supporting associations to promote modern wet season rice seed varieties and market access for rice seed
Summary:	<p>CAVAC's intervention to support rice seed production associations is in line with the RGC's policy to support the establishment of farmer cooperatives. The policy enables farmers to organise into legally recognised cooperatives, which could improve their market and legal positions and access to financial and technical support.</p> <p>CAVAC supported associations in the areas of seed production techniques and knowledge of rice seed marketing. This included aspects of optimal input usage, quality control of seed production, crop protection and post-harvest management. CAVAC also supported rice seed production associations in developing market access strategies so that they could become self-reliant in the long run. CAVAC linked rice seed production associations to rice seed sellers, paddy traders, and rice millers through field day activities in order to create linkages among all the actors in the market.</p> <p>Activities under this intervention are expected to provide information to wet season rice farmers on new and more profitable practices – especially the benefits of using modern varieties which are yield increases. CAVAC expects farmers to better use inputs and adopt modern varieties that are appropriate for their conditions.</p>
Achievements to Date:	<p>In 2011, CAVAC supported four associations to conduct 11 paddy field demonstrations. CAVAC organised four field days to share demonstration results with farmers within communities; and to link associations with millers and rice / paddy traders to stimulate commercial interest for modern wet season varieties.</p> <p>An adoption study was conducted in early October 2012 for the work completed with the four associations in 2011 (Champey in Takeo, Sre Cheng and Boeung Nimul in Kampot and Kvek Meanrith in Kampong Thom). The study found that the adoption rate of Phka Rumduol variety was high in commercial areas such as Kvek and Champei but it was very low in non-commercial areas such as Boeung Nimul. Boeung Nimul seems isolated from the market and has had no record of producing Phka Rumduol before. Thus, paddy traders have never approached this area for the particular variety. Overall, the finding was positive. Despite the early introduction of the variety, CAVAC's field demonstrations and field days contributed to increased production areas of Phka Rumduol. The area increase was in total 135 hectares (92 households) in the four communities of the four associations.</p> <p>In the first half of 2012, 10 rice seed producers (who are association members) were trained by CAVAC in rice seed production techniques. CAVAC worked with three associations to organise 10 rice seed production demonstrations; and with one association in Po Samrong on paddy production. In addition, four field days for rice seed field demonstrations were conducted to link actors on the supply side (such as seed producers) with the actors on the demand side (such as farmers, village chiefs, commune council members, paddy traders, seed sellers and millers).</p> <p>In the first half of 2013, the rice seed market strategies were developed for Kvek Meanrith, Champei and Boeung Nimul associations. CAVAC has discussed finding ways to ensure sustainability of the associations' seed production while achieving the goal of having wet season rice farmers shift from producing traditional to modern varieties that are higher-yielding - further boosting incomes.</p> <p>After the strategies had been developed, five field demonstrations (one with Champei and four with Boeung Nimul) were managed by association chiefs in nearby villages/communes of the associations, using seed provided by the same associations (Phka Rumduol for Champei and Phka Romeat for Boeung Nimul).</p> <p>Input retailers/companies also took part through their contribution to the costs of fertiliser. CAVAC was mainly acting as a back-stopper on technical aspects and other relevant expenses including field days, of which two were conducted in 2013. During the implementation of these field demonstrations, it was found that rat infestation and other pest and disease damage were a major concern in Champei while Boeung Nimul has been hardly affected.</p>
Next Steps:	<p>Revisit the market access strategies and have further discussions with associations to discern their commitment in expanding their seed business as well as spreading modern varieties in their and other communities.</p> <p>Look at other possible ways to introduce modern varieties more sustainably either with or without CAVAC's support.</p>
Lessons Learnt:	<p>Despite the fact that associations have great potential to contribute to the adoption of modern rice seed varieties and serve as sources of knowledge on modern varieties and proper usage of inputs, other local constraints such as pest management and fertiliser usage must be addressed before a more meaningful change in farmers' adoption can be seen.</p>

INTERVENTION UPDATE: Int. No: Inp 12.9 AWP No: 1.2 Date: 31 December 2013	
Name:	Strengthening production knowledge to enhance the availability of good quality rice seed in the market
Summary:	<p>The seed production business requires intensive capital investment, skilled production knowledge, effective and efficient human resource management and good branding. CAVAC intended to contribute to the growth of seed businesses through its support on building seed producers' capacity to produce and market quality seed.</p> <p>In 2012 CAVAC started partnering with Mr. Sokunthea – a seed producer in Kampong Thom. CAVAC's intervention plan with Mr. Sokunthea includes:</p> <ul style="list-style-type: none"> – Hiring a local rice seed market access expert to help Mr. Sokunthea's team develop a rice seed market strategy and an implementation plan for his rice seed business. – Hiring a local seed production specialist to provide Mr. Sokunthea's team with theoretical and practical knowledge about proper seed production for both wet and dry seasons.
Achievements to Date:	<p>A rice seed market access strategy for Mr. Sokunthea has been developed.</p> <p>As of July 2013 Mr. Sokunthea officially informed CAVAC that it was impossible to produce seed yet due to several reasons:</p> <ol style="list-style-type: none"> 1) lack of water due to damage to his irrigation system. This was due to an inability to get approval to dig a canal from a tributary of Tonle Sap; 2) limited access to his fields in wet season, as per the above constraint; and 3) unpredictability and likelihood of flood which can lead to crop loss during production and harvest. <p>As a result, the recruitment of a part-time rice seed production consultant has been delayed.</p>
Next Steps:	<p>Follow up with Mr. Sokunthea on the rice seed production plan in 2014.</p> <p>Follow up with Mr. Sokunthea on the market access strategy and how he will plan to implement the recommendations in the strategy once seed production starts.</p>
Lessons Learnt:	None at this stage.

INTERVENTION UPDATE: Int. No: Inp 12.10 AWP No: 1.2 Date: 31 December 2013

Name:	Dry season rice seed market
Summary:	<p>Cambodian dry season rice farmers are entrepreneurial. The majority use rice varieties that respond to paddy buyers' demands and requirements.</p> <p>Without support, Cambodian medium and large dry season rice seed producers are struggling with access to quality seed. There is also limited knowledge of seed production and how to market quality seed.</p> <p>This intervention planned to work with existing medium and large seed producers to improve their seed quality supply to the market. It was supposed to focus on providing seed producers with appropriate seed production techniques through training; and linking producers with the best local or international seed production companies through study tours.</p>
Achievements to Date:	<p>In 2012 CAVAC conducted training in dry season rice seed production techniques in Kampong Thom. A quick assessment was conducted which revealed that most seed producers produced good paddy, not seed, and that the culture of exchanging seed also played a main role in the dry season rice seed market. As the rice seed business is associated with high risks, it is less likely that the currently so-called seed producers will become legitimate seed producers. CAVAC understands that it cannot contribute much to addressing any constraints in this market.</p> <p>In the first half of 2013, CAVAC contacted several dry season rice seed producers outside of its target provinces (Kampong Cham and Prey Veng provinces) to understand their rice seed production and business situation.</p>
Next Steps:	This intervention has been dropped.
Lessons Learnt:	<p>The rice seed market is complex from the policy to farmer level which makes it hard for seed producers to secure their businesses. The price of rice seed has not been high enough to compensate for the high cost of the recommended rice seed production techniques.</p> <p>This has led producers to keep producing only good paddy to sell as seed. Moreover, Vietnamese varieties are popular for dry season rice cultivation and those varieties are not supported by the RGC policy. The rice seed business is considered to have a number of high risks associated with it.</p> <p>It is challenging to find existing seed producers who conform to seed production standards as defined by the International Rice Research Institute.</p>

INTERVENTION UPDATE: Int. No: Ext 10.1 AWP No: 3.2 Date: 31 December 2013	
Name:	Supporting a fertiliser company to improve its information services for farmers
Summary:	<p>CAVAC's interviews with farmers and retailers showed that most did not have an appropriate level of knowledge on fertiliser application. CAVAC found that farmers use fertiliser based on peer advice or trial and error, and made decisions based on available budget. In most cases this method does not provide an optimal yield. Disseminating information on appropriate use of fertiliser to farmers via retailers, or direct interaction with farmers by private companies, is seen to be an effective and sustainable way of reaching farmers.</p> <p>The purpose of this intervention was to enhance the capacity of Heng Pich Chhay (HPC)'s information services for farmers. Heng Pich Chhay is a fertiliser company in Cambodia. CAVAC was working with HPC on:</p> <ul style="list-style-type: none"> – building HPC staff capacity on fertiliser use to enable them to effectively operate help desks; – conducting effective field demonstrations; and – implementing retailer training workshops.
Achievements to Date:	<ul style="list-style-type: none"> – In 2011, two HPC staff members were sent to Vietnam to attend a three-month training course on fertiliser use in rice cultivation. – CAVAC also supported HPC to conduct 120 field demonstrations, two field days in Kampot and Takeo, and two training workshops in Kampot and Kampong Thom. The total number of participants for these training activities were 447 including 360 farmers. – M&E activities were conducted by collecting information from HPC staff, trained retailers and farmers and found out that the capacity of staff trained in Vietnam remained insufficient after the training and as such they were not able to give appropriate advice over the telephone. The M&E also revealed that retailer training and field demonstrations were of low quality. <p>The M&E results were discussed with HPC. Both CAVAC and HPC accepted that HPC did not have enough field staff to carry out the activities and that its staff's technical knowledge was still a constraint.</p> <p>However, in order to improve the quality of its information services, the company continued to build its staff capacity by sending two staff members (one had previously been trained in Vietnam) to join a training with 11 other fertiliser companies' personnel in early 2013. The main topics in the training were fertiliser use, participatory retailer Training of Trainers (TOT), and the retailer business case.</p> <ul style="list-style-type: none"> – M&E activities have also been conducted at the farmer level with a strong focus on assessing knowledge and practices of field demonstration farmers and other farmers for both dry and wet season rice cultivation. The M&E results reveal that a majority of demonstration farmers do not follow HPC's recommendations. This is due to HPC's limited capacity to manage field demonstrations (limited staff numbers / poor communication). As such, demonstration farmers are not convinced of HPC's recommendations, resulting in a lower than expected uptake. CAVAC has observed that farmers who follow the recommendations from the field demonstrations have become information sources for their communities. These farmers have increased their yield by roughly 15-30 per cent when compared to their previous practices. – After CAVAC shared several M&E reports with the company, HPC shifted from conducting a large number of low quality extension activities to a reasonable number of focused activities.
Next Steps:	CAVAC will discuss whether continued monitoring is required given that there are information dissemination constraints between the company and farmers.
Lessons Learnt:	<p>The retailer training workshop was not conducted effectively and as a result, trained retailers did not gain sufficient knowledge to be able to give advice to farmers. In regards to field demonstrations, some farmers were given fertiliser without proper usage instructions or were not given fertiliser on time. This was due to the company's limited staff resources to carry out a large number of field demonstrations. Therefore, CAVAC needs to consider the capacity of the company's staff in carrying out agreed activities to ensure quality of demonstrations.</p> <p>Both CAVAC and HPC have both taken on board the valuable lessons from these activities. After sharing the results of the M&E activities, CAVAC observed that the company has shifted its focus from quantity to quality.</p>

INTERVENTION UPDATE: Int. No: Inp 10.1 AWP No: 1.2 Date: 31 December 2013	
Name:	Supporting a fertiliser company in providing training to retailers
Summary:	<p>Farmers' lack of knowledge on fertiliser application is a major issue preventing farmers from obtaining optimal yields. In order to help address this constraint, CAVAC works with fertiliser companies to provide better information services to farmers through their retailers. Fertiliser retailers interact directly with farmers and can provide greater outreach than traditional information service approaches. The expected impact of a retailer's provision of information services (such as advice to farmers) is that demands for that retailer's product increase, providing an incentive for the retailer to continue supplying information on the use of the product. If a retailer becomes successful using this approach, other retailers will offer similar services in order to retain customer share.</p> <p>Additionally if more products and services are offered by retailers, then more information and choices are available to farmers. Farmers will increasingly be able to access information on the appropriate application of fertiliser to more efficiently produce crops. Further, through training retailers, the fertiliser company will enhance its relationship with retailers, enabling improved quality control at the retailer level.</p> <p>CAVAC's intervention with Ye Tak supported retailer training. Prior to CAVAC's assistance, Ye Tak conducted national retailer training workshops, which were in the format of a promotional product campaign rather than technical training. At the beginning of the intervention, CAVAC supported Ye Tak to conduct one national retailer training workshop which was led and managed by the company. A joint assessment of the workshop revealed that improvements on technical information as well as the training methodology were needed and that the training should focus more on retailers rather than wholesalers.</p> <p>Ye Tak accepted the assessment results and continued working with CAVAC to conduct provincial retailer training with improved training curriculum and methodology. Six provincial retailer training sessions were conducted in 2012.</p>
Achievements to Date:	<ul style="list-style-type: none"> – Two Training Needs Assessments (TNAs), one national retailer training session and six provincial retailer training sessions were conducted. – CAVAC's M&E team evaluated the retailer training conducted by Ye Tak. Key lessons learned have been collected and shared within the CAVAC team in order to improve the next retailer training activities. Following the training, Ye Tak had added two staff members into its information system team – one newly recruited and one internally promoted. Ye Tak now has five technical staff members that provide information services.
Next Steps:	<ul style="list-style-type: none"> – Conduct M&E activities at the farmer level to see the impact of farmer practice changes.
Lessons Learnt:	<p>The jointly conducted TNA found that the training methodology and curriculum used must take into account the different educational background and knowledge in the use of fertiliser of the trainees to ensure effective knowledge transfer.</p> <p>Retailers play an essential role in providing technical knowledge to farmers. Currently, farmers tend to accept retailers' advice more if retailers demonstrate their technical knowledge in the field. In the past, farmers believed that retailers lacked farming knowledge and as such they would not be able to provide effective advice.</p> <p>The last M&E activities conducted showed that village retailers were the key actors in influencing farmers' behavior. This finding will be incorporated in future activities with input companies.</p> <p>When working with partners, it is important to discuss in advance the kind of data that CAVAC requires from them and their clients for M&E activities. A workplan should be developed and agreed with the company, with both sides able to update/modify at each implementing stage.</p>

INTERVENTION UPDATE: Int. No: Inp 10.3 AWP No: 1.2 Date: 31 December 2013	
Name:	Supporting a fertiliser company in quality assurance
Summary:	<p>According to information gathered during CAVAC's fertiliser supply mapping and analysis, farmers claimed that they were facing issues with adulterated fertiliser quality. Adulterated fertiliser has led to low yields and low returns. This finding was supported by a World Bank investigation undertaken in 2010 by the International Fertiliser Development Centre (IFDC) on assessing fertiliser quality in Cambodia. It found that: 'poor fertiliser quality damages farm yield, which could erode farmers' confidence in their use.' From the finding and report of the World Bank, CAVAC's focus was on fertiliser quality. CAVAC's primary intervention began with Ye Tak, one of well-known fertiliser companies within Cambodia.</p> <p>Based on Ye Tak's proposal, CAVAC hired an international fertiliser quality assurance consultant to assess the quality of Ye Tak's products and services as well as retailers' and wholesalers' confidence in distributing fertiliser.</p>
Achievements to Date:	<p>Ye Tak quality assurance assessment was conducted by an international consultant. The consultant visited a number of retailer outlets (small scale to large scale) in 15 different provinces. The consultant also assessed the operations of Ye Tak's competitors. However, the study found no evidence (outside of what could be considered as an occasional practice) of the misuse of the Ye Tak brand to promote sales of adulterated fertiliser or as a means to promote a competitor's product. The study suggested that the problem of adulterated fertiliser occurred primarily when the fertiliser price in the international market surged, particularly during 2007-2008.</p> <p>Evidence on fertiliser adulteration/low quality is inconclusive at this stage, and is driven by perceptions of farmers and retailers but many different factors influence yield. The assessments of the IFDC and CAVAC indicate that it may be a temporary issue that flares up under favourable market conditions. It is unlikely that resident retailers will sell below specification fertiliser to the communities they live in. It is most likely that suspect quality is sold from mobile retailers which appear when large margins can be made.</p>
Next steps:	<p>Although fertiliser quality has become less of an issue, CAVAC still monitors this closely. If there is a re-emergence of adulterated fertiliser in the market, CAVAC may look at a follow up intervention.</p> <p>A report from the Cambodia Development Resource Institute (CDRI) named 'study on fertiliser quality' will be officially released in January 2014.</p>
Lessons Learnt:	<p>During the three-monthly review discussion in October 2013, there is still feedback from retailers and PDA staff regarding this issue. However, there is no concrete evidence on the presence of adulterated fertiliser in the market for CAVAC to take any action at the moment.</p>

INTERVENTION UPDATE: Int. No: Inp 12.4 AWP No: 1.2 Date: 31 December 2013	
Name:	Supporting fertiliser companies in staff capacity building
Summary:	<p>With the rapid change within the fertiliser market, farmers need to keep up-to-date with technical information on the types of fertiliser available and updated application techniques in order to increase their productivity and comparative advantage. Private enterprises are seen as a sustainable source to disseminate information to farmers. Though most companies have some information services, these are generally poor quality due to limited in-house technical knowledge and ineffective information transfer. This has made it harder for farmers and retailers to access information on appropriate fertiliser application.</p> <p>CAVAC aimed to improve fertiliser companies' capacity to provide knowledge of best practice fertiliser management. This focused on the general '4R's – 'right type, right amount, right time, and right application'. Facilitated by CAVAC, target fertiliser companies are now attempting to provide fertiliser application principles so that farmers can optimise their rice production to maximise income.</p> <p>For this intervention CAVAC worked with 12 fertiliser companies by providing training to improve the capacity of staff in three areas: 1) understanding the incentive to provide product information services and being able to develop business cases; 2) more appropriate technical knowledge of rice production; and 3) providing more effective training to their retailers/customers (a participatory training approach).</p>
Achievements to Date:	<ul style="list-style-type: none"> – Two training institutions were selected to conduct the training; the Agriculture Technology Services Association (ATSA) on technical knowledge of rice production, and SILAKA on the participatory training approach. – Lessons learnt from the previous retailer training were incorporated into the curriculum. – A total of 25 staff members from 12 fertiliser companies (including 4 female participants) attended the training. The business case development session was tailored to meet the needs of the participants by CAVAC staff. – M&E activities to monitor the outcome and impact of the group training activities are in progress.
Next Steps:	<ul style="list-style-type: none"> – Analyse information collected from all companies trained as part of M&E activities to draw lessons learnt and outcomes of the activities. – Share the M&E report with partners.
Lessons Learnt:	<p>Most participants promised they would commit to putting what they had learned into practice and that they would maintain the network among the participants. Participating companies, which also distribute pesticides, have asked CAVAC to organise a similar training on best practice on pest management.</p> <p>Participating companies distribute different types of fertiliser (i.e mineral fertiliser, organic, and foliar). Based on a fertiliser 'Knowledge, Attitude and Practice' (KAP) survey and literature review conducted with a sample size of 1200, it was highlighted that the application of mineral fertiliser may have a greater impact on rice crop production. Given this CAVAC is looking at ways that fertiliser training can focus on application advice that will have the largest potential yield increase.</p>

INTERVENTION UPDATE: Int. No: Inp 12.6 AWP No: 1.2 Date: 31 December 2013	
Name:	Supporting a fertiliser company to provide better training to farmers
Summary:	<p>CAVAC supported Bayon Heritage Holding Group Co., Ltd (BHH) to increase the effectiveness of its information system. It currently imports and distributes fertiliser for the rice and vegetable markets. The company's main information system activity is providing training in crop production to farmers using the company's products. However, the quality of its training was limited due to the poor technical knowledge of staff and limited understanding of training methodologies.</p> <p>CAVAC designed an intervention with the company to improve its information system team's technical knowledge in rice and vegetable production and participatory training approaches.</p> <p>It is expected that after this training, the company will conduct more effective information services and increase the number of available services, which ultimately will influence farmers' behavior and increase adoption of more efficient practices in crop management.</p>
Achievements to Date:	<p>Training on rice and vegetable production and effective ways to communicate with farmers (i.e. participatory approach) was conducted by a jointly selected training provider, ATSA.</p> <p>43 staff members of Bayon Heritage participated in the training, of which 5 were female. A training report was submitted by ATSA.</p> <p>Based on a phone conversation with Bayon Heritage's Sales and Marketing Manager, staff are now more confident in providing advice to farmers. This is to be confirmed through the next M&E activities.</p>
Next Steps:	<p>Conduct M&E activities to assess the knowledge gained by staff during the training and to assess any changes to the quality and extent of BHH's information services after training.</p> <p>Conduct M&E activities with farmers to assess changes to their practices as result of their learning.</p>
Lessons Learnt:	<p>Due to the composition of BHH fertiliser it is expected that possible yield increases will have a greater impact on vegetables than in rice production. Given this, future interventions should be based on providing rice farmers with optimal advice on how best to increase yields using the right element at the right time</p>

INTERVENTION UPDATE: Int. No: Inp 12.8 AWP No: 1.2 Date: 31 December 2013	
Name:	Supporting a fertiliser company in staff capacity building and piloting retailer training
Summary:	<p>The results of the intervention (Ext 10.1) to 'improve HPC's information services' showed that HPC did not have enough capacity to provide participatory training on appropriate fertiliser application and rice production to retailers and farmers, and as such the effectiveness and quality of its earlier training had been compromised. Trained retailers and farmers could not recall the key messages of the training based on CAVAC's M&E activities. Based on these lessons learnt, a new intervention has been designed to improve the effectiveness and quality of retailer training by fertiliser companies, including HPC.</p> <p>In addition to retailer training, the company requested support to develop an information system strategy. As there are more fertiliser companies entering the market, HPC felt that it needed to have a good information system strategy in place to compete and continue increasing its market share. However, following discussions with CAVAC, HPC decided to drop the request for this support due to its limited resources to execute the strategy.</p> <p>The previous findings of the M&E activities for the first intervention revealed that HPC's retailer training needed much improvement and led HPC to request support for effective retailer training. For this intervention, HPC and CAVAC will pilot four retailer training sessions carried out by previously trained staff (from Inp.12.4) to village level retailers. After the intervention, it is expected that HPC will use ERT to conduct further retailer training without CAVAC's support.</p>
Achievements to Date:	<ul style="list-style-type: none"> – A detailed implementation plan for this intervention has been discussed and agreed between CAVAC and HPC. – Training curriculum and criteria for trainee selection have been jointly developed by CAVAC and HPC. Training materials which were used in the 12 fertiliser companies training have been integrated into the curriculum. – Two village retailer training sessions have been conducted by trained staff: one in Takeo and one in Kampot. – A training feedback session between CAVAC and HPC has been conducted and a list of improvements for the next training has been produced and agreed. – One of the two trained staff (under Inp 12.4) has shown the capability to provide quality training for HPC. CAVAC's mentoring support through this intervention will help to strengthen the capacity of this staff member and two newly recruited staff so that they can conduct quality training in the long run.
Next Steps:	<ul style="list-style-type: none"> – Monitor the process of trainee selection for the next training activities. – Ensure the quality improvement check-list is implemented in the next training sessions. – Based on HPC's proposal, assist HPC's staff in implementing the improvement plan for the next round of training and ensure staff are able to conduct future training on their own.
Lessons Learnt:	<p>Good communication between CAVAC and partners such as HPC is central to improvements in the quality of an intervention. For example, previous experience has shown that joint leadership by both parties and timely monitoring are important for intervention quality. While HPC took the lead on this intervention, CAVAC worked closely with the partner in each part of the implementation plan and ensured a timely update of work progress together with the partner.</p> <p>CAVAC has observed that HPC sees the benefit of transferring technical knowledge to retailers and that they have increased the investment made in retailer training at the village level. Recently, the company has recruited two more staff members to work on extension services and is building their capacity to become core trainers.</p> <p>CAVAC has also observed that the company seems to shift its focus from quantity to quality. During a feedback session with the HPC Director, it was mentioned that the company tried to respond to retailers' feedback comments from the training to develop information services that fit to their requirements.</p>

INTERVENTION UPDATE: Int. No: Inp 12.11 AWP No: 1.2 Date: 31 December 2013	
Name:	Supporting a fertiliser company in its retailer training and retailers' field demonstrations
Summary:	<p>After seeing the results and lessons learnt from its previous intervention on fertiliser retailer training (Inp 10.1), Ye Tak has shifted its focus from a national and provincial level training to more on demand-based training at the commune and village levels. The company has reallocated its budget to reflect this shift of focus.</p> <p>CAVAC has found that retailers who have gained knowledge on the use of fertiliser from the original training have been providing advice on correct fertiliser application to farmers. This enables retailers to attract more clients and sell more products. Some have even assured farmers of the expected yields if farmers follow their recommendations.</p> <p>Therefore, to improve the effectiveness of information services (including retailer training) and thus ultimately extend outreach as well as build a sustainable market system, CAVAC has been working to improve the Ye Tak's retailer capacity to deliver best advice to farmers. This intervention is divided into two parts:</p> <ol style="list-style-type: none"> 1. Organise seven fertiliser training sessions aimed at the village retailer level to be conducted by staff trained through group fertiliser training (from Inp. 12.4). This will allow staff to practice their knowledge and skills whilst also allowing the company to have a close interaction with retailers who have direct contacts with farmers. 2. Work with the company to develop an effective field demonstration protocol and ensure that its staff are competent in transferring this knowledge to retailers. The knowledge on this protocol will be transferred by the company's staff to selected trained retailers. Those selected retailers will conduct field demonstrations on their own fields using the protocol given by the company staff. This will become a new business case for retailers. The field demonstrations by retailers will provide real evidence to farmers which is hoped will have a potential effect on influencing change in farmer's practices.
Achievements to Date:	<p>An agreement for this intervention has been signed between Ye Tak and CAVAC.</p> <p><u>For Village Retailer Training:</u></p> <ul style="list-style-type: none"> – Training curriculum and criteria for trainee selection have been jointly developed by CAVAC and Ye Tak. A list of lessons learnt from the previous intervention and M&E reports have been integrated into the curriculum. Some parts of the training materials from the group training for 12 fertiliser companies has been integrated into the curriculum. – Seven village retailer training sessions by trained staff have been conducted. An improvement plan from each training has been integrated into the next training for ongoing improvement. <p><u>For Retailer Field Demonstrations:</u></p> <ul style="list-style-type: none"> – A field demonstration protocol and criteria for the selection of demonstration sites are in the process of joint development. – A workplan for retailer field demonstration management (12 field demonstrations for dry season rice) has been jointly developed.
Next Steps:	<p><u>For Village Retailer Training:</u></p> <ul style="list-style-type: none"> – Execute the M&E plan. <p><u>For Retailer Field Demonstrations:</u></p> <ul style="list-style-type: none"> – Monitor retailer field demonstrations for the dry season. – Assist the company in organising field days to create interest among the retailer community on the importance of field demonstrations and share experiences from the field demonstrations. – Prepare a work plan for retailer field demonstrations for the wet season.
Lessons Learnt:	<p>During implementation of the intervention, it is important that chances for adjusting activities to reflect changes in the market or new situations in the field are taken on board. This requires CAVAC to allow some flexibility in activity implementation to ensure the quality of work still remains.</p>

INTERVENTION UPDATE: Int. No: Inp 13.6 AWP No: 1.2 Date: 31 December 2013	
Name:	Supporting a fertiliser company in improving its field demonstrations
Summary:	<p>Following participation in the group fertiliser training, CAVAC has agreed to further support Papaya Trading Co., Ltd to improve the company's information services for farmers. Papaya believes that farmers' improved knowledge of correct fertiliser application holds the key to its success and growth in the long run. Papaya has identified improvements to its current field demonstrations and farmer meetings as a requirement for growth. Involvement of successful farmers in these capacity building activities is at the center of its focus, as they are the people who can use their credibility and knowledge to disseminate knowledge on proper use of fertiliser effectively to other farmers.</p> <p>These activities are in line with CAVAC's strategy in the fertiliser market 'to provide proper advice on best practice in fertiliser management on rice production, which can help farmers achieve cost effectiveness and optimal yields'. The benefits from these activities are two fold; that is, addressing both farmers' constraints, and those of suppliers and the support market as a whole, which would potentially lead to increase in yeild and incomes.</p>
Achievements to Date:	<ul style="list-style-type: none"> – An extension of the agreement to support Papaya Trading Co., Ltd has been signed. – One paddy field demonstartion is being conducted.
Next Steps:	<ul style="list-style-type: none"> – Incorporate a participatory approach into field demonstration protocol improvement which is to be jointly developed by CAVAC and Papaya. – Implement five other field demonstrations (03 paddy and 02 vegetable), and 06 field days <ul style="list-style-type: none"> o Detailed work plan for field demonstrations and field days to be developed o Criteria for selection of demonstration sites and farmers to be developed o On-site observations and feedback to be made for further improvements o M&E plan to be developed
Lessons Learnt:	

INTERVENTION UPDATE: Int. No: Inp 13.6 AWP No: 1.2 Date: 31 December 2013	
Name:	Supporting a fertiliser company in improving its field demonstrations and farmer meetings
Summary:	Fertiliser companies such as Maly San Group Co., Ltd (MSG) have embedded various information services in their daily business operations. However, the outcomes are still limited and can be optimised through some improvements to their work. Following on from their participation in the group fertiliser training, MSG has requested for further support to improve the capacity of its staff through joint collaboration in providing one farmer meeting, three wet season paddy field demonstrations and three dry season paddy field demonstrations. MSG hopes that by collaborating with CAVAC its staff will become more knowledgeable and confident in implementing information services, which will help farmers increase yields, resulting in better trust between the company and its customers.
Achievements to Date:	<ul style="list-style-type: none"> – An agreement to support MSG has been signed. – A work plan has been discussed.
Next Steps:	<ul style="list-style-type: none"> – Incorporate a participatory training approach into field demonstrations and farmer meetings conducted by MSG: <ul style="list-style-type: none"> ○ Have existing materials and documents reviewed by a participatory approach expert and revised as required. ○ Provide expert advice through observing field demonstrations and guide MSG's staff in the field. ○ Monitor the progress including on-site observations and feedback for further improvement. – Improve MSG staff's technical knowledge of fertiliser application to improve field demonstrations: <ul style="list-style-type: none"> ○ Recruit a technical expert to advise MSG's staff while conducting the first few field demonstrations. ○ Review and incorporate CAVAC's fertiliser recommendations into the companies protocols as required. ○ Develop a detailed work plan for the first field demonstration. ○ Develop criteria selection of demonstration sites and farmers. Monitor progress following the first field demonstration including on-site observations and feedback for further improvement. – Together with MSG develop an M&E plan for the intervention
Lessons Learnt:	

INTERVENTION UPDATE: Int. No: Inp 11.4 and 12.1 AWP No: 1.2 Date: 31 December 2013	
Name:	Supporting a local pesticide company through capacity building for technical staff and information system strategy development
Summary:	<p>Pests are a serious constraint for Cambodian farmers to achieve high yields. Farmers, particularly commercial ones, use pesticides to target specific pests. While pesticides are used fairly regularly, it is commonly accepted that pesticide management among Cambodian farmers needs to be improved. The reason is the lack of knowledge on pesticide management within the pesticide market; which covers a broad spectrum of actors such as farmers, pesticide companies (and their information service staff), retailers and the PDAs.</p> <p>CAVAC has found that most pesticide distributors are local companies whose in-house technical expertise is limited. As such, information distribution from companies to retailers / farmers on pesticide management could be significantly improved.</p> <p>To improve this information flow, CAVAC entered into a partnership with Nokor Thom Agricultural Development – a local pesticide company which imports pesticides from Vietnam for distribution within Cambodia. The company has always understood that information services are a strong component of product marketing.</p> <p>CAVAC's first intervention with Nokor Thom was conducted in 2011. That intervention focused on capacity building for the company's information agents, as those agents had been known to have limited practical knowledge on pesticide management.</p> <p>Given the dynamics and increased competition within the pesticide market, Nokor Thom requested support from CAVAC to develop a clear information dissemination strategy in order to establish a strong position within the market. CAVAC hired an international consultant to design the strategy which was completed in early 2013.</p> <p>With its strong intent to optimise the benefits of this embedded information service business model, Nokor Thom approached CAVAC again for further collaboration. Currently negotiations with Nokor Thom are at an advanced stage for a third intervention which encompasses improved feedback systems, further training and testing of the rice pest and disease diagnostic tool.</p>
Achievements to Date:	<ul style="list-style-type: none"> - Capacity building for Nokor Thom's information service providers was completed in November 2011. This capacity building intervention was a joint training session provided by Cambodian and Vietnamese trainers from Nong Lam University. The training was composed of in-class lectures, two field trips within Cambodia and a field trip to Vietnam. Seven case studies on farmers' receiving information services directly from Nokor Thom's information service providers were produced. - CAVAC's M&E team conducted an assessment on the satisfaction of Nokor Thom's staff trained under the capacity building intervention. In general, the company staff were satisfied with the training. - Changes within the company after the capacity building project have been noted. In early 2012, Nokor Thom decided to double its sales volume. It then recruited more technical staff, improved information system materials, expanded information system activities and improved packaging for products. - The information system strategy for the company was developed by an international consultant and completed in early 2013. Nokor Thom is happy with the strategy and committed to incorporating most of the recommendations into its implementation. - In August 2013, a small assessment was conducted with the company staff, pesticide retailers, PDAs, and farmers to collect more information on the potential impact of the staff capacity building intervention. - An assessment on the information dissemination strategy at the company level was conducted in September 2013.
Next Steps:	<ul style="list-style-type: none"> - Develop a new intervention with Nokor Thom. The new intervention will include: capacity building for core technical staff on pesticide use (core technical staff will train field staff); technical database development; pesticide market research to develop a business plan; M&E system development; retailer training; and farmer training improvement. - Continue monitoring Nokor Thom's implementation of the recommendations from the information dissemination strategy. - Prepare for M&E activities at the farmer level for the capacity building intervention.
Lessons Learnt:	<p>Due to lack of domestic experts in pest management, Vietnamese trainers were selected for the Nokor Thom staff training. Training materials were not translated in advance for trainees. The training quality would have been even better if the materials had been translated into Khmer beforehand.</p> <p>Providing one-off capacity building to field staff is not sufficient. Based on this experience, companies operating in the pesticide market need to ensure that core staff keep gathering information from field staff, and that they continue to do research to find solutions to continuously train and support field staff. This is crucial because farmers continue to face new problems or new disease breakouts in the field.</p>

	<p>As Nokor Thom was started as a family-owned business, many parts of its operations need to be changed in order to accommodate the recommendations from the information dissemination strategy. As a result, Nokor Thom could not incorporate the recommendations into its implementation as planned and expected. To speed up the process, Nokor Thom needs further support.</p> <p>Nokor Thom understands that there is vast information in the field including lessons that can help the company improve its information system activities. Nokor Thom has shown interest in M&E system development as it had learned how M&E could provide useful business information.</p>
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INTERVENTION UPDATE: Int. No: Inp 12.2 AWP No: 1.2 Date: 31 December 2013	
Name:	Supporting a pesticide company to provide better training to farmers
Summary:	<p>In Cambodia farmers' knowledge of pesticide application is still low. Consequently, most farmers do not apply pesticide on their crops appropriately, which results in significant yield loss and/or large pesticide costs. CAVAC found that major market actors (such as private companies, PDAs, and retailers) had limited knowledge of pest management and their method for distributing information to farmers needed improvement.</p> <p>The pesticide market in Cambodia is dynamic. There are many companies trading which recognise the importance of embedded information that are now providing this knowledge to farmers. Most private companies conduct direct farmer training, and SPK is one of them (a local pesticide company that imports pesticides from Vietnam). However, the quality of this training is known to be a challenge for most companies. Farmer reach (farmers trained) is good, however the outreach (farmers applying training) is a major challenge.</p> <p>To help address this challenge, CAVAC and SPK are working together to improve the quality of information system materials and staff capacity in farmer training. SPK's major information service is farmers' meeting/training. It was expected that after the intervention, SPK would be able to conduct more effective farmer training, which would lead to farmers' practice change for yield increases. Consequently, trained farmers would have more confidence in using SPK's products, which in turn would result in an increase in company sales. SPK would increase profits from its sales due to embedded information services, and it would continue to improve and update its information services – thereby contributing to sustainability.</p>
Achievements to Date:	<ul style="list-style-type: none"> – The GDA of MAFF reviewed SPK's information system materials and provided comments. SPK then updated its information system materials based on GDA's comments, and they were approved by the GDA. Much of the approved materials were printed. – One half-day TOT session on new training materials and methodology for SPK field staff was conducted in December 2012. An assessment was then conducted in January 2013 to see how well SPK staff could perform in farmers' training after the TOT. The result was not satisfactory; it was found that field staff still lacked confidence, as their knowledge on pest management and the participatory approach remained very limited. – In August 2013 a small assessment at the company level (SPK field and management staff) was conducted. It was suggested that training materials and methodologies need to be improved. CAVAC observed actual farmer training to collect ideas to design the methodology and questionnaire for the assessment at the farmer level.
Next Steps:	<ul style="list-style-type: none"> – Design the methodology and questionnaire for a small assessment at the farmer level to understand more about the impact of the intervention. – Follow up on the printing of leaflets. – Continue to be open to SPK's request for further support.
Lessons Learnt:	A half-day orientation session is not sufficient to enable a company's staff to conduct participatory training for farmers. Solid knowledge of pest management is very important, otherwise, field staff cannot educate farmers beyond the training materials and methodology.

INTERVENTION UPDATE: Int. No: 12.13 AWP No: 1.2 Date: 31 December 2013	
Name:	Supporting a pesticide company in its pesticide wholesaler / retailer training
Summary:	<p>CAVAC's field interviews with farmers determined that the proper use of pesticides remains an important issue among farmers. Farmers lack even the most basic information such as: which pesticides are appropriate for which pest; when in the pests' life cycle farmers should spray; what doses to use; which pesticide mixes are safe; what is the correct re-entry after spraying; and during which pre-harvest period it is best not to spray. Both farmers and pesticide sellers realise that it is important to get and give instructions on the usage of pesticides. However there is still a limitation in pesticides knowledge from the sellers' side. This makes it difficult for sellers to convey the right message to farmers even on safe product use, let alone explaining the techniques in using any specific product.</p> <p>CAVAC's intervention intends to assist An Giang Plant Protection, a pesticide company in Cambodia, in training its wholesalers / retailers in the following content:</p> <ul style="list-style-type: none"> – Pest identification; – Techniques in pesticide usage (timing and amount, etc.); – Safe product use; – New policies on pesticides, i.e. penalties on selling illegal / banned pesticides; – Ethics in the pesticide business; and – Business case of providing information to farmers. <p>With the above-mentioned content, trainees will be able to understand technical, legal and business aspects of pesticides and will therefore convey better messages to end users (farmers). With the right approach used in applying pesticides, farmers can decrease their yield loss resulting from pests, insects, and diseases, etc. In addition, farmers' increased knowledge on the benefits and the importance of information from the sellers will create more demand for information linked to sales, which will further generate better information services.</p>
Achievements to Date:	<ul style="list-style-type: none"> – The AIF application has been officially submitted and approved – The agreement has been drafted and will be signed in January 2014. – CAVAC and An Giang agreed to assess An Giang's previous training to find what could be improved in the up-coming joint retailer training activities. The assessment will look at curriculum, methodology and participants' satisfaction.
Next Steps:	<ul style="list-style-type: none"> – Jointly assess An Giang's previous training and conduct a TNA. – Jointly design the curriculum, materials and methodology – Provide TOT to An Giang trainers. – Join in the retailer selection process. – Monitor the company's training implementation. – Conduct some feedback sessions to collect lessons to improve the training.
Lessons Learnt:	An Giang understood that its training curriculum, materials, and methodology were already good, so a joint assessment was needed to confirm this and to collect lessons, if any, to improve next training activities.

INTERVENTION UPDATE: Int. No: Inp 13.4, AWP No: 1.2 Date: 31 December 2013	
Name:	Pesticide retailer training in partnership with PDAs
Summary:	<p>Pest control contributes significantly to reducing yield loss of rice farmers. As such, pest management has been identified as one of the main constraints for Cambodian rice farmers. Most farmers believe that only pesticide application can minimise their rice yield loss. With limited knowledge of good pesticide use, farmers use whatever they can find without any solid foundation. The current practice can lead to many negative side effects, such as ineffective pest control, environmental impact, and health issues.</p> <p>It was observed that when farmers faced a pest outbreak, the main sources of support for pest control were retailers for both prescription and product supply. However, a number of research activities found that retailers' knowledge on pesticide use was limited and led to inappropriate recommendations on pesticide use to their clients (farmers).</p> <p>As stated in Sub-decree 69 as well as in a new law on Chemical Fertiliser and Pesticide Management, all pesticide wholesalers/retailers must be licensed by MAFF before conducting any business within Cambodia. To obtain a license, pesticide wholesalers/retailers are required to attend a training course organised by PDAs to ensure that wholesalers/retailers are knowledgeable in pesticide application. To date, PDAs have conducted some training sessions for pesticide wholesalers/retailers; however, their training curriculum is predominantly based on pesticide legislation, storage, and management. Technical knowledge on chemical control for pest management is not included in the training curriculum. The absence of this critical information is due to the fact that there is not a widely approved technical manual at the ministry level.</p> <p>CAVAC is working with the GDA to develop a Rice Pest Management Manual. The manual is expected to provide detailed technical knowledge on chemical control of major pests, including practical identification of pest, the types of pesticide to be used, when to use according to the pest development cycle and suitable time of day, how much to use, and how to apply. The manual will be used to develop training materials and methodologies for pesticide retailer training to be conducted in partnership with PDAs.</p> <p>This retailer training will be different from the retailer training conducted by pesticide companies. Pesticide companies focus on their products, but this retailer training will focus on the active ingredient needed in pest control. The training curriculum will include general information, such as pest identification, pest morphology, life development cycle of pests, symptoms of destruction, and active ingredients to be used with each major pest, timing of pesticide spraying, and field practice.</p> <p>It is expected that this intervention will provide comprehensive and neutral knowledge to pesticide wholesalers/retailers so that they have knowledge on pest management to recommend to farmers. Moreover, a technical manual on good practice of pesticide use and the training materials and methodology for major pest training will be developed for stakeholders (agricultural officials, non-governmental organisations (NGOs), private companies, and development programs). PDA teams working on this intervention will become good local sources of knowledge linking to retailers as well as farmers.</p>
Achievements to Date:	<ul style="list-style-type: none"> – The GDA has issued the first draft of the Rice Pest Management Manual. CAVAC and the GDA are currently improving it before sending it to external advisers for comments. The manual will be used as a reference to design a training curriculum for the joint pesticide retailer training with the PDAs. – A TNA has been conducted in the three provinces and the results of TNA were agreed between CAVAC and the PDA teams.
Next Steps:	<ul style="list-style-type: none"> – Continue working with the GDA to improve the Rice Pest Management Manual until it is finalised and approved by MAFF. – Get the training curriculum, methodology, and materials developed. – Decide and select trainers for the training – Conduct TOT for trainers. – Jointly select retailers for the training. – Plan and conduct the training. – Keep conducting feedback sessions after the training to improve it.
Lessons Learnt:	<p>In the TNA, some wholesalers/retailers expressed high expectations from the training, so more focus will need to be put on the quality of the training.</p> <p>Before the TNA, CAVAC and the PDAs planned to invite all pesticide wholesalers/retailers to join this training. However after the TNA, CAVAC understands that it is better to invite only wholesalers/retailers who are willing to join the training.</p>

INTERVENTION UPDATE: Int. No: Mar 11.1 AWP No: 1.2 Date: 31 December 2013	
Name:	Technical assistance on rice and rice seed production for export markets
Summary:	<p>The RGC's paddy production and rice export policy indicates that a key success factor for domestic export millers will be their ability to purchase sufficient paddy at competitive prices.</p> <p>Baitong Kampuchea, Plc. has been identified as a key partner for this intervention – a rice milling and exporting company based in Battambang province. There are some fundamental issues which make it difficult for Baitong to achieve its rice export goal. Although highly attractive fragrant varieties are being produced, they are not pure and this has an impact on milling efficiency and the quality of the rice being produced.</p> <p>With the support of CAVAC, Baitong is aiming to introduce good quality seed in its catchment area of rice production to improve the quality of milled rice. In addition, Baitong will aim to build its capacity to conduct successful field demonstrations which demonstrate the impact of correct production methodologies for its rice producing community.</p> <p>CAVAC's intervention with Baitong focuses on providing technical assistance on rice seed and paddy production for selected export varieties. To stimulate this, CAVAC contracted a rice specialist to conduct training, which included field demonstrations for selected company staff members. These trained staff will extend knowledge and practice to the Baitong rice production community.</p> <p>The activities of this intervention include:</p> <ul style="list-style-type: none"> – July – Nov 2012: Training in paddy production for a photosensitive rice variety (First) – Nov 2012 – Feb 2013: Training in rice seed production (Second) and rice paddy production (Third) for a non-photosensitive variety – July – Nov 2013: Training in rice seed production for a photosensitive variety (Last) – Backstopping support
Achievements to Date:	<p>All the above training activities were completed by the end of December 2013. The topics that were discussed included: seed preparation; transplanting; replanting; insect and disease management; fertiliser application at the panicle initiation stage; roguing off-type plants; and harvesting and postharvest management.</p> <p>During the final training Baitong staff gave advice to farmers while reselecting and re-organising Baitong community members. Post-training feedback found that farmers thought the knowledge learned was very useful, and Baitong staff also informed their manager about this. Feedback suggests that they be prepared for the up-coming backstopping sessions.</p> <p>The work plan for backstopping the company's staff in their work within the community has been completed.</p>
Next Steps:	<ul style="list-style-type: none"> – Implement backstopping activities in the 2014 dry season. – Prepare a backstopping plan for the 2014 wet season.
Lessons Learnt:	<p>Prior to working with a partner CAVAC needs to ensure that: 1) the partner has a clear future plan on how to use knowledge from the intervention activities; 2) the partner has a committed team to work with CAVAC; and 3) the training program should be flexible enough to assist new trainees with gaps in their knowledge.</p>

INTERVENTION UPDATE: Int. No: Mar 12.1 AWP No: 1.2 Date: 31 December 2013	
Name:	Export promotion – support to the federation’s market linkages
Summary:	<p>Cambodian milled rice is new in international markets. Therefore there are weak commercial linkages with international purchasers and poor understanding of international market requirements within Cambodia. Further, the Cambodian market has limited understanding regarding quality standards of milled rice products required by international buyers and quality standards of processing facilities required to generate this quality.</p> <p>The continued push in export market development is expected to help contribute to the one million-ton milled rice export goal of the Cambodian Government by 2015. CAVAC is supporting an increase in knowledge of export markets through the facilitation of international networking opportunities both in Cambodia and abroad.</p>
Achievements to Date:	<p>CAVAC signed a contract with the Federation of Cambodian Rice Miller Associations (FCRMA) to increase its knowledge on rice export markets and build up its international business networks. Initially the agreement was to create linkages between FCRMA and European Union (EU) and United States (US) markets. This has now been amended to include any potential markets.</p> <p>A member of the FCRMA made a visit to Malaysia and hosted a buyer in Cambodia, and a number of sale agreements were reached. Further, a member and an adviser from the FCRMA visited seven countries in the EU and Singapore where they gained more knowledge on quality assurance and market requirements in those countries.</p> <p>Other FCRMA members have expressed their interest in joining trade visits to the EU, Australia and the US. CAVAC has also discussed with FCRMA members about opportunities to collaborate on other possible activities. Some have suggested marketing support such as website development.</p> <p>After a series of discussions both within CAVAC and with the FCRMA, CAVAC has decided to continue this export promotion facility for the FCRMA on the same basis as before with any member of the FCRMA, eligible to support 50 per cent of the costs.</p> <p>Within the last six months, there have been no activities proposed by FCRMA members as they have been busy searching for new buyers.</p>
Next Steps:	Wait for new proposals from FCRMA members.
Lessons Learnt:	<p>CAVAC found that most FCRMA members did not participate in market development activities for the following reasons:</p> <ul style="list-style-type: none"> – business visits to foreign countries are expensive; – most FCRMA members are suppliers to Baitang (the head of the FCRMA) as their production is not large enough for them to export on their own; – lack of language capacity to communicate with buyers; and – it is preferred that business meetings be conducted one-on-one with buyers, as each meeting usually discusses sensitive business information. <p>Given the above issues, CAVAC and FCRMA members are considering other market development activities.</p> <p>FCRMA members are concerned about the usefulness of the trips as they only want to spend time and resources with potential buyers, not general buyers. They have asked CAVAC to advise them who the potential buyers are. As CAVAC has similar information regarding buyers as FCRMA, CAVAC lets them decide destinations and submit proposals to CAVAC when found; on an ad hoc basis.</p> <p>Language barriers and the understanding of international trade and international marketing could be a main constraint for exporters.</p>

INTERVENTION UPDATE: Int. No: Inp 13.3 AWP No: 1.2 Date: 31 December 2013	
Name:	Improving Golden Daun Keo Rice Mill's quality of paddy of export varieties
Summary:	<p>There are two types of rice which are attractive to large mills interested in exporting rice: the fragrant varieties generally aimed at the high end export markets, such as the US and Europe; and white rice usually targeted at less discerning markets. A key constraint in the export of both types of varieties is the lack of uniform seed, causing the purchase of mixed paddy which decreases the quality of the milled rice, and increases milling losses.</p> <p>To successfully export milled rice, millers need to ensure effective monitoring of all steps involved in the process from paddy production to milling.</p> <p>This intervention aims to increase the availability of quality dry season rice seed and modern wet season rice seed varieties, which helps ensure sufficient export quality rice.</p> <p>CAVAC's support to the Golden Daun Keo focuses on capacity building on rice seed production for its technical field staff and contracted small seed producers. CAVAC also supports post-harvest management for the company's mill technicians and paddy collectors.</p>
Achievements to Date:	<p>Several meetings with the Golden Daun Keo Rice Mill's staff were conducted to discuss the activity plan, cost-sharing options, the nature of collaboration, and the details of a confidentiality agreement.</p> <p>CAVAC and the Golden Daun Keo continued working on the AIF application. It has now been approved.</p>
Next Steps:	<ul style="list-style-type: none"> – Sign the agreement. – Start implementing the activities.
Lessons Learnt:	

INTERVENTION UPDATE: Int. No: Inp 12.3 AWP No: 1.2 Date: 31 December 2013	
Name:	Vegetable farmers' practice change – East West Seed International
Summary:	<p>The supply of locally-produced vegetables is often constrained by: the effects of seasonality; water shortage in the off-season; pest infestation; farmers' knowledge of inputs; production techniques; and ability to access appropriate knowledge.</p> <p>Productivity increases can be achieved by providing knowledge to farmers on: high-yielding crop varieties that adapt to the local climate; use of quality seeds; improved irrigation; modern production techniques; proper use of fertiliser and pesticide; and harvest and postharvest handling techniques.</p> <p>This information can be transferred through demonstration plots, on-site training, extension material development, or other methods through specialised seed companies and fertiliser or pesticide companies.</p> <p>To contribute to helping farmers achieve vegetable productivity increases, CAVAC is partnering with a large vegetable seed company, East West Seed International, to conduct vegetable demonstration plots (including coaching for farmers and their neighbors on growing techniques), field days, and training on insect and disease management for vegetable collectors and input retailers.</p>
Achievements to Date:	<ul style="list-style-type: none"> – CAVAC conducted a baseline study capturing farming practices in the target provinces of East West Seed (Kandal and Kampong Cham). – East West conducted a vegetable market identification and value chain analysis study in its target provinces. – By December 2013, 148 demonstration plots and 62 field days have been conducted in the two target provinces. – 13 input retailers have been reached and introduced to modern farming practices. – 15 vegetable collectors have been trained on the advantages of seed coating, general crop management practices to produce better crops, and how to use guiding manuals for certain crops. – An evaluation of the first phase was conducted jointly by East West and CAVAC. Below are the results of the evaluation: <ul style="list-style-type: none"> – It was observed that some farmers started to copy from model plot farmers by using East West Seed's seed and tools, including seedling trays, plastic mulches, and trellising nets. – Model plot farmers find that by applying the new techniques they could save labour (up to 50 per cent – 70 per cent) to maintain and grow crops on other plots of land. This can be done on time before severe drought and floods arrive in certain seasons. – More retailers are also interested in selling East West Seed's tools like plastic mulches, seedling trays, and trellising nets. – Some lessons have been drawn for the improvement of the second phase.
Next Steps:	<ul style="list-style-type: none"> – Based on the evaluation of the first phase, the company will increase the scale of its activities and focus more on the training for input retailers and vegetable collectors as they will serve as long-term information sources for farmers. – Continue implementing demonstration plots and field days. It is expected that each of the five field staff will be able to complete 36-54 demonstration plots. – Facilitate a large group training session on pest and disease management to be delivered by East West's expatriate technical expert. This will be delivered to input retailers and vegetable collectors. Appropriate pesticide application techniques will also be included. – Continue one-to-one coaching with input retailers. – Continue small group training with input retailers and vegetable collectors. – Develop more training materials and make posters available at input retailing shops.
Lessons Learnt:	<p>In practice vegetable collectors do not give much advice, but they refer their farmers to farmers with demonstration plots and other sources of information. The company has difficulties inviting input retailers and collectors to join the training and field days. So in addition to the big group training, the company has added more small, short training sessions to accommodate collectors' and retailers' availability.</p>

INTERVENTION UPDATE: Int. No: Inp 12.3 AWP No: 1.2 Date: 31 December 2013	
Name:	Vegetable farmers' practice change – Pacific Seeds
Summary:	<p>The supply of locally-produced vegetables is often constrained by: the effects of seasonality; water shortage in the off-season; pest infestation; farmers' knowledge of inputs; production techniques; and the ability to access appropriate knowledge.</p> <p>With the purpose of helping farmers to increase productivity, CAVAC intends to help farmers gain knowledge on high-yielding crop varieties that adapt to the local climate; use of quality seeds; improved irrigation; modern production techniques; proper use of fertiliser and pesticide; and harvest and postharvest handling techniques. To achieve this, CAVAC, in addition to partnering with East West Seed International, also partners with Pacific Seeds.</p> <p>The activities with Pacific Seeds focus on the introduction of modern techniques and inputs through model plot demonstrations at 14 locations, followed by 14 training sessions at harvest in Kandal, Kampong Cham, Siem Riep, and Battambang. Pacific Seeds' model plots and training sessions are conducted to demonstrate to input suppliers, vegetable collectors, and farmers the best use of inputs (seed, fertiliser and pesticide), cultivation techniques and how that contributes to the increase of farmer income.</p> <p>Trained participants who obtain the knowledge are expected to pass on the information to farmers who are their clients and neighbours. Some farmers will also receive information through training materials disseminated by training participants.</p> <p>The activities will also allow the company to test the market (supply and demand) for vegetables and related inputs and contribute to the company's market entry plan.</p>
Achievements to Date:	The activity with Pacific Seeds has not been rolled out yet. The company will set up its representative office before starting the activity.
Next Steps:	<ul style="list-style-type: none"> – Sign an amendment to the current agreement. – Start implementing 15 field demonstrations in Kandal, Kampong Cham, Siem Reap, and Battambang. – Conduct training for input retailers and vegetable collectors at the selected locations.
Lessons Learnt:	Pacific Seeds has learned that it is important to have technical staff in the field to serve as a coach / information sources for farmers. The company will therefore set up a representative office before it restarts project activities.

INTERVENTION UPDATE: Int. No: Inp 12.7 AWP No: 1.2 Date: 31 December 2013	
Name:	Vegetable seed retailer outlet training
Summary:	Cambodian vegetable farmers interested in purchasing quality seed rely on seed produced in neighbouring countries which are supplied through local market distributors. While seed production requires detailed agronomic knowledge, seed distribution requires logistical understanding. The support market has developed in such a way that there is limited information exchange between distributors and retailers, and information on new varieties and agronomic practices are not effectively shared. To improve this, CAVAC was showing the efficiency of retailer training and presenting this to the resident seed companies to continue the improvements sustainably.
Achievements to Date:	<p>A vegetable value chain study was conducted.</p> <p>TNAs were conducted in Takeo and Kampot and a training module was developed and improved.</p> <p>Retailers' knowledge of vegetable seed was assessed.</p> <p>An irrigation study was conducted to understand the 'lack of water' in vegetable production and to determine feasible activities to be included in this intervention.</p> <p>Four training sessions were delivered (one in Kandal province, one in Takeo, and two in Kampot). In three of the four training sessions there were three vegetable seed companies in attendance. In the other training session, three companies and one NGO attended. Two companies showed an interest in partnering with CAVAC: East West Seed International and Pacific Seeds.</p> <p>Impact assessments at both the support provider (trained retailers) and farmer levels were completed. Based on assessments prior to the training, 90 per cent of retailers interviewed did not give any advice on vegetable seed and production techniques to farmers because they did not have any practical or theoretical knowledge. After the training, about 20 per cent of them gave advice without being asked by farmers, and almost all of them gave advice when farmers asked. Questions that farmers asked included the expiration date, germination rate, type of variety with good yield, and pest management.</p>
Next Steps:	Ensure that lessons learnt are used in other interventions.
Lessons Learnt:	<p>Most vegetable seed retailers tend to give advice only when farmers ask. This tends to happen mostly to regular or long-term customers but not to new customers. A session on advising vegetable seed retailers to share information with farmers should be included in future training so that retailers know it is important to advise new customers, not just their long term customers.</p> <p>Evaluations have revealed that farmers do not ask questions or seek advice because they assume that retailers are just doing business, and do not have enough agricultural background. It is also assumed that vegetable retailers do not have enough time to advise, particularly those for whom seed selling is just a side business.</p> <p>For example: when farmers were asked why they did not ask retailers questions, a few farmers responded that they thought those retailers had never been trained in vegetable growing techniques. However, if they know that the retailers have joined technical training, they will ask for advice.</p> <p>Therefore, increasing awareness among farmers that retailers are a possible source of information should be considered as part of CAVAC's intervention activities.</p> <p>CAVAC has also learned that vegetable collectors are an effective channel of information.</p>

INTERVENTION UPDATE: Int. No: Inp 13.7 AWP No: 1.2 Date: 31 December 2013	
Name:	Support to an integrated retailer unimart
Summary:	<p>The vegetable market is complex and dynamic, and supply and demand can fluctuate. Vegetable growers tend to grow crops in which they are most experienced, or expected high market value. For farmers to try and achieve good results in a new/unfamiliar crop, they must have access to good quality inputs and information on the appropriate use of those inputs.</p> <p>Currently vegetable producers cannot access quality information. Previous training activities provided on the use of vegetable seed to vegetable seed retailers increased the capacity of retailers to inform producers appropriately. As the vegetable sector becomes more professional, more specialised services and information are needed, including choices of varieties fitted for consumers' preference and market prices, etc., and not limited to just inputs so as to respond to the dynamics of the market.</p> <p>A unimart is an integrated model of a retail store conceptualised in India, which acts as a training/advisory centre. The model benefits farmers whose first point of contact is a retail store. The unimart will handle seeds, other inputs and technologies (cultivation practices and control measures for major pests and diseases), in addition to other useful market information.</p> <p>In collaboration with CAVAC, Pacific Seeds will start a pilot unimart in Battambang province, replicating the model in other provinces if successful. This will allow the company to test its market and demand for new products, while promoting its branding through consultancy services. It will also enable easier access to quality inputs, improved agronomic practices and better market information for farmers through their one-stop solution centre.</p>
Achievements to Date:	<ul style="list-style-type: none"> – The AIF application for this specific intervention has been reviewed and accepted for funding. – The agreement has been signed.
Next Steps:	<ul style="list-style-type: none"> – Start implementing activities.
Lessons Learnt:	

INTERVENTION UPDATE: Int. No: Ext 11.1 AWP No: 1.2 Date: 31 December 2013	
Name:	Support to a media agency to produce a quality agricultural TV program (drama)
Summary:	<p>Cambodia television, especially in peak watching times, tends to feature popular Korean dramas. There is a large percentage of this audience living in rural areas. whilst Korean dramas are also popular for this segment of the population, they are also keen to watch for important information related to their livelihoods.</p> <p>CAVAC is helping Delight Cambodia to produce a quality entertaining agricultural drama to attract the potential rural audience who would then be able to get both the agricultural information and entertainment. Instead of sponsoring the Korean dramas, advertisers would have a chance to promote their products through a national drama program and build their brand especially among rural customers. At the same time, a production house like Delight Cambodia can generate income from the activity. The copy of a successful business model can be easily seen especially within Cambodia. CAVAC, therefore, expects to see similar kinds of focus (on the rural population in the future) from other production houses and farmers would then be able to get more agricultural information from a number of sources.</p>
Achievements to Date:	<p>Support has been provided to Delight Cambodia through:</p> <p><i>Capacity building on agriculture knowledge</i> – In 2011 CAVAC supported Delight Cambodia to conduct several field visits and meetings to acquire agriculture knowledge. This included: one exchange visit to model farmer training; a linking meeting with various stakeholders within the agricultural sector; the Second National Farmers' Forum Consultation; and an exchange visit to Vietnam to understand the technical use of pesticides and agricultural production.</p> <p><i>Assistance with basic technical agriculture knowledge for script development</i> – In late 2011 the research team of Delight Cambodia, with support from CAVAC, travelled to 10 provinces within Cambodia to undertake focus group discussions with different farmers to better understand their agricultural practices for script development. This included farmers who grew vegetables, rice and fruit trees, and raised chickens and pigs. In January 2012, the research team briefed the script writing team about the information that they had collected so that the writing team could script a pilot drama video.</p> <p><i>Capacity building on media production</i> – In January 2012 two technical production staff from Delight Cambodia enrolled in a five-week media training session in London from 25 January until 1 March 2012. This media training focused on media production techniques.</p> <p><i>Production of two 20-minute pilot drama episodes</i> – The script for two pilot drama episodes was agreed by Dr. Mak Soeun, Director of the Department of Agricultural Extension (DAE) of MAFF in June 2012 and shooting was completed in October 2012. In December 2012, Delight Cambodia showed these two pilot episodes to some farmers in six provinces of Cambodia for feedback. Delight Cambodia, after getting feedback, finished the first two episodes successfully by the end of 2012.</p> <p>In early 2013, Delight Cambodia undertook discussions with TV stations regarding the airing of these two pilot episodes. Based on focus group discussions (FGDs) with farmers, Delight Cambodia investigated which had the most widespread coverage, and as such concluded that CTN would be the best station.</p> <p>To ensure the reliability of the quality of Delight's drama, CAVAC hired an external company, TNS Global, to do an evaluation of the drama. In July 2013, TNS Global conducted FGDs in Takeo, Kampot and Battambang to seek for feedback from farmers on the drama. The result showed full satisfaction from farmers.</p> <p>In early October 2013, Delight finished writing storylines for 40 episodes. The writing was the product developed after script outlines which were the results of a meeting workshop between script writers and agricultural experts.</p> <p>In October 2013, Delight conducted an event to show the drama to potential sponsors. In the event, the TNS Global's evaluation result was also presented. Although not many people showed up at the event as expected, those who came were very potential and showed great interest in sponsoring the drama. Delight also continues to meet different potential sponsors to present its drama and hopes to get enough sponsorship for the program.</p>
Next Steps:	<ul style="list-style-type: none"> – Decide how much support CAVAC should continue in helping Delight produce more episodes before they gets on air. – Organise an event where the radio stations and possible sponsors can meet up and discuss the radio sector. – Talk to radios if they want to conduct a feedback loop on their current agricultural programs. – Seek radio stations that are willing to produce a quality agricultural program in a commercially viable way – Talk to TV stations on their current agricultural programs and check their willingness to improve the programs.

Lessons Learnt:	On a positive note, advertisers have been very interested in sponsoring such an agricultural program Delight is producing. Delight is now trying to reach more sponsors and the company will be able to tell how much sponsorship it could get by early 2014. Delight is planning to produce at least 10 episodes before airing, so if Delight gets enough sponsorship, the drama will be aired in March.
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INTERVENTION UPDATE: Int. No: Ext 13.1 AWP No: 1.2 Date: 31 December 2013	
Name:	Support to media research companies
Summary:	<p>The potentiality of the rural media market is unknown because there is no research on the rural audiences' media consumption. This prevents media houses from investing in quality programs for the rural audiences and hinders potential sponsors from investing in advertising. The lack of information on rural audiences' media consumption also makes it hard for advertisers to effectively place their ads and therefore makes them reluctant to invest in advertising on the mass media.</p> <p>The lack of research on the rural media consumption comes from many factors; however, the high cost associated with the high risk of not having people interested in buying and using the findings is the main barrier for many research companies.</p> <p>To solve this, CAVAC is looking to share these risks so that one or more research companies can kick start research services that disaggregate the urban and rural population.</p> <p>By making information available to TV stations, advertising agencies and potential advertisers, it is expected that the commercial media market for agricultural programs will become more functional and will assist in the creation of commercial programming. This will be more responsive to the needs of farmers and those of the agricultural input companies, allowing them to select programs and timeslots that are of interest to their target audience. Farmers will then have access to more relevant and improved agricultural information, which will lead to improving their knowledge and skills.</p> <p>CAVAC has found two interested research companies to partner with on media research. CAVAC has now been working Indochina Research Limited (IRL) and Feedback Research to conduct the media consumption research and TV ratings, respectively, in the rural areas.</p>
Achievements to Date:	<p>IRL</p> <p>Under a cost-sharing agreement, CAVAC has been supporting the IRL to conduct media consumption research in Kampot, Prey Veng, and Svay Rieng, focusing on rural and remote areas for data collection. The agreement includes two waves of research, and one wave of research was conducted in June 2013.</p> <p>The results of the first wave of research were presented to potential buyers in September 2013, including input companies that were interested in the rural market and media outlets. The results of the sales of the research will be more clearly pictured by the end of the year.</p> <p>Feedback Research</p> <p>Under a cost-sharing agreement, CAVAC has been supporting Feedback Research to conduct TV rating research in Siem Reap, Kampong Cham, Preah Vihear, Kampot, Svay Rieng, and Battambang. This agreement includes four waves of research.</p> <p>In September and October 2013, Feedback Research completed one wave of TV rating research. The company is now cleaning up the data and is hoping to start selling the results in January 2014.</p>
Next Steps:	<p>Monitor the progress of the research.</p> <p>Together with the IRL, look at the sales of the research and plan for the next wave.</p> <p>Together with the Feedback Research, work on the channels of sales of the research and plan for the next wave.</p>
Lessons Learnt:	<p>The event format to sell the research to potential buyers should be divided into two settings to match the participants' preferences. The media outlets and big companies (those with marketing departments) prefer traditional, large-scale networking events, while the input companies (usually small, family-owned companies) prefer smaller, more information driven formats.</p>

INTERVENTION UPDATE: Int. No: Ext 10.3 AWP No: 1.2 Date: 31 December 2013	
Name:	Activities with model farmers to improve role and knowledge of model farmers
Summary:	<p>Through extensive literature review and field discussions / observations with farmers, CAVAC realises that innovations in farming communities start with innovative farmers that try new ideas/technologies, and their successful innovations are then passed down to other farmers.</p> <p>As an agricultural development program, CAVAC aims to support and stimulate innovation in rural communities throughout its three target provinces. To fulfill this objective, CAVAC implemented model farmer training, through which CAVAC continues to learn from the process, improving its implementation. A fertiliser KAP survey with 1,200 samples and a study to redefine CAVAC's strategy with model farmers were conducted in early 2013. These have informed a redesign of model farmer activities which tailors different training activities for different types of model farmers.</p> <p>CAVAC has designed several interventions for both wet and dry season model farmers. For wet season model farmers, the Fertiliser KAP Survey indicated that the yield of trained farmers was higher than that of non-trained farmers. This showed the importance of wet season model farmer training, and as such, CAVAC decided to continue implementing the training for wet season model farmers. The training is not intended to provide specific fertiliser recommendations, but basic knowledge which trained model farmers can use to try new ways of applying fertiliser through their own yield optimisation process. The content of the training is being made modular enabling it to respond more readily to local requirements including modules on fertiliser, pest and disease control and weed control.</p> <p>For dry season model farmers, the study showed that there were limitations to the current training model. It showed that there were a group of model farmers who were intrinsically innovative when thinking of the future of farming. This group has been defined as Super Model Farmers. To support, stimulate and disseminate innovation within this group, CAVAC has a long term plan to collect and disseminate their innovation stories through roadshows and printed materials. Other options being discussed for better information dissemination include the use of 'challenge fund' activities and competitions. The ideas which focus on supporting model farmers to continue testing innovations and providing an avenue to appreciate successful innovation will continue to be developed.</p>
Achievements to Date:	<p>Nine model farmer household trainers were trained in participatory teaching and rice production techniques, allowing them to continue day-to-day training in the three CAVAC target provinces. As of 31 December 2013, 1,194 training sessions have been conducted: 428 in Takeo, 379 in Kampong Thom and 387 in Kampong Cham. On average, members of 10 households attended each training session. 14,189 model farmer households have been trained since the start of the activity in April 2011. The content on nutrient management has been modified and shortened. The findings of the Fertiliser KAP Survey were incorporated in the training content. The new training materials have been tested several times and use of farmers' terminology was ensured. CAVAC also developed a new training methodology with a consultant specialising in participatory training. In each modified training pre and post evaluations have been conducted to further adjust the training.</p> <p>Together with a consultant, CAVAC has collected 18 successful innovation stories. In December 2013, a roadshow was conducted in Borey Chulsa district, Takeo province, where four presentations were given by selected super model farmers was conducted. CAVAC's trainers will continue to conduct roadshows to present collected innovation stories and to collect new stories.</p>
Next Steps:	<ul style="list-style-type: none"> – Further collect innovation stories of Super Model Farmers and conduct roadshows. – Develop booklets of collected successful innovation stories. – Further develop intervention ideas, including a possible 'challenge fund' or competition, and introduce these ideas to input companies to ensure sustainability. – Continue improving training materials, methodology and curriculum for wet season model farmer training. – Measure the impact of wet season model farmer training.
Lessons Learnt:	<p>The previous model farmer training was designed based on the information CAVAC understood would be useful to farmers (supply-driven) and is currently being redesigned to incorporate farmers' demand for information. This is being done in a more radical manner for the dry season than the wet season due to the dynamic nature of dry season farming.</p> <p>Previously, CAVAC conducted training by giving visual presentations using posters as a guide. In the modified training, CAVAC gives presentations using A3 size posters with facilitators sitting close to trainees. The new approach seems to be more effective with participants more actively engaged in the discussion.</p>

INTERVENTION UPDATE: Int. No: Ext 11.3 AWP No: 3.2 Date: 31 December 2013	
Name:	Assisting training and information system support providers with training materials, capacity building and promotion
Summary:	<p>Farmers' limited knowledge is a key constraint for rice productivity in Cambodia. Farmers access information through several channels: public, private, and NGOs. The quality and the capacity to deliver information are still limited. Changing government strategies towards improved agricultural information systems also requires adjustments of information system materials. The activities of this intervention include:</p> <ul style="list-style-type: none"> – CAVAC investigates what services NGOs or public providers are likely to deliver, and if CAVAC can support quality improvements. – CAVAC shares materials and supports capacity building when requested and when this support is likely to be sustainable. – CAVAC can provide some start-up support to private institutions.
Achievements to Date:	<p>Training materials and methodologies developed by CAVAC have been adopted by the PDAs of the three CAVAC provinces, a local school (ABC) and six development partners: including Srer Khmer, Minority Organisation for Development of Economy (MODE); Farmer Livelihood Development (FLD); Gesellschaft für Internationale Zusammenarbeit (GIZ); VVOB Cambodia working with Kandal PDA; and Helping Address Rural Vulnerabilities and Ecosystem Stability (HARVEST).</p> <p>Within the last six months, CAVAC has not provided any soft copies of information materials to NGOs. However, SNV has shown interest in using CAVAC's materials. A representative of East West Seed in Myanmar also discussed with CAVAC about the One Page, One Concept booklet. It would like to modify the booklet to produce similar materials for vegetable farmers in Myanmar.</p>
Next Steps:	To remain open to requests to use CAVAC's information system materials by NGOs, agricultural technical schools, and other development projects.
Lessons Learnt:	

INTERVENTION UPDATE: Int. No: Ext 11.5 AWP No: 3.2 Date: 31 December 2013	
Name:	Linking events
Summary:	<p>CAVAC's Linking Event intervention aims to develop stronger links between permanent sources of information, such as: PDA and the Cambodian Agricultural Research and Development Institute (CARDI); input suppliers; agribusinesses; and model farmer households. As such, CAVAC has hosted three provincial events to create linkages between model farmer households and other sources of information in order to support stronger rice productivity within the farmer community. Additionally, access to knowledge is likely to improve, and if linkages are made from these events, sustainable access to better support, markets and information may be achieved.</p> <p>CAVAC had conversations with several private event organisers to negotiate the possibility of getting the events organised in a commercially viable way; to stimulate sustainable, systemic change. However, due to the high costs of the events, private event organisers were not willing to manage these events themselves.</p> <p>As such, CAVAC will continue to pay for these activities as the purpose of the intervention is to build networks among all actors within agricultural input markets. A key output of the events is to build strong networks, which negates the need to conduct commercial events regularly.</p> <p>CAVAC has decided to embark on a new program of linking events in 2014 to support model farmers in their information networks.</p>
Achievements to Date:	<p>A one-day linking event was held in each of the three CAVAC target provinces: in Kampot on 31 August 2011; in Takeo on 10 February 2012; and in Kampong Thom on 24 February 2012. Each linking event successfully attracted between 350-500 model farmers, 40-80 local retailers and 22-33 input supply companies. Lessons learned were recorded for future linking events.</p> <p>In the first half of 2013, CAVAC conducted a survey with 32 model farmers who had joined the linking events to understand their satisfaction with the events and interaction with companies. The result shows that 80 per cent of model farmers have contacted companies whom they had met at the event, and have requested further events.</p> <p>In November 2013, CAVAC conducted a discussion with 17 input companies on linking events. The discussions indicated that the events were viewed positively, and those that had attended previous linking events gave several suggestions to consider for future events. Some feedback suggested, for example, that the events should be open to the public.</p> <p>While companies appreciated the format of the events, some suggested minimising activities such as long speeches, comedy shows and songs. Some companies suggested that the events be conducted in other provinces besides CAVAC's target provinces, such as Battambang, Prey Veng, Pursat and Banteay Meanchey.</p> <p>If CAVAC would still like to conduct events in its target provinces, Kampot is the least preferred province, as some companies understood that there were not so many dry season farmers in Kampot, and for Kampong Thom and Takeo, new participants should be invited instead of those who had previously attended.</p>
Next Steps:	<p>Internally discuss and analyse companies' suggestions.</p> <p>Further discuss with event organisers to improve the format of linking events by incorporating companies' suggestions.</p>
Lessons Learnt:	<p>Linking events seem to increase the likelihood of model farmers to contact companies and/or other sources of information.</p> <p>It seems unlikely that CAVAC will be able to find commercial partners to support linking events in a sustainable way, and as such CAVAC will continue conducting linking events as a facilitation activity.</p>

INTERVENTION UPDATE: Int. No: Ext 11.6 AWP No: 3.2 Date: 31 December 2013	
Name:	Supporting a private call centre
Summary:	<p>CAVAC has implemented an intervention to support a Private Call Centre (Asia Master) to: develop agricultural content of its database; build capacity of its staff in agricultural knowledge; and promote the service to users. CAVAC expected that if the company could provide useful information / knowledge to farmers, and that if farmers adopted and applied this information successfully, there would be more calls from farmers. The company would also make more profits from this service and it would continue to improve and update the agricultural content of its database.</p> <p>However, after providing support, CAVAC conducted a study on callers' satisfaction with Asia Master's service. The study showed that the majority of the callers had not been satisfied with the information provided. The information they were predominantly seeking was related to pest control.</p> <p>To respond to this, CAVAC is developing a menu database equipped with a diagnostic tool to assist with pest control queries. The agents of the call centre will then be able to identify pests, and suggest appropriate control methods in a more effective way.</p> <p>The demonstration version of the database will be developed and tested by other input companies and private call centres.</p>
Achievements to Date:	<p>CAVAC's first round of support to Asia Master has been completed. Based on the study results that callers were not satisfied with Asia Master's service, the call centre's information service on agriculture has been halted.</p> <p>CAVAC signed a contract with the Biological Information Technology Group (QBIT) of the University of Queensland to develop a rice-based pest and disease diagnostic tool. This diagnostic tool will be provided through-cost sharing deals to pesticide companies, call centres and telecom companies to enable them to respond to farmers' queries on crop protection more effectively.</p>
Next Steps:	<ul style="list-style-type: none"> – Discuss further work with Asia Master after the database is fully operational. – Find new partners. – Test prototype with a few selected companies.
Lessons Learnt:	

INTERVENTION UPDATE: Int. No: Irr 10.1 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and construction of an irrigation scheme: Krapum Chhuk canal, Takeo province
Summary:	<p>Before the commencement of this intervention, farmers in Krapum Chhuk typically grew a rice recession crop. Those close to the existing 'PRASAC' canal had a limited access to water for a second rice crop.</p> <p>The Krapum Chhuk scheme was proposed to increase the potential command area of the main PRASAC canal. This scheme was a four (4) kilometre secondary canal (otherwise known as Canal 85), and was selected for implementation at the start of CAVAC in March 2010. Construction of the first phase was completed in June 2010. A 1.5-kilometre extension was constructed in 2011, and completed in June 2011.</p> <p>The construction of this secondary canal has improved access to reliable water for double cropping. To ensure the canal is managed and maintained effectively, a Farmer Water User Group (FWUG) was established under the BANTIC structure and capacity building activities were completed in July 2012.</p>
Achievements to Date:	<p>Engineering</p> <p>Construction commenced in April 2010 and was completed in June 2010. The community later requested the canal be extended an additional 1.5 kilometres to serve a larger command area and connect the canal embankments with an existing road. The same contractor was engaged for the additional work in 2011.</p> <p>In the first year, not all farmers could grow two crops due to soil acidity. When the soil became sufficiently flushed in the second or third year, all farmers started to grow two crops per year. The command area is almost fully irrigated now.</p> <p>The actual command area of this scheme was assessed by a tracking Global Positioning System (GPS) device with assistance of FWUG members.</p> <p>O&M</p> <p>CAVAC commissioned the PDWRAM to establish and build the capacity of a FWUG for this canal. The FWUG was established in February 2012, and the capacity building was completed in July 2012.</p> <p>The performance of this FWUG is influenced by BANTIC (the FWUC of the PRASAC canal constructed in 1997) as it is part of the organisational structure of BANTIC.</p> <p>CAVAC has continued conducting follow-up visits to the BANTIC FWUC and Krapum Chhuk FWUG in order to ensure that this established FWUG is well integrated into the current organisational structure of BANTIC.</p> <p>The fee collection has started, however the amount collected does not correlate to what is possible in relation to the irrigated areas. PWSs have paid the fees to the FWUC, but not in full amounts. This is due to the fact that the FWUC does not have complete irrigated area data. In 2013, the FWUG could collect about US\$1,400. This money was deposited into the BANTIC FWUC account to be used for the O&M of the whole scheme. These funds have already been used for the maintenance of Canal 98 (PRASAC Canal) which is the main canal in order to ensure water supply.</p> <p>There are currently four local PWSs running the business in the area to ensure water supply to farmers whose have land further away from the canal. Those PWSs have registered with the FWUC.</p>
Next Steps:	<p>Engineering</p> <p>Provide support on improvements to the scheme if required.</p> <p>O&M</p> <p>Carry out a land holding survey to clearly determine FWUG members' irrigated areas and payments of the irrigation service fees (ISF).</p> <p>Continue strengthening the capacity of the FWUG and FWUC through follow-up visits and provision of technical support in order to ensure sustainability of the scheme.</p> <p>Reform BANTIC as suggested by the PDWRAM to ensure sustainability, accountability and transparency of this FWUC.</p>
Lessons Learnt:	<p>Before integrating a new FWUG into an existing structure, it is necessary to get an in-depth understanding of the existing FWUC for the whole structure to function smoothly. Close follow-up activities to the newly established FWUG and FWUC are needed after the establishment.</p> <p>A land holding survey is a key tool for a FWUG/FWUC to manage the fee collection.</p>

INTERVENTION UPDATE: Int. No: Irr 10.3 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and construction of an irrigation scheme: Tumnub Lok canal, Takeo province
Summary:	<p>Farmers in the communes of Pech Sa and Krapum Chhuk were growing wet season paddy and some limited dry season paddy. Agricultural production was limited by unreliable access to water. The community expressed a need for canal rehabilitation that would improve access to water supply and increase the area for double cropping.</p> <p>The Tumnub Lok canal was selected for rehabilitation in 2011. A feasibility study was carried out and the canal was surveyed and designed. Construction of the canal commenced in March 2011. A contract amendment was signed with an alternate contractor for additional drainage and crossing structures along the canal. Improvements to the canal were completed in August 2013.</p>
Achievements to Date:	<p>Engineering</p> <p>Construction commenced in March 2011. Additional structures were requested by farmers and CAVAC agreed to include these structures by amending the construction contract. Poor performance of the contractor resulted in long delays and finally cancellation of the contract. In 2013, CAVAC re-tendered the remaining works, and all works were completed in August 2013.</p> <p>Cropping has increased from one to two crops per year since the main part of the canal was rehabilitated.</p> <p>The actual command area of this scheme has been assessed by a tracking GPS device with assistance of FWUG members.</p> <p>O&M</p> <p>CAVAC commissioned the PDWRAM to establish and build the capacity of a FWUC for this canal. The FWUC was established in early February 2012, and the capacity building was completed in June 2012.</p> <p>CAVAC has been following up with the trained FWUC to strengthen its capacity.</p> <p>In the first year after completion (2012), the FWUC has collected a remarkable amount of the ISF. That gave the FWUC much confidence in managing the scheme.</p> <p>In the second year (2013), the FWUC continued to collect the ISF, but the amount collected was almost half of the amount collected in the first year. This was due to reduced participation of PWSs. Some wait for other PWSs who have not paid to the FWUC since the first year to pay first. This makes it difficult for the FWUC to collect the fees. Further, the lack of some structures at the canal has made pumping costs high, adding to the already huge financial burden of PWSs and farmers.</p> <p>The fees collected have been used on the O&M of the scheme and incentives for FWUC committee members. For example, the FWUC has spent some money to backfill the collapsed embankments. The remaining budget is now around US\$3,000.</p>
Next Steps:	<p>Engineering</p> <p>Construct water gates under two existing bridges in order to retain the water after the tide.</p> <p>O&M</p> <p>Conduct a land holding survey to get accurate irrigated area data for the FWUC.</p> <p>Continue strengthening the capacity of the FWUC through close follow-up visits and provision of technical support, including financial management skills.</p> <p>Work with the FWUC on additional structures if necessary as the gravity flow of water encourages farmers to pay the fees to the FWUC if the structures decrease pumping costs.</p>
Lessons Learnt:	<p>Engineering</p> <p>The soil at this scheme is in poor condition for the construction of canal and embankments. In that case, a flatter slope needs to be designed to avoid embankment failures and excavation work takes more time, leading to higher costs.</p> <p>Daily construction supervision is important to ensure that the contractor's work meets the requirements of the design and technical specifications.</p> <p>O&M</p> <p>Any existing structures taken out during the rehabilitation of a canal should be put back, as those structures are usually useful to farmers. A more fully developed scheme does matter to the participation of farmers in the O&M of the canal.</p> <p>A land holding survey is a key tool for a FWUG/FWUC to manage fee collection.</p>

INTERVENTION UPDATE: Int. No: Irr 10.4 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and construction of an irrigation scheme: Kveng Tayi canal, Takeo province
Summary:	<p>Farmers in the commune of Prey Yutka were growing recession and early wet season paddy and some limited dry season paddy close to the PRASAC canal. Agricultural production was limited by unreliable access to irrigation water from the main canal. Before the construction farmers found it difficult to get enough water for their second crop. The water was not reliable as farmers had to negotiate to buy water from Vietnam, and prices fluctuated yearly. The community expressed a need for canal construction to increase the area with access to reliable water for double cropping.</p> <p>The Kveng Tayi canal was selected for rehabilitation in 2011. A feasibility study was carried out and the canal was surveyed and designed. Construction commenced in April 2011 and was completed in June 2012.</p>
Achievements to Date:	<p>Engineering Construction commenced in April 2011. The original work was completed in early 2012. Two additional crossing structures, requested by the community, were added to the contract through a contract amendment, and the construction of these two structures was completed in mid-2012.</p> <p>Farmers started using the water from the Kveng Tayi canal immediately after the canal completion for one or two crops per year.</p> <p>The actual command area of this scheme was assessed by a tracking GPS device with assistance from FWUG members.</p> <p>O&M CAVAC commissioned the PDWRAM to establish and build capacity of a FWUG for this canal. The FWUG was established in February 2012, and the capacity building was completed in July 2012.</p> <p>CAVAC has been following up with the trained FWUG to strengthen its capacity.</p> <p>While the FWUG of this scheme is similar to the one for Krapum Chhuk, CAVAC has noticed that the cooperation among its members is stronger. The FWUG is confident that it can do the work with little support from the FWUC of the PRASAC canal.</p> <p>In 2013, the FWUG has collected about US\$1,260. These fees have been used for the maintenance of Canal 98 (main canal of Krapum Chhouk and Kveng Tayi) and incentives for FWUG committee members.</p>
Next Steps:	<p>Engineering Repair the damage caused by erosion at two bridges by extending the wingwalls of the two bridges.</p> <p>O&M Closely follow-up with the FWUG to continue strengthening its capacity in financial management and maintenance planning.</p> <p>Conduct a land holding survey to get more accurate irrigated area data for the FWUG/FWUC.</p>
Lessons Learnt:	<p>Engineering Good and regular construction supervision is important to ensure that the quality of the work meets the required standards.</p> <p>O&M The FWUC and FWUG do not have accurate irrigated area data. The data that they have is from PWSs. Given the fact that PWSs are entrepreneurs who are profit-oriented, most of them tend not to reveal actual irrigated data. Having a land holding survey, therefore, is essential for the FWUG or FWUC to manage the contracts with PWSs more effectively.</p> <p>Defining new roles of a FWUG in an existing FWUC structure requires a lot of efforts.</p>

INTERVENTION UPDATE: Int. No: Irr 12.3 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and construction of an irrigation scheme: So Hang canal, Takeo province
Summary:	<p>Farmers in the communes of Borey Chulsa, Daung Kpoh, Romenh, and Kork Por grow traditional wet season rice and/or some limited dry season rice with very limited access to reliable water supply. The community expressed a need for rehabilitation of the So Hang canal to improve the water supply and increase access to a reliable water source.</p> <p>The So Hang canal was then selected for rehabilitation. A feasibility study was done and the canal was surveyed and designed. Construction commenced in April 2012, however was not completed as planned due to several modifications that were needed. The construction was completed in August 2013.</p>
Achievements to Date:	<p>Engineering</p> <p>Construction commenced in April 2012. The progress of construction was slow and the contractor's field work management was not effective for both the structural and earth works. Some modifications have been done on structural and earth works to improve water reliability of the scheme. The construction was completed by the end of August 2013.</p> <p>CAVAC has been assessing the actual command area of this scheme using a tracking GPS device with assistance from FWUC members.</p> <p>O&M</p> <p>CAVAC commissioned the PDWRAM to establish and build the capacity of a FWUC for this canal. The FWUC establishment was completed in May 2013, and the capacity building was completed in October 2013.</p> <p>Some meetings between the FWUC, PWSs, and the local authorities took place during and after the FWUC establishment process to discuss the price of the water and other issues surrounding the water business. The local authorities intervened in the process of setting the water price. PWSs chose not to register with the FWUC because the price was too low for them to profit from the business. Without PWSs, farmers will have to pump water using their limited capacity pumps.</p>
Next Steps:	<p>Engineering</p> <p>Implement scheme improvements if necessary during 2014.</p> <p>O&M</p> <p>Based on outcomes of the PWS study, recommendations will be made to the FWUC and local authorities to establish proper systems for O&M.</p>
Lessons Learnt:	<p>Engineering</p> <p>A canal deeper than four meters should be avoided due to: large land losses; high pumping costs; and high maintenance costs for the FWUC.</p> <p>O&M</p> <p>The effectiveness of O&M work largely depends on the involvement and interventions of the local authorities. The quality and appropriateness of these interventions largely influence the success of the scheme O&M.</p>

INTERVENTION UPDATE: Int. No: Irr 12.4 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and construction of an irrigation scheme: Prey Rumdeng canal, Takeo province
Summary:	<p>Farmers in the communes of Prey Rumdeng and Ta O in Kirivong district requested that the Prey Rumdeng canal be rehabilitated to improve the irrigated water supply, and therefore increase the number of crops per year.</p> <p>CAVAC conducted a feasibility study and the canal was surveyed and designed. Construction commenced in March 2012. Some additional structures were added, and all work was completed in December 2012.</p>
Achievements to Date:	<p>Engineering</p> <p>Construction commenced in March 2012 and was completed in December 2012.</p> <p>Initially there was an agreement with the authorities in Vietnam to connect the Prey Rumdeng scheme to the Vin Te canal in Vietnam – this would ensure a continuous supply of irrigation water. CAVAC's Environmental Expert recommended that without a comprehensive environmental impact assessment in Vietnam, the canals should not be connected. Therefore, the canal construction was stopped two kilometres before the border with Vietnam to avoid any cross border negative environmental impacts that could not be sufficiently investigated.</p> <p>CAVAC has been assessing the actual command area of this scheme using a tracking GPS device with assistance from FWUC members.</p> <p>O&M</p> <p>CAVAC commissioned the PDWRAM to establish and build the capacity of a FWUC for this canal. The FWUC establishment commenced in September 2012 and was completed in April 2013. Capacity building for the FWUC was completed in October 2013.</p> <p>Several meetings between the FWUC, PWSs, and the local authorities took place. Political interference has weakened the authority of the FWUC in negotiating contracts with PWSs. Interference of PDWRAM/CAVAC has so far not been very effective.</p> <p>Once the outcomes of the PWS study are finalised, follow up actions will be considered. Success of O&M will largely depend on the independence of the FWUC in deciding appropriate O&M procedures in the interest of all FWUC members.</p>
Next Steps:	<p>O&M</p> <p>To give the work on this FWUC a low priority for now due to political interference.</p>
Lessons Learnt:	<p>O&M</p> <p>This canal is directly connected to Thnoat canal in Kampot province. The fee system at Thnoat canal was set up differently and is much cheaper than the fees paid at Prey Rumdeng canal. This has created some issues on farmers' participation in paying the ISF. Therefore, the extension of a canal across the provincial border should be considered carefully before construction as it creates a lot of challenges for FWUC operation at a later stage.</p> <p>The neopatrimonialism between PWSs and local authorities (communes and districts) does create contractual difficulties for the FWUC to manage – i.e. PWSs not paying O&M fees to the FWUC.</p>

INTERVENTION UPDATE: Int. No: Irr 12.5 AWP No: 2.2 Date: 31 December 2013	
Name:	SIF: Support to BANTIC and PLOVIC in rehabilitating two secondary canals in Takeo
Summary:	<p>BANTIC – Banteay Thleay</p> <p>Farmers in Krapum Chhuk commune, Koh Andet district, grew recession paddy and some limited dry season paddy along the PRASAC canal. Agricultural production was limited by unreliable access to water. The community requested a secondary canal from the PRASAC canal be rehabilitated to improve water supply and increase the area with reliable water for double cropping.</p> <p>PLOVIC – Plov Touk</p> <p>Farmers in Kirichong Koh commune, Soam district, and Phnom Den commune, Kirivong district, grew recession paddy and some limited dry season paddy along the PRASAC canal. Agricultural production was limited by unreliable access to water. The community requested rehabilitation of a secondary canal branching from the PRASAC canal to improve water supply and increase access to reliable water for double cropping.</p> <p>CAVAC agreed to support these two schemes, which were funded through the SIF mechanism on a cost-sharing basis with the community.</p>
Achievements to Date:	<p>Engineering</p> <p>The canal construction started in April 2012 and finished in June 2012.</p> <p>O&M</p> <p>The two FWUCs were very active in monitoring the construction progress.</p> <p>Farmers have been irrigating their paddy rice fields using water from these two canals rehabilitated through the SIF grants. The FWUC has also been collecting the ISF since the rehabilitation.</p> <p>BANTIC: fee collection is around US\$1,250 (2013)</p> <p>PLOVIC: fee collection is around US\$2,000 (2013)</p>
Next Steps:	<p>Engineering</p> <p>Consider continuing support to the two FWUCs through the SIF grants to dredge their main canal to ensure water availability for the whole scheme.</p> <p>O&M</p> <p>Conduct a land holding survey for the BANTIC FWUC of the PRASAC canal.</p>
Lessons Learnt:	<p>Engineering</p> <p>UXO investigation and clearance should be conducted in advance where there are perceived risks.</p> <p>O&M</p> <p>When construction contracts are managed by the FWUCs, the FWUCs should take full ownership in managing the contracts and construction progress.</p> <p>Land holding surveys are needed for the FWUCs to better manage their schemes.</p>

INTERVENTION UPDATE: Int. No: Irr 13.1 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and construction of an irrigation scheme: Rokar Chhuk canal, Takeo province
Summary:	<p>Farmers in the commune of Char in Prey Kabas district requested rehabilitation of Roka Chhuk canal to improve the water supply from a depression lake in the area. This would enable rice farmers to produce two crops per year.</p> <p>The Rokar Chhuk canal was selected for rehabilitation in 2013. A feasibility study was conducted and the canal was surveyed and designed. Construction commenced in March 2013. Some additional structures will be added. All work will be completed in June 2014.</p>
Achievements to Date:	<p>Engineering</p> <p>Construction commenced in March 2013, and by the end of December 60 per cent of the work was completed. Some additional structures will be added. Work is expected to be completed by June 2014.</p> <p>O&M</p> <p>CAVAC signed a contract with the PDWRAM to establish and build the capacity of a FWUC for this canal.</p> <p>The FWUC establishment process was completed. The capacity building was started in mid-December and is expected to be completed by the end of February 2014. A land holding survey for this scheme, which is part of the FWUC establishment and capacity building contract, is being conducted by the PDWRAM.</p>
Next Steps:	<p>Engineering</p> <p>Completion construction work by June 2014.</p> <p>O&M</p> <p>The capacity building for this FWUC and the land holding survey for this scheme are expected to be completed by the end of February 2014.</p>
Lessons Learnt:	

INTERVENTION UPDATE: Int. No: Irr 13.2 and 13.3 AWP No: 2.2 Date: 31 December 2013	
Name:	SIF: Support to BANTIC and PLOVIC in dredging their main canal in Takeo
Summary:	<p>BANTIC – Banteay Thleay</p> <p>Farmers in Prey Khla, Krapum Chhuk, and Prey Yuthka communes (Koh Andet district) grow paddy along the PRASAC canal – which has been heavily affected by siltation. The community requested for the scheme to be dredged to improve water supply and increase the area with reliable water for double cropping.</p> <p>PLOVIC – Plov Touk</p> <p>Farmers in the Communes of Kamnob and Phnom Den communes (Krivong district) grow paddy along the PRASAC canal. This part of the canal is likewise significantly affected by siltation. Farmers in this community have requested that this part of the canal be dredged to improve water supply and increase the area with reliable water for double cropping.</p> <p>CAVAC was supporting both communities to rehabilitate the canal through dredging. These two projects were funded through the SIF mechanism on a cost-sharing basis with the community.</p>
Achievements to Date:	<p>Engineering</p> <p>Work on these two SIF projects commenced in May 2013 and was completed in August 2013. At Plov Touk, work was done on the ground using a normal excavator. At Banteay Thleay, work was done during high tide using a crane excavator positioned on a ferry.</p> <p>O&M</p> <p>The FWUCs of both schemes were active in monitoring the construction progress. CAVAC showed them how to measure canal depths using depth sounders and tape measures. The FWUCs have used this knowledge to monitor the construction work. The scheme is ready to be used when water starts receding in December.</p>
Next Steps:	<p>O&M</p> <p>Contract to the PDWRAM to conduct a land-holding survey and enhance the BANTIC FWUC structure.</p>
Lessons Learnt:	<p>O&M</p> <p>CAVAC has learned from this project that it is great to handover construction monitoring work to the FWUC. It does not only build the FWUC's ownership of the canal but also builds the capacity of the FWUC in using equipment such as a depth sounder to measure the level of excavation needed to dredge a canal under water.</p> <p>The longer the committee members of a FWUC stay in their positions, without being re-elected, the higher the chance of built-in neopatrimonialism networks will be.</p>

INTERVENTION UPDATE: Int. No: Irr 10.2 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and Construction of an Irrigation Scheme: Prey Tonle canal, Kampot province
Summary:	<p>The farmers of Prey Tonle grew a wet season paddy crop. Agricultural production was limited by unreliable access to irrigation water, and the community expressed a need for the construction of a run-off-river canal that would improve water supply and increase access to water for double or triple cropping.</p> <p>The 3.2-kilometer Prey Tonle canal was selected for implementation at the start of CAVAC in March 2010. Construction work was completed in June 2010.</p> <p>A FWUC was established and capacity building was completed in June 2012.</p>
Achievements to Date:	<p>Engineering</p> <p>The detailed design was undertaken by the PDWRAM under an agreement with CAVAC.</p> <p>CAVAC ran a tender process and construction was awarded to Taing Cheng Oing, Co., Ltd.</p> <p>Construction commenced in April 2010, and was completed in June 2010.</p> <p>Construction supervision was conducted by the PDWRAM under an agreement with CAVAC.</p> <p>O&M</p> <p>CAVAC commissioned the PDWRAM to establish and build the capacity of a FWUC for this canal. The FWUC was established through community meetings and elections, and the capacity building for this FWUC was completed in June 2012.</p> <p>Village meetings were facilitated by the FWUC, CAVAC, local authorities, and the PDWRAM staff to provide fee collection information to farmers in June 2013.</p> <p>CAVAC continued to conduct follow-up visits to this FWUC to strengthen its capacity in scheme O&M until October 2013.</p> <p>In October 2013, CAVAC decided to drop work on this FWUC as most committee members of this FWUC showed low interest and commitment. Moreover, the fee collection at this scheme had been very challenging because parallel to the CAVAC canal, another canal of 6.5 km in length was constructed by the government and farmers were not required to pay any fees for using water from the government canal.</p>
Next Steps:	<p>Engineering</p> <p>No further action.</p> <p>O&M</p> <p>No further action.</p>
Lessons Learnt:	<p>O&M</p> <p>Fee collection is very challenging at a scheme close to another scheme where water is provided for free.</p>

INTERVENTION UPDATE: Int. No: Irr 10.6 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and construction of an irrigation scheme: Sbov Andeth canal, Kampot province
Summary:	<p>The farmers in Sdach Kong Khang Cheung grew wet season paddy and some limited dry season paddy close to the Stung Touk Meas perennial river. Agricultural production was limited by unreliable access to irrigation water. The community expressed a need for canal construction and some rehabilitation to improve water supply and increase the area with reliable water to enable double cropping. The Stung Touk Meas is influenced by high water levels downstream from Vinte canal which is part of the Lower Mekong / Bassac River systems.</p> <p>The Sbov Andeth canal was selected for rehabilitation in 2011. A feasibility study was carried out and the canal was surveyed and designed by Kampot PDWRAM. Construction commenced in April 2011 and was completed in mid-April 2012.</p> <p>A FWUC was established in February 2012 and capacity building was completed in June 2012.</p>
Achievements to Date:	<p>Engineering</p> <p>Construction commenced in April 2011. Some additional structures were added to improve drainage and canal functionality. By mid-April 2012 all work was completed.</p> <p>In this reporting period, a topographical survey and detailed designs for two pilot lining secondary canals were conducted by Kampot PDWRAM with support from CAVAC. A contract on the two lining secondary canals was awarded to a contractor in December 2013.</p> <p>O&M</p> <p>CAVAC commissioned the PDWRAM to establish and build the capacity of a FWUC for this canal. The FWUC was established in February 2012. Capacity building was completed in June 2012.</p> <p>CAVAC has continued to do follow-up visits to this FWUC to further strengthen its capacity.</p> <p>The FWUC's key aim is to have a sustainable canal which will be available for use in the long term. The FWUC is very active in performing its work. It conducted some awareness meetings with support from the local authorities, PDWRAM and CAVAC to ensure that all farmers clearly understood the ISF, however farmers were busy with their rice cultivation – so the participation was low.</p> <p>The FWUC has started its first fee collection. So far, this FWUC has collected only a small amount of money (about US\$500). The main reason for a small amount of fees collected was a delay between harvest and fee collection times – when some farmers had no more money left to pay and others were reluctant to pay.</p> <p>The FWUC has encouraged farmers to construct secondary canals to increase the irrigated area. So far, 58 secondary canals have been dug. This FWUC has been considering to bring in PWSs to invest in some parts of the canal to show a good model to farmers in order to increase the chance of success in fee collection.</p> <p>This canal is very promising for farmers. Before canal rehabilitation, farmers only grew wet season paddy which was very unpredictable and low yielding. Currently, almost 100 per cent of farmers have increased production from one to two crops, and about 20 per cent of farmers grow three crops per year because they have rice fields in upper land areas, not likely to be flooded.</p>
Next Steps:	<p>Engineering</p> <p>Implement the construction of the two lining secondary canals and complete it by mid May 2014. The construction of these two secondary canals will be monitored by CAVAC and the FWUC.</p> <p>O&M</p> <p>More awareness meetings on fee collection for farmers will be held by the FWUC with the participation of the local authorities, PDWRAM and CAVAC to ensure that all farmers clearly understand the ISF.</p> <p>Continue to strengthen the capacity of the FWUC committee, especially in financial management and maintenance planning, through follow-up visits from CAVAC, follow-up training, and provision of exchange visits to successful FWUCs.</p> <p>Start the construction of a FWUC office in January 2014 and finish it in May 2014.</p>
Lessons Learnt:	<p>O&M</p> <p>Regular FWUC meetings are very important and should be conducted preferably every two months.</p> <p>Proper irrigation water management at the watershed level will be important to ensure long-term access to water for irrigation purposes.</p>

INTERVENTION UPDATE: Int. No: Irr 10.7 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and construction of irrigation scheme: O'Kak canal, Kampot province
Summary:	<p>The farmers in Touk Meas Khang Lech grew wet season paddy and some limited dry season paddy close to the Stung Touk Meas perennial river. Agricultural production was limited by unreliable access to water. The community expressed a need for canal rehabilitation to improve water supply and increase reliable water access for double or triple cropping.</p> <p>The O'Kak canal was selected for rehabilitation in 2011. A feasibility study was carried out and the canal was surveyed and designed. Construction commenced in April 2011 and was completed in May 2012.</p> <p>A FWUC was established in November 2011 and capacity building was completed in June 2012.</p>
Achievements to Date:	<p>Engineering</p> <p>The detailed design was undertaken by the PDWRAM under an agreement with CAVAC.</p> <p>A tender process was conducted and evaluated by MOWRAM, PDWRAM and CAVAC.</p> <p>Construction commenced in April 2011. Some additional drainage and crossing structures were needed. By May 2012 all work was completed.</p> <p>Construction supervision was conducted by the PDWRAM under an agreement with CAVAC.</p> <p>Due to sandy soil conditions, parts of the canal embankments collapsed, blocking the flow of water in the canal. Several options were reviewed for stabilisation of canal embankments. It was finally decided to provide concrete lining at the section where the embankment had collapsed. This scheme improvement work was started in early 2013 and was postponed during the wet season. It was recently resumed in early December 2013.</p> <p>O&M</p> <p>CAVAC commissioned the PDWRAM to establish and build the capacity of a FWUC for this canal. The FWUC was established in November 2011 through community meetings and elections. Capacity building was completed in June 2012.</p> <p>After the canal rehabilitation, only a small percentage of farmers started to use the water in the canal for their second crop. The water level in the canal was low and farmers were concerned about the lack of water to use for their crop.</p> <p>The FWUC has not been very active as the canal still needs further improvements on the embankments.</p>
Next Steps:	<p>Engineering</p> <p>Continue scheme improvement work and complete it by June 2014.</p> <p>O&M</p> <p>Determine further action on O&M when more progress is made on the canal improvement work.</p>
Lessons Learnt:	<p>Engineering</p> <p>Sandy soil in a scheme area necessitates substantial investment in canal lining. Alternative options should be studied at the feasibility study stage. These skills are limited at PDWRAM level. For this specific scheme, the construction of a pumping scheme would have been a more feasible option.</p> <p>O&M</p> <p>Farmers were not that enthusiastic about construction of a pumphouse at the intake site of the canal. CAVAC should have been more active in providing information regarding land loss, gravity fed irrigation, and the ease of operating pumping equipment.</p>

INTERVENTION UPDATE: Int. No: Irr 10.8 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and construction of an irrigation scheme: Thnoat canal, Kampot province
Summary:	<p>The farmers of Thnoat Chong Srang grew wet season paddy and some limited dry season paddy close to the Prek Ansar perennial river. Agricultural production was limited by unreliable access to water. The community expressed a need for canal rehabilitation to improve water supply and increase the area with access to reliable water for double or triple cropping.</p> <p>The Thnoat canal was selected for rehabilitation in 2011. A feasibility study was carried out and the canal was surveyed and designed. Construction commenced in April 2011 and was completed in May 2012.</p> <p>A FWUC was established and the capacity building was completed in March 2012.</p>
Achievements to Date:	<p>Engineering</p> <p>The detailed design was undertaken by the PDWRAM under an agreement with CAVAC. CAVAC conducted a tender process which was evaluated by MOWRAM, PDWRAM and CAVAC. Construction commenced in April 2011. Some drainage and soil erosion protection structures were added to the contract. The construction was completed in May 2012.</p> <p>In December 2013, a contract was awarded for the construction of a pilot secondary canal (3.5 km) at this scheme.</p> <p>O&M</p> <p>CAVAC commissioned the PDWRAM to establish and build the capacity of a FWUC for this canal. The FWUC was established through community meetings and elections. The capacity building was completed in March 2012.</p> <p>CAVAC continues to work with the FWUC to strengthen its capacity in scheme O&M.</p> <p>The FWUC is currently working with PWSs more closely. Some of them have signed contracts with the FWUC.</p> <p>The FWUC is undertaking fee collection from PWSs. FWUC committee members are assessing irrigated area measurement to get the data for fee collection from PWSs. So far, about US\$600 has been collected, representing about 50 per cent of the total amount to be collected.</p> <p>There had been no PWSs in the area before the canal was rehabilitated. After the canal rehabilitation, they came from nearby areas to start investing in water delivering services for farmers by taking water from the Thnoat canal.</p> <p>The construction work of an office for this FWUC began in November 2013.</p>
Next Steps:	<p>Engineering</p> <p>Start construction of a pilot secondary canal in early January 2014 with the supervision of CAVAC and the FWUC and complete it by May 2014.</p> <p>O&M</p> <p>Strengthen the cooperation between PWSs and the FWUC to make sure that they can work well together.</p> <p>Continue to strengthen the capacity of the FWUC committee, especially in financial management and maintenance planning, through follow-up visits from CAVAC, follow-up training, and provision of exchange visits to successful FWUCs.</p> <p>Complete the construction work of the FWUC office in February 2014.</p>
Lessons Learnt:	<p>O&M</p> <p>The relationship between PWSs and the FWUC should be formalised. The local authorities, especially the commune councils, should be involved to facilitate the formalisation process through effective contract management.</p>

INTERVENTION UPDATE: Int. No: Irr 12.1 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and construction of irrigation scheme: Spean Touch canal, Kampot province
Summary:	<p>The farmers of Prey Kroeus grew traditional wet season rice and/or short-term dry season rice with a limited access to reliable water. The community expressed a need to rehabilitate the Spean Touch canal to improve water supply and increase the command area with access to a reliable water source for double or triple cropping each year.</p> <p>The Spean Touch canal was then selected for rehabilitation in 2012. A feasibility study was carried out and the canal was surveyed and designed. Construction commenced in late April 2012 and was completed in August 2013.</p> <p>A FWUC was established, and capacity building for the FWUC was completed.</p>
Achievements to Date:	<p>Engineering</p> <p>The survey and detailed design of the canal were undertaken by Kampot PDWRAM under an agreement with CAVAC.</p> <p>CAVAC conducted a tender process for a construction contract which was evaluated by MOWRAM, PDWRAM and CAVAC.</p> <p>Construction commenced in late April 2012 and completed in August 2013.</p> <p>Construction supervision is being conducted by the PDWRAM under an agreement with CAVAC.</p> <p>Additional off-take PVC pipes were placed to provide farmers with ease in pumping water from the main canal. Using these pipes farmers can reduce pumping costs and the risk of damaging the embankments.</p> <p>O&M</p> <p>CAVAC commissioned the PDWRAM to establish and build the capacity of a FWUC for this canal. The FWUC establishment commenced in September 2012 and was finished in February 2013. The capacity building for the FWUC was started in March 2013 and finished in September 2013.</p> <p>The committee of this FWUC meets regularly every month to discuss its monthly plans.</p> <p>There is one potential PWS interested to invest at this scheme. The FWUC and this PWS already met once to discuss the possibility of cooperation. Further discussions between the two are expected.</p> <p>A landholding survey for this scheme has been completed. A map resulting from this survey is very useful to the FWUC in its O&M work.</p>
Next Steps:	<p>Engineering</p> <p>Study impact and management of acid sulphate soil on paddy production.</p> <p>O&M</p> <p>Continue to strengthen the capacity of the FWUC committee, especially in financial management and maintenance planning, through follow-up visits from CAVAC, follow-up training, and provision of exchange visits to successful FWUCs.</p> <p>Start the construction work of an office for this FWUC in early January 2014.</p>
Lessons Learnt:	<p>Engineering</p> <p>Acid sulphate soil, when exposed, provides additional challenges for the design and construction of canals and structures.</p>

INTERVENTION UPDATE: Int. No: Irr 12.2 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and construction of irrigation scheme: Prey Leu canal, Kampot province
Summary:	<p>The farmers of Banteay Meas Khang Lech grew traditional wet season rice and some limited dry season rice with very limited access to reliable water supply. The community expressed a need for rehabilitation of Prey Leu canal to improve the water supply and increase access to a reliable water source.</p> <p>The Prey Leu canal was then selected for rehabilitation. A feasibility study was completed and the canal was surveyed and designed. Construction commenced in March 2012 and was completed in October 2012.</p> <p>A FWUC was established successfully and capacity building was started in December 2012 and finished in September 2013.</p>
Achievements to Date:	<p>Engineering</p> <p>The survey and detailed design of the canal were undertaken by Kampot PDWRAM under an agreement with CAVAC.</p> <p>CAVAC conducted a tender process which was evaluated by MOWRAM, PDWRAM and CAVAC.</p> <p>The construction commenced in March 2012. Both the PDWRAM and CAVAC are satisfied with the progress and quality of the construction done by the selected contractor.</p> <p>Construction supervision was the responsibility of the PDWRAM under an agreement with CAVAC.</p> <p>O&M</p> <p>CAVAC commissioned the PDWRAM to establish and build the capacity of a FWUC for this canal. FWUC establishment commenced in October 2012 and was completed in November 2012. The capacity building for this FWUC was started in December 2012 and finished in October 2013.</p> <p>The FWUC committee started its monthly meetings and doing some O&M activities for the scheme, such as canal cleaning and minor maintenance on road access.</p> <p>The FWUC and PWSs had a meeting and agreed to create contracts between the FWUC and PWSs in the water business at the scheme.</p> <p>A landholding survey for this scheme has been completed. A map resulting from this survey is very useful to the FWUC in its O&M work.</p>
Next Steps:	<p>Engineering</p> <p>Conduct surveys and designs of some secondary canals in order to provide farmers (and potential water sellers) with the ability to deliver water at lower costs to the whole command area.</p> <p>O&M</p> <p>Build up the cooperation between the FWUC and PWSs through creating contracts between the FWUC and PWSs with the involvement of the local authorities.</p> <p>Continue to strengthen the capacity of the FWUC committee, especially in financial management and maintenance planning, through follow-up visits from CAVAC, follow-up training, and provision of exchange visits to successful FWUCs.</p> <p>Start the construction work of the FWUC office in January 2014.</p>
Lessons Learnt:	<p>To ensure good cooperation between the FWUC and PWSs, CAVAC's involvement in facilitation at an early stage is really needed.</p>

INTERVENTION UPDATE: Int. No: Irr 13.1 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and construction of an irrigation scheme: Hay Saun canal, Kampot province
Summary:	<p>The farmers of Banteay Meas Khang Cheung grow traditional wet season rice and some limited dry season rice with very limited access to reliable water supply. The community expressed a need for rehabilitation of Hay Saun canal to improve the water supply and increase the area with access to a reliable water source.</p> <p>The Hay Saun canal was then selected for rehabilitation in 2013. A feasibility study was carried out and the canal was surveyed and designed. Construction commenced in February 2013.</p> <p>In response to the community's request through Kampot PDA and MAFF, the Hay Saun canal will be extended further to the south to increase its command area for about 500 ha more through two construction contracts (Hay Saun Extension No.1 and No.2).</p>
Achievements to Date:	<p>Engineering</p> <p>The survey and detailed design of the canal were undertaken by Kampot PDWRAM under an agreement with CAVAC.</p> <p>CAVAC conducted a tender process which was then evaluated by MOWRAM, PDWRAM and CAVAC.</p> <p>The construction commenced in February 2013 and is expected to be completed by June 2014. A UXO was found in the canal area during construction. CMAC was then engaged to investigate and clear the surrounding areas. The construction work was suspended for approximately two weeks.</p> <p>The topographical survey for the extension part of the canal was done by Kampot PDWAM while the detailed designs were done by CAVAC's irrigation team.</p> <p>In December 2013, two contracts for Hay Saun extension were awarded.</p> <p>O&M</p> <p>CAVAC commissioned the PDWRAM to establish and build the capacity of a FWUC for this scheme. A FWUC establishment and capacity building contract was signed between PDWRAM and CAVAC in October 2013, and the PDWRAM started implementing this contract in December 2013.</p>
Next Steps:	<p>Engineering</p> <p>Complete construction work of the Hay Saun canal by the end of December 2013.</p> <p>Start the construction work of the Hay Saun Extension No.1 and No.2 in January 2014.</p> <p>O&M</p> <p>Continue establishing and providing capacity building for this FWUC.</p> <p>Start the construction of the FWUC office in early January 2014.</p>
Lessons Learnt:	<p>Engineering</p> <p>Presence of UXOs should be thoroughly investigated during the EIAs of all new schemes. When reported, immediate actions need to be taken.</p>

INTERVENTION UPDATE: Int. No: Irr 13.1 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and construction of an irrigation scheme: Chamlong Chrey canal, Kampot province
Summary:	<p>The farmers of Sdach Kong Khang Lech grow traditional wet season rice and some limited dry season rice with limited access to reliable water supply. The community expressed a need for rehabilitation of Chamlong Chrey canal to improve the water supply and increase the area with access to a reliable water source.</p> <p>The Chamlong Chrey canal was selected for rehabilitation. A feasibility study was carried out and the canal was surveyed and designed.</p> <p>The construction commenced in October 2013.</p>
Achievements to Date:	<p>Engineering</p> <p>The survey and detailed design of the canal including a pump house were undertaken by CAVAC as a model scheme for PDWRAM.</p> <p>The construction began in October 2013. 20 per cent of the work has been completed by the end of this reporting period.</p> <p>The electricity line for the pump station has been installed.</p> <p>O&M</p> <p>CAVAC commissioned the PDWRAM to establish and build the capacity of a FWUC for this canal. A FWUC establishment and capacity building contract was signed between PDWRAM and CAVAC in December 2013, and the PDWRAM is going to start implementing this contract in early 2014.</p>
Next Steps:	<p>Engineering</p> <p>Keep up the speed of the construction progress, and complete the construction activities by June 2014.</p> <p>Call for tenders for FWUC office construction, and start the construction work by February 2014 and finish it in May 2014.</p> <p>O&M</p> <p>PDWRAM will be responsible for FWUC establishment and regular capacity building activities. CAVAC will conduct additional training for this FWUC as this scheme is a model scheme.</p>
Lessons Learnt:	

INTERVENTION UPDATE: Int. No: Irr 13.1 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and construction of irrigation scheme: Reservoir 77, Kampot province
Summary:	<p>The farmers of Sre Cheng commune in Chum Kiri district grow mainly one rice crop (wet season rice) per year with unreliable water supply from the rain. Often their crops are destroyed by droughts which occur in the late wet season. Crop damage can also occur during dry spells in the middle of the wet season. The local authorities of Sre Cheng have expressed a need for rehabilitation of Reservoir 77 to improve water supply and increase access to a reliable water source.</p> <p>In conjunction with Kampot PDWRAM, CAVAC's irrigation team conducted a number of visits to the site in order to collect socio-economic and engineering data. A commitment has been made to rehabilitate the existing reservoir scheme.</p> <p>After rehabilitation this reservoir will ensure reliable water supply for 160 hectares of wet season crops, and approximately 10 hectares for dry season rice cultivation and non-rice crop cultivation.</p>
Achievements to Date:	<p>Engineering</p> <p>A detailed topographical survey for this scheme was conducted by Kampot PDWRAM, and detailed designs for this reservoir and distribution system were conducted by CAVAC. As the survey work was implemented, CAVAC commissioned CMAC to clear UXOs within a defined boundary of this scheme. Around twenty (20) UXOs were found within a 30-meter buffered zone along the dam of Reservoir 77.</p> <p>By the end of this reporting period, 50 per cent of the whole scheme work (original reservoir design and distribution system) was completed.</p> <p>In December 2013, a contract was awarded for the construction of distribution canals in this Reservoir 77 scheme.</p> <p>O&M</p> <p>CAVAC had informal discussions with the community and the local authorities (commune council members and village chiefs) about the possibility of forming a FWUC. They all have shown interest and appreciation for the FWUC establishment as they think this will add to the sustainability of the reservoir. This community has also heard about good examples of FWUC work for rehabilitated reservoirs in the nearby areas, such as Mlech and Steung Phe schemes.</p> <p>CAVAC met with the PDWRAM twice to discuss FWUC establishment and capacity building for this scheme. A contract on this work between CAVAC and the PDWRAM was signed in December 2013 and the PDWRAM will start implementing this activity in early 2014.</p>
Next Steps:	<p>Engineering</p> <p>Finish the construction of the reservoir's dam with its associated structures in early February 2014.</p> <p>Start the construction work of the distribution canals in January 2014.</p> <p>O&M</p> <p>Start working with Kampot PDWRAM on FWUC establishment and capacity building in early 2014.</p>
Lessons Learnt:	

INTERVENTION UPDATE: Int. No: Irr 10.12 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and construction of an irrigation scheme: Thnoat Chum canal, Kampong Thom province
Summary:	<p>The January 1 canal from the Stung Chinit reservoir was constructed about 10 years ago. Under an Asian Development Bank (ADB) loan project in 2010, a secondary canal was constructed, connecting to the January 1 Canal.</p> <p>As farmers in Thnoat Chum grew only wet season rice (a commune close to the ADB canal), Kampong Thom PDWRAM requested CAVAC to extend the ADB canal to increase the command area for double cropping.</p> <p>This Thnoat Chum canal was then selected for rehabilitation in 2011. A feasibility study was carried out and the canal was surveyed and designed. Construction commenced in April 2011 and was completed in August 2012. Some repairs were needed and the contractor completed repairs in July 2013.</p> <p>To further ensure that this canal is a reliable water source for farmers and to help expand their command areas, CAVAC has been planning to implement some improvement work, including: adding an intake structure at the head of the ADB canal; providing more hydraulic structures; and improving the canal embankments with laterite pavement.</p> <p>A FWUC for the scheme was established and capacity building was completed in September 2012. Meanwhile, the FWUC's capacity on O&M needs to be strengthened further. CAVAC will engage the ISC to further strengthen the capacity of this FWUC.</p>
Achievements to Date:	<p>Engineering</p> <p>The construction of the original design commenced in April 2011. Some structures were added and all work was completed in August 2012. Further repairs were needed and the contractor completed these in July 2013.</p> <p>The survey and detailed design of the improvement work for the Thnoat Chum canal was completed, and tenders were called in for this work. A company was selected, and the contract was signed in December 2013.</p> <p>O&M</p> <p>CAVAC commissioned the PDWRAM to establish and build the capacity of a FWUC for this canal. The FWUC was established in April 2012 and the capacity building was completed in September 2012.</p> <p>CAVAC has been following up with the trained FWUC to strengthen its capacity on O&M. The FWUC has also been involved in identifying problems for the conceptual design of improvement work.</p>
Next Steps:	<p>Engineering</p> <p>Implement improvement work for the canal. Improvement work includes: adding an intake structure at the head of the ADB canal; providing more hydraulic structures; and improving the canal embankments with laterite pavement.</p> <p>O&M</p> <p>Continue strengthening the FWUC's capacity. CAVAC will engage the ISC to strengthen the capacity of this FWUC.</p>
Lessons Learnt:	<p>Engineering</p> <p>Careful review of conceptual designs by CAVAC's engineering team is essential for success of schemes.</p> <p>Daily construction supervision is important to ensure that the contractor's work meets the requirements of the design and technical specifications.</p> <p>O&M</p> <p>Before scheme extensions are planned, all farmers and local authorities need to be consulted and involved in the conceptual design stage.</p>

INTERVENTION UPDATE: Int. No: Irr 10.13 AWP No: 2.3 Date: 31 December 2013	
Name:	Development and construction of an irrigation scheme: Angko canal, Kampong Thom province
Summary:	<p>Farmers in Kampong Ko grew wet season rice and some limited dry season rice. Agricultural production was limited by unreliable access to water. The community expressed a need for rehabilitation of the Angko canal to improve water supply for double cropping.</p> <p>The Angko canal was selected for construction in April 2011. A feasibility study was carried out and the canal was surveyed and designed. In 2012, CAVAC and the PDWRAM agreed to extend the Angko canal two kilometres further. The extension work was completed but it needed additional structures.</p> <p>In 2013, CAVAC and the PDWRAM discussed the improvement for this scheme and decided to do more work in order to enable the scheme to become a more complete scheme that could cover a larger command area and would require lower O&M costs. Additional work includes: developing a concrete canal with a pumping station along the existing canal; constructing secondary earth canals connecting to the concrete canal; adding hydraulic structures; and making the existing main earth canal as a drainage canal.</p> <p>A FWUC was established in January 2012 and capacity building was completed in September 2012. The FWUC signed an agreement with a PWS in October 2012. CAVAC will commission the ISC to further strengthen the capacity of this FWUC.</p>
Achievements to Date:	<p>Engineering</p> <p>The construction work on the original length of the canal and the extension was completed. Repair work was completed in June 2013.</p> <p>The survey and detailed design of the improvement work for the Angko scheme was completed, and tenders were called in for this work. A company was selected, and the contract was signed in December 2013.</p> <p>O&M</p> <p>CAVAC commissioned the PDWRAM to establish and build the capacity of a FWUC for this canal. The FWUC was established in 2012, and the capacity building was completed in September 2012.</p> <p>CAVAC has been following up with the trained FWUC to strengthen its capacity.</p> <p>Farmers can now grow two crops per year, and the area of cultivation has continued to increase both inside the command and peripheral areas. The FWUC has signed a contract with a PWS, and has been collecting ISF. The FWUC collected around US\$5,000 after the first harvest (Jan/Feb 2013) and around \$5,500 after the second harvest (Jul/Aug 2013); and this collection has not finished yet.</p> <p>The FWUC has spent some of the collected fees on maintenance of the canal embankments and tertiary canal repairs during the dry season of 2013.</p>
Next Steps:	<p>Engineering</p> <p>Implement improvement work for the scheme. Improvement work includes: developing a concrete canal with a pumping station along the existing canal; constructing secondary earth canals connecting to the concrete canal; adding hydraulic structures; and making the existing main earth canal as a drainage canal.</p> <p>O&M</p> <p>Cooperate with the ISC to strengthen the FWUC's capacity on O&M. The FWUC, with support from the ISC, PDWRAM, and CAVAC, will determine a new ISF and select potential PWSs to manage the pumping station and water delivery.</p>
Lessons Learnt:	<p>Engineering</p> <p>The scheme has proven to be too complex to be designed by PDWRAM staff. Daily construction supervision is important to ensure that the contractor's work meets the requirements of the design.</p> <p>CAVAC and the construction company need to consult with farmers in the areas surrounding the Angko scheme about their rice cultivation schedule, as these areas are flood plains and farmers do rice cultivation during the dry season. The construction company usually has a short period to work on the construction before each wet season comes.</p>

INTERVENTION UPDATE: Int. No: Irr 13.1 AWP No: 2.3 Date: 31 December 2013	
Name	Development and construction of the Tang Krasang irrigation scheme: Secondary Canals 1, 2 and 3 of the 6 January canal, Kampong Thom province
Summary	<p>Previously, farmers in the Taing Krasang commune could only cultivate rain-fed wet season rice, and were facing risks from both flood and drought. Farmers in this commune and the PDWRAM have expressed their needs for CAVAC's support to rehabilitate/construct the Taing Krasang irrigation scheme. This scheme was then selected for implementation in 2013 and 2014.</p> <p>CAVAC's Tang Krasang irrigation scheme has three secondary canals (SCs), namely SC1, SC2 and SC3 which connect to the 6 January canal – the main canal. The 6 January canal gets water from the Tang Krasang reservoir that always has a reliable water source. The Taing Krasang scheme has been designed to be a complete scheme with a gravity-fed system. The scheme has a main drainage canal and each SC has several tertiary canals and hydraulic structures.</p> <p>The feasibility study, topographical work and detailed designs for SC2 and SC3 were completed. The construction work was started in February 2013 and by the end of this reporting period 80 per cent of the work was completed. Construction on SC1 will commence in January 2014. The construction of the three canals are expected to be completed in June 2014.</p> <p>CAVAC signed a contract with the PDWRAM on the FWUC establishment and capacity building. CAVAC also commissioned the ISC to strengthen the capacity of this FWUC.</p>
Achievements to Date:	<p>Engineering</p> <p>The construction of both SC2 and SC3 commenced in February 2013 and 80 per cent of the work has been completed by the end of this reporting period.</p> <p>O&M</p> <p>CAVAC signed a contract with the PDWRAM on FWUC establishment and capacity building.</p> <p>CAVAC also signed a contract with the ISC to strengthen the capacity of this FWUC. The PDWRAM will cooperate with the ISC in this whole process of FWUC establishment and capacity building.</p> <p>FWUC specialists from both the PDWRAM and ISC started their activities on the Taing Krasang scheme in September 2013.</p>
Next Steps:	<p>Engineering</p> <p>Monitor construction work of SC1, SC2, and SC3.</p> <p>O&M</p> <p>Continue working with the PDWRAM and ISC to establish and train the FWUC for this scheme.</p>
Lessons Learnt:	<p>Engineering</p> <p>Local construction companies often lack good site managers with sufficient experience to manage more complex projects. It is therefore essential for CAVAC to employ good construction supervisors that guide these companies in site management. In the next round of signing construction contracts only companies with good site managers will be selected.</p>

ANNEX 2: DATA ON CAVAC'S CONTRACTS WITH PDAS IN 2013

No.	Activity	PDA Kg. Thom	PDA Takeo	PDA Kampot	Total 2013	PDA Kg. Thom	PDA Takeo	PDA Kampot	Total 2013	PDA Kg. Thom	PDA Takeo	PDA Kampot	Total People involved	Current Status 2013
		Planned Figures				Achieved Figures				Number of Participants				
1	Establishing agricultural cooperatives	5	10	5	20	4	10	5	19	164 (87 w)	589 (307 w)	331 (138 w)	1,084	All planned agricultural cooperatives were established except one in Kampong Thom.
2	Early rice demonstrations and field days		20		20		14		14		612 (272 w)		612	14 demonstrations were successful. Six were damaged due to droughts. 14 field days were conducted.
3	Medium and late mature rice demonstrations and field days	50	50	40	140	50	45	40	135	2,061 (1,313 w)	2,008 (1,041 w)	2,720 (1,561 w)	6,789	All field demonstrations were successfully implemented except five in Takeo that were damaged due to droughts.
4	Rice seed production group establishment	4			4	3			3	59 (39 w)			59	Only three groups have been established.
5	Integrated Pest Management – Farmer Field Schools		5		5		5		5		198 (109)		198	The project was successfully completed.
6	Rice seed production training and demonstrations	1 (5 ha)	13		14	1 (5 ha)	13		14		667 (303 w)		667	PDA Takeo has successfully completed its project. The project in Kampong Thom totally failed due to the flood.
7	Pilot project – land leveling	1 (30 ha)	1 (30 ha)	1 (30 ha)	3	1 (30 ha)	1 (30 ha)	1 (30 ha)	3	164 f	94 f	43 f	301 f	The project was successfully completed.
8	Farmers' meetings		80		80		80		80		5,026 (2,111 w)		5,026	The project was successfully completed.
9	Pesticide/fertilizer law workshops	1	4	3	8		4	3	7		369 (69 w)	264 (68 w)	633	PDAs Kampot and Takeo have completed their plans. PDA Kampong Thom decided to cancel the project due to an overlap with a workshop organised by HARVEST.
10	Durian planting demonstrations			10	10							54 (9 w) attended a workshop.	54	On-going. A workshop was conducted. 10 training sessions are ongoing.
11	Dry season rice demonstrations	13		20	33									Activities are ongoing.
12	Post-harvest training	10	5	7	22	10				232 (109 w)			232	Contracts for PDAs Takeo and Kampot are being prepared. PDA Kampong Thom completed its plan.
13	Agricultural cooperative capacity building	5	2	2	9									Contracts being prepared
14	Agricultural cooperative forum	1		1	2									Contracts being prepared
15	PDA Kampot training visit to Takeo, Kandal and Svay Rieng			1	1									Will be completed in Jan 2014.
16	PDA staff capacity building (training/study tours inside/outside Cambodia)	3	1	4	8	2	1	2	5	40	10 (1 w)	11 (2 w)	61	PDA Kampong Thom: 10 people joined a study tour to Thailand and 30 were trained in rice seed production; PDA Kampot: 2 staff attended a training course in Thailand and 9 staff joined a study tour to China; and PDA Takeo: 10 staff joined a study tour to Thailand.

f = family w = women

ANNEX 3: CAVAC PARTNERS' REPORT

	1-Apr	Targets	% achieved*	1-Jul	Targets	% achieved*	1-Oct	Targets	% achieved*	31-Dec	Targets	% achieved*
Agribusiness												
PDA-led activities (Non-cumulative targets)												
Takeo												
Laser land leveling				Land leveled (hectares)	30	100%						
Field demonstrations												
Early rice varieties				Activity plan submitted to CAVAC	1	100%	Field demos with field days completed	20	68%			70% (Drought)
Medium mature rice varieties				Activity plan submitted to CAVAC	1	100%				Field demos with field days completed	30	90%
Late mature rice varieties				Activity plan submitted to CAVAC	1	100%				Field demos with field days completed	20	90%
Rice seed production training										Field demos with field days completed	13	100%
Farmers' meetings to improve the village extension							Farmers' meetings conducted	30	100%	Farmers' meetings conducted	50	100%
Establishment of agricultural cooperatives				Meetings to disseminate concepts, principles, and royal decree of AC establishment	30	100%	AC established	10	100%			
Agricultural cooperatives capacity building										To be conducted in 2014		
IPM Farmer Field School on rice production										IPM training sessions and demonstrations completed	5	100%
Post-harvest training										To be conducted in 2014		
Workshop on Pesticide and Fertilizer Management Law										Workshops conducted	4	100%
Kampot												
Laser land leveling	Contract signed	1	100%	Land leveled (hectares)	30	100%						
				Contracts signed between wet season rice farmers and PDA	2	100%	Field demos completed (wet)	2	100%	Field demos completed (dry)	2	90%
							Field day conducted (wet)	1	100%	Field day conducted (dry)	1	0%
Wet season field demonstrations				Contracts signed between farmers and PDA	40	100%				Field demos with field days (wet)	40	100%
Workshop on Fertilizer and Pesticide Management Law							Workshop	1	100%	Workshops	2	100%

	1-Apr	Targets	% achieved*	1-Jul	Targets	% achieved*	1-Oct	Targets	% achieved*	31-Dec	Targets	% achieved*
							conducted			conducted		
Pilot project/Experiment for durian plantation disease treatment							Contract signed	1	100%	Durian pilot project to be completed in June 2014		
Establishment of agriculture cooperatives				Meetings to disseminate concepts, principles, and royal decree of AC establishment	10	100%				AC established	5	100%
Capacity building and training in management and accounting for agricultural cooperatives										To be conducted/completed in 2014		
Capacity building and exchange visits for existing agricultural cooperatives												
Training in soil classification and nutrient management for key farmers and agricultural cooperatives												
Agricultural cooperative forum												
Dry season field demonstrations												
Post-harvest training for key farmers and agricultural cooperatives												
Exchange visits for key farmers												
Study tour for PDA staff members										A study tour and a training course	2	100%
Kampong Thom												
Laser-land leveling	Contract signed	1	100%	Land leveled (hectares)	30	100%						
				Contracts signed between farmers and PDA	5	100%				Field demos (wet)	5	100%
										Field days (wet)	1	100%
Rice seed production demonstration				Farmers selected and land prepared (hectares)	5	50%				Field demos with field days completed	5	0% (Floods)
Field demonstrations				Contracts signed between PDA and farmers	50	100%				Field demos with field days completed	50	100%
Establishment of agricultural cooperatives				Meetings to disseminate concepts, principles, and royal decree of AC establishment	10	100%				Cooperatives established	5	80%
Establishment of rice seed production groups in the agricultural cooperatives										Rice seed production groups established	4	75%
Training courses on Management and Leadership for agricultural cooperatives										To be conducted in 2014		
Training courses on Bookkeeping and Accounting for agricultural cooperatives												
Annual forum on rice marketing												

	1-Apr	Targets	% achieved*	1-Jul	Targets	% achieved*	1-Oct	Targets	% achieved*	31-Dec	Targets	% achieved*
Post-harvest training										Post harvest training sessions	10	100%
Workshop on Fertilizer and Pesticide Management Law										Cancelled		
GDA-led activities (Non-cumulative targets)												
Major Pest Control Manual development	Inception meeting	1	100%				Manual developed	1	50%	Approved manual	1	0%
	First draft compiled	1	90%			100%				Dissemination workshop	1	0%
Rice value chain improvement project	Contract signed	1	100%				Stakeholder dialogue on Seed Law and Regulations conducted	1	Delayed			
							Workshops on rice seed production and certification	3	Delayed	Workshops on rice seed production and certification	3	Delayed
										Certified seed produced (tons)	20	Delayed
										Forums on the 10 recommended rice varieties conducted	To be completed in June 2014	Delayed
Other activties if any												
CAVAC-led activities (Cumulative targets)												
Rice seed												
Medium seed producers supported		2	50%		2	50%		2	50%		2	50%
Associations supported		4	75%		4	75%		4	75%		4	75%
Fertiliser												
Fertiliser companies supported		3	100%		4	100%		4	100%		4	100%
One fertiliser forum conducted											1	0%
Pesticides												
Pesticide companies supported		2	100%		3	67%		3	67%		3	100%
Pesticide retailer training provided											5	100%
Rice export												
Partners supported		2	100%		2	100%		2	100%		2	100%
Vegetable seed												
Vegetable seed companies supported		2	100%		2	100%		2	100%		2	100%
Vegetable field demos conducted											100	100%
Field days conducted											57	100%
Media												
Media companies supported		1	100%		2	50%		2	50%		2	50%
A pilot episode produced and shown					1	50%			50%			50%
Research companies supported					1	100%		2	100%			
Irrigation and Water Management												
2011 and 2012 main irrigation schemes finalised								11	100%			

	1-Apr	Targets	% achieved*	1-Jul	Targets	% achieved*	1-Oct	Targets	% achieved*	31-Dec	Targets	% achieved*
Leading to farmer households having access (1 household = 1.25 hectares)											9800	100%
Leading to hectares able to irrigate											12250	100%
2013 Irrigation schemes constructed								6	60%		6	65%
Irrigation schemes studied and prepared for 2014								6	90%		6	100%
Research and Extension												
Action research funded					1	100%		2	100%		3	100%
Extension activities started related to:												
Model farmer training											400	54%
Leading to farmers being supported											4000	79%
Sources of information supported								1	100%			
Linking activities conducted								2	0%			
PDA Help Desks Supported		3	100%		3	100%		3	100%		3	100%
Business Enabling Environment												
Public-Private Dialogue groups established								3	5%			

ANNEX 4: EXPENDITURE AGAINST WORK PLAN

Component breakdown		Description	Activities 2013	Budget (US\$)	Total Expenditure to Date	Total Commitment to Date	% Committed against 2013 AWP Budget
Component 1: Agribusiness				\$1,530,000	\$750,184	\$1,546,424	101%
1.1	Critical constraints to strategic value chains identified and developed for business action.	Completed		0	0		
1.2	Agribusiness partnerships supported to innovatively address constraints.	Improve input markets in rice and vegetables; tools in rice; improve availability of efficient and affordable pump units. All companies will be encouraged to add extension activities. CAVAC to continue conducting activities to create and improve linkages among all actors in the markets, and to encourage companies to improve communication within their networks.	<u>Rice seed market</u>	830,000	403,075		
			Support to medium seed producers				
			Support to seed associations				
			Support to small seed producers				
1.3	Enhanced farmer services embedded within agribusiness practices.		<u>Inputs</u>				
			Support to input suppliers				
			Joint training with PDAs				
			Support to more companies if possible				
			Support to fertiliser forum				
			<u>Pumps</u>				
			Support to commercial partners (producers and retailers)				
			Collaboration with MOWRAM				
			<u>Media</u>				
			Support to a media company				
			Support to one/two more media companies				
			Support to one/two media research companies				
			<u>Rice export promotion</u>				
			Support to an exporter (contract farming)				
			Support to FCRMA				
			Support to more companies if possible				
			<u>Vegetables</u>				
			Support to vegetable seed companies				
			Support to more companies if possible				
			1.4				
Model Farmer Training							
Support to call centres							
Support to CARDI for its website improvement							
Support to PDAs' Help Desks							
Support to Private Companies' Help Desks							
Linking events							

Component breakdown		Description	Activities 2013	Budget (US\$)	Total Expenditure to Date	Total Commitment to Date	% Committed against 2013 AWP Budget
1.5	Participatory planning and construction of key infrastructure to address value chain bottlenecks.	On hold until good opportunities have been found.		0	0		
1.6	Government-led rice policy activities	Activities led by the three PDAs		450,000	347,109		
		Activities led by the GDA		250,000			
Component 2: Irrigation and Water Management				\$5,498,800	\$3,653,003	\$12,324,081	224%*
2.1	Improved capacity of MOWRAM and PDWRAM to participate in designing, developing, operating, and maintaining irrigation schemes.	Intense collaboration with MOWRAM and PDWRAMs in the construction of schemes and outsourcing in the detailed design of another group of schemes. Involvement in the water availability studies if needed.	Extensive collaboration and subcontracting with all three PDWRAMs including construction supervision. Support to PDWRAMs in training as per chapter 3.2.	118,800	137,972		
			PDWRAMs' survey and design of 2014 schemes				
2.2	Improved capacity of FWUCs to efficiently and effectively operate and maintain their irrigation systems.	Based on the position paper on ownership, CAVAC and PDWRAMs will support FWUCs and other players to improve likelihood of sustainability.	FWUCs establishment and training	280,000	300,522		
			FWUC office construction	110,000			
			Supplementary Investment Fund	100,000			
2.3	Selected irrigation schemes rehabilitated and transferred to effective FWUCs.	Depending on the decision of the NSC in late 2012, CAVAC will tender schemes and commence construction in 2013. On top of that, one or two FWUCs will receive co-funding for improvements.	Additional work on 2011 and 2012 canals	1,290,000	3,214,509		
			Construction of new schemes*	3,600,000			
			Water safety				
2.4	Improved models of water management adopted in rain-fed areas.		Lessons from the research will be incorporated in CAVAC activities.	0	0		
2.5	Increase use of hydrological data in the planning and management of irrigation systems.	One water availability study was finalised in 2011. A new one could be undertaken if requested by PDWRAMs.		0	0		
Component 3: Research and Extension				\$100,000	\$30,239	\$60,244	60%
3.1	Priority research and extension activities address constraints in selected value chains.	Four large research studies are no longer under CAVAC's scope of work		0	0		
		Small additional research may be commissioned as required.		100,000	30,239		
3.2	Enhanced capacity of formal and informal extension providers to transfer improved technologies and information to farmers.	Included in 1.2		0	0		
3.3	Partnership program linking researchers, extensionists, farmers and agribusinesses developed and implemented.	Included in 1.2		0	0		
3.4	Budgetary support to CARDI.	No longer under CAVAC's scope of work		0	0		
Component 4: Business Enabling Environment				\$290,000	\$1,019,607	\$1,090,091	376%
4.1	Improved research and understanding of the enabling environment surrounding key value chains.	CAVAC will assess impacts of a number of new regulations for agriculture and specifically CAVAC activities.	Issue studies to be undertaken and where possible activities will be initiated.	10,000	0		
4.2	Increased opportunity for public private dialogue around key enabling environment issues.	Activities with TAF where provincial government-led dialogue is initiated	Continued activities from 2012	180,000	3,100		
			Follow up activities if first round successful				
4.3	Strengthened industry representative organisations.	Activities may emerge from other activities.		0	0		
4.4	Increased use of Public Private Partnership investment model.	Integrated with 2.2 and 2.3.		0	0		
4.5	Policy Support Funding Facility During the reporting period Cardno received AusAID approval for expenditure under this line item to cover AusAID's commitment to FAO for the Agricultural Census. This activity will be performance	This facility will support activities initiated by MAFF / MOWRAM / AusAID with approval from the Executive Group of the NSC.	RGC initiatives supported	100,000	1,016,506		

Component breakdown		Description	Activities 2013	Budget (US\$)	Total Expenditure to Date	Total Commitment to Date	% Committed against 2013 AWP Budget
	managed by AusAID.						
Cross Component Activities				\$425,000	\$240,633	\$240,658	57%
5.1 / 5.2	Gender and Disability**	The gender and disability strategies will guide activities. Both will be mainstreamed in all activities. On top of this one or two dedicated interventions are likely.	Gender and disability are mainstreamed in all activities.	0	0		
5.3	Environment and Disaster Risk Reduction***	Revised Environmental Strategy will be implemented in 2012 and continued in 2013.	All interventions will have been screened for environmental impacts. Management plans prepared and activities implemented and monitored.	0	0		
5.4	M&E	M&E will be an integral part of the work activities of CAVAC. All experts will be involved.	All interventions will have impact logics and monitoring plans.	150,000	56,531		
			Cross cutting issues will be integrated.				
5.5	Training/seminars/capacity development support	CAVAC will prepare a training needs assessment and training plan for its staff and government counterparts.	CAVAC and RGC staff better able to implement activities.	250,000	176,322		
5.6	Equipment	Support to MAFF, MOWRAM, PDA and PDWRAM for office equipment and communication	RGC partners to be better able to execute their CAVAC related activities	25,000	7,781		
Total				\$7,843,800	\$5,693,665	\$15,261,498	195%

*Due to progress with the procurement for infrastructure projects for 2014. This amount includes the irrigation contracts outlined in the 2014 AWP.

**Expenditures on gender and disability work are included in agribusiness expenditures.

***Expenditures on environmental work are included in irrigation expenditures.