



Cambodia Agricultural Value Chain Program Phase II (CAVAC II)

Annual Work Plan 2016

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Acronyms

AQIP	The Cambodia Equipment Laboratory
CARDI	Cambodian Agricultural Research and Development Institute
CAVACI	Cambodia Agricultural Value Chain Program Phase I
CAVACII	Cambodia Agricultural Value Chain Program Phase II
DCED	Donor Committee for Enterprise Development
DFAT	Department of Foreign Affairs and Trade
FWUC	Farmer Water User Community
GDA	General Directorate of Agriculture
ICT	Information, Communication and Technology
IRRI	International Rice Research Institute
MAFF	Ministry of Agriculture, Forestry and Fisheries
MOWRAM	Ministry of Water Resources and Meteorology
MSA	Memorandum of Subsidiary Agreement
NSC	National Steering Committee
PDA	Provincial Department of Agriculture
PDD	Program Design Document
PDWRAM	Provincial Department of Water Resources and Meteorology
UXO	Unexploded Ordinances

Executive Summary

Following a successful first phase, the Royal Government of Cambodia (RGC) and the Government of Australia agreed that the Cambodia Agricultural Value Chain program would continue into a second phase, from January 2016 to December 2021 (CAVACII) with the aim of improving farming practice in 135,000 households, providing irrigation access to 25,000 households, and supporting increased rice exports through the use of five (5) new rice varieties. This Annual Work Plan (AWP) for 2016 sets out and prioritises activities for the coming year and assists the National Steering Committee (NSC) to oversee the program. The AWP will be directed by the needs of the RGC and DFAT, informed by CAVACI's identified opportunities.

Productivity and Diversification (P&D) work will continue in fertiliser and pesticide markets. It will also expand into new markets such as cassava and maize; scoping for these areas was undertaken in the CAVACI. Further markets will be identified during 2016. The relationships established with General Directorate of Agriculture (GDA) and Provincial Department of Agriculture (PDAs) in CAVACI will be continued into CAVACII, there is continuity of staff in the P&D team which allows for these relationships to continue.

Work in seven (7) irrigation schemes totalling 3,073 Ha will be completed in 2016 in Takeo, Prey Veng, and Kandal. Other construction activities will also be done: FWUC offices, flood damage repair, and on-farm water management works. Operations and maintenance will remain an important part of the program.

Cambodia's ambition to increase rice exports will be assisted through the assessment of a potential partnership with the Cambodia Rice Federation (CRF) and collaboration with leading seed companies.

An emphasis on gender and environment will be maintained. A program Monitoring and Evaluation (M&E) plan, based on the Donor Committee for Enterprise Development (DCED) Standard will be prepared by July 2016, and were an estimate of program impact to follow by the end of the first year of CAVACII (January 2017).

Forty (40) people started work between the 18th and 25th January 2016, however, this will increase to fifty-three (53) people as vacancies are advertised and filled in the first year. A new office has been established for CAVACII in Phnom Penh, it was finished in late February 2016, and all staff are now located there. The program budget is up to approximately USD12.5 million (AUD16.28 million) for 2016 (see Annex 1).

Introduction

CAVACII will contribute to the achievement of the following two (2) goals: improved incomes for smallholder farmers; and increased trade in milled rice and other crops. The program purpose aims to increase the productivity and incomes of small farmers and trade in milled rice and other crops by strengthening market systems and investing in irrigation infrastructure¹. The indicative component results expected at the end of the program are respectively:

- > 135,000 farming households have knowledge of and apply improved farming practices;
- > 25,000 farming households gain access to sustainable irrigation;
- > Five (5) new rice varieties are introduced and used.

CAVACII will contribute to the achievement of The Australian Government's new development policy *Australian aid: promoting prosperity, reducing poverty, enhancing stability*². Background documents include: the Memorandum of Subsidiary Arrangements (MSA) (December 2015), the investment design for CAVACII (June 2015), the completion report for CAVACI (November 2015), and the statement of requirements in the contract between Cardno and DFAT (January 2016).

This document is intended for members of the National Steering Committee, and is a record for later review. It contains an outline of overall program strategy, an indication of planned work in each component, and key work in gender, research, communications, results measurement and environment.

Supporting Government Counterparts

In accordance with the Program Design Document (PDD) and Memorandum of Subsidiary Agreement (MSA), CAVACII has contracted additional support provided by the positions of Government Liaison Officers as Deputy Team Leaders (DTLs). These positions are nominated by the Royal Government of Cambodia (RGC) counterparts, namely, Ministry of Agriculture, Forestry and Fisheries (MAFF) and Ministry of Water Resources and Meteorology (MOWRAM). These collaborative roles are important in creating closer ties between CAVACII and the two (2) Ministries at a national level. DTLs accompany CAVACII staff to meetings with national and provincial counterparts and assist with facilitating solutions to issues faced by the partners, including issues in the working relationship between the Provincial Department of Water Resources and Meteorology (PDWRAMs) and MOWRAM. This support is contracted on an outputs basis.

Program Strategy and 2016 Targets

The program strategy is to facilitate change in market systems in a way that the two (2) program goals can be achieved and sustained. To complement the large investment in irrigation infrastructure and water management institutions, a portfolio of interventions will be created and managed consistent with the market system development approach³. These interventions will be in market systems that present opportunities for growth, that are relevant to poor people, and where there appears to be

¹ DFAT – Goods and Services Contract: 71034, pg. 5

² <http://dfat.gov.au/aid/Pages/australias-aid-program.aspx>, 28 March 2016.

³ “Market systems approaches, or Making Markets Work for the Poor (M4P) are approaches to poverty reduction that donors such as DFID, DFAT, Sida and SDC have been supporting over the past few years. The central idea is that the poor are dependent on market systems for their livelihoods. Therefore changing those market systems to work more effectively and sustainably for the poor will improve their livelihoods and consequently reduce poverty”. Source: <http://www.enterprise-development.org/page/m4p>, 28 March 2016.

some scope to facilitate change. The following sections outline the program's strategy at the component level.

Approach

CAVACII is a Market Development Program with the flexibility to support a range of actors including: the RGC, Civil Society, and the private sector. The program will start with analysis of the key issues and opportunities in the market system, and develop strategies to work with partners in agreed areas.

A consequence of market complexity and unpredictability is that CAVACII will not always be able to predict the outcome of the interventions it implements. Using the DCED standard for monitoring and evaluation will assist CAVACII to learn and adapt allowing improved performance of the intervention and subsequent interventions.

Sustainability:

CAVACII has two (2) main components: the permanence of the innovations it introduces into the market; and, the resilience of the market to adapt itself to new requirements /developments. CAVACII itself is not an actor in the market but functions as a facilitator.

Component 1: Productivity and Diversification (P&D)

The target for this component is 135,000 farming households have knowledge of and apply improved farming practices. The strategy is to facilitate the increased productivity and diversification of farming.

Productivity remains an important constraint on the agriculture sector. Innovative farmers in Cambodia are able to obtain yields between 30 and 40 tons/ha national average of 15 to 17 tons/ha, showing that the potential for improvements is achievable at a larger scale. Increased productivity improves the business efficiency of the farm, allowing farmers to make more profit to be saved for investment in subsequent years. A market system centred on efficient farms at least means that supply is more likely to satisfy demand, and with some intervention, the supply can grow in response to growing demand.

Diversification of the agriculture sector is the second part of the component strategy. Rice dominates current cultivated area but does not in most circumstances generate attractive profits for poor farmers. Whilst there are opportunities for rice gross margins to improve, there are also opportunities for diversification to which some businesses are already responding, and that the program can facilitate. These opportunities range from the expansion of crops (e.g. cassava, maize, and vegetables) to the development of support markets such as fertiliser, crop chemicals, financial services, media, and knowledge services. The program will survey where crops are growing, trends and current practices.

The program will work in the following markets:

Fertiliser

Following the very successful interventions on fertiliser used by rice farmers in the eastern provinces, there may be potential for further facilitation to increase use of fertiliser by rice farmers in the western provinces. There may also be scope for interventions in the fertiliser market to affect all crops. Anachak Fertiliser Company is a potential partner interested to provide crop-specific advice on the use of fertiliser. Such an intervention would seek to help the market to evolve, selling to a market segment that wants quality and efficiency. It would potentially involve identifying and introducing methods and technology that enable companies to make recommendations more specific to a farmer's needs.

Pesticides

One of the most pressing problems facing poor rice farmers is controlling the negative impact of pests. Some excellent work was undertaken by the program in CAVACI to support crop protection

companies to offer appropriate remedies to farmers. This work will continue and expand in 2016. More companies may be interested to train retailers, and some more may also be interested to adopt RaPiD⁴. The program will review the use of RaPiD and explore the relevance of releasing a new version in 2016, possibly including weeds and sales location tracking. Later in the year, and if the market is interested, there may be scope for preparing a version of RaPiD, less reliant on a knowledge of technical terms, and hence more directly accessible by farmers. One aspect of the market system that will need to be better understood is the related market of ICT for agriculture. The program will look at ways to improve linkages between the ICT and pesticide markets so that attractive services can be developed and offered. Farmers do not always benefit from investments in crop protection chemicals. This can be caused either by making the wrong diagnosis and therefore supplying/buying an incorrect product or the retailer prescribing the wrong product or by the farmer applying the correct substance in an ineffective manner. If CAVACII better understands where the majority of mistakes are made, it can develop a more targeted approach.

Cassava

Following deforestation, farmers have tended to plant Maize followed by Cassava because it is a simple way to quickly make money with little fixed investment in the land. But, after repeated plantings over several years, yields are falling. There are potentially some ways that the program might intervene: Such as through knowledge on fertilizer use, the availability of specific blends, Knowledge on pest control, and the availability of uniform planting material.

The rationale for working in Cassava, is related to the potential for yield increase and avoiding further yield losses. It is important to emphasize here the potential positive environmental impacts of working in cassava such as soil nutrient retention, and avoidance of top soil erosion. Both these effects are related to work in soil fertility.

Table 1 Yield with soil type in the East

No	Soil type	Fresh root (t / ha)				Dried chip (t / ha)			
		#Farmers	M. yield	Min	Max	#Farmers	M. yield	Min	Max
1	Dark Soil	4	17.8	11.3	30.0	5	9.0	5.0	10.0
2	Red soil	5	18.3	5.8	31.0	8	8.5	5.0	14.0
3	Sandy soil	16	15.0	6.6	30.0	11	7.6	3.6	11.0
4	DK soil	-	-	-	-	3	10.2	6.6	14.0
	Total	25	16.1	5.8	31.0	27	8.4	3.6	14.0

Table 1⁵ shows an overview of the farmers' yields, it is: disaggregated by soil type. The yield gap in Cassava is substantial which indicates the possibility to reduce the yield gap, by improving the way in which farmers use fertilizer. CAVACI initial research shows a significant positive relationship between use of fertilizer and yield. Findings from the CAVACI value chain study in the east in Kampong Cham, Kabong Thum, and Kratie showed that only 31% of farmers use fertilizer, a significant amount used organic fertilizer but at low amounts, and insufficient to replace nutrients lost through harvest. By working with companies to improve the fertilizer practices CAVACII aims to increase the number of farmers that get close to that maximum yield

CAVACII will also look at general fertilizer advice in the west and analyse it for opportunities to improve. The general impression however is that proximity to Thailand has assisted significant adoption of blends and practices in the west.

- > Increasing the good use of fertiliser and increasing the availability of blends specific for Cassava

⁴ Rice Pest and Disease Diagnostic Tool

⁵ Disaggregated by chip drying or fresh root, optimal would have been to convert dried chips to fresh root yield, it was however not possible to get consistent information on moisture content and therefore we decided to present as it was collected

- > Improving the availability of planting materials to improve quality (consistency) of root appropriate to market demand
- > Exploring the potential for commercially-viable cassava processing to ensure greater value-added for the Cambodian economy.

Maize

Whilst the design document highlighted maize as a potential market, initial research gives less reason to be confident. Further research will be done to conclude this question.

New crops

There may be opportunities to facilitate the introduction of new crops and the associated processing industry. A starting point for this market would be the seed market. CAVAC is starting out by understanding the conditions under which these crops can be introduced, while at the same time speaking to companies that are interested and knowledgeable about the new crops

Activities with Provincial Departments of Agriculture (PDAs) and the General Department of Agriculture (GDA)

CAVACII will continue to maintain relationships with the PDAs and the GDA. The intention is to work through output-based contracts with the PDA and GDA. Contracts will support CAVACII partner activities in relevant provinces. Activities that could be considered are:

- > Pesticide retailer training with PDAs (currently PDAs provide retailer training without any technical content). The purpose is to license the retailers.
- > Variety comparisons.
- > Small surveys.
- > Others in line with CAVACII and PDA priorities.

Risks

The Productivity & Diversification (P&D) component is looking to work in unexplored markets such as, cassava. The initial signs show positive potential, however, further field testing of ideas and concepts may reveal a different reality. To mitigate this risk CAVACII will explore the opportunities in other crops to allow agility.

P&D has established four (4) units (Rice, Cassava, Diversification, and the Innovation Unit) of which three (3) have inexperienced coordinators. This is a challenge for the implementation at the beginning of the program, but support and guidance from management and team work is being provided. The Diversification and Innovation Units are experimental and may take time to become operationally effective. Balancing risk through a portfolio approach will allow CAVACII to develop a broad and demand driven set of interventions. In later years the focus will increase to exploit the most promising opportunities.

Component 2: Irrigation and Water Management

The aim of the irrigation component is to influence good practice in the irrigation sector from design to long-term operations. The component target is to increase incomes for 25,000 households over the life of the program. The strategy in 2016 is to ensure the construction of seven schemes in three of four target provinces during the first six months of the year, whilst deepening the efforts to ensure sustainability of CAVACI schemes.

Design work for the schemes was done in 2015. Twenty (20) schemes were identified by the PDWRAMs and proposed to CAVAC for appraisal for assistance under CAVAC II for 2016. Out of the twenty (20) investigated, seven (7) schemes were selected for detailed design, (see attachment 1 for

further details). Initial site visits were jointly done by PDWRAM and CAVAC to quickly review available water resources, potential command area⁶ and interest of farmers. Seven schemes were moved to the planning and design phase for 2016, two were left for consideration in 2017, and one requires further enquiry. The main benefits of the selected schemes will be:

- > better access for all farmers to water for irrigation in sufficient quantities;
- > possibilities for double / triple cropping;
- > roads along irrigation canals will improve access to fields and reduce transportation costs of agricultural produce from fields;
- > improved access to fields for agricultural machinery (rice harvester, small transport trucks etc.); and
- > increased land prices (100 to 500 % increase based on experiences in CAVACI).
- > The table and sections below outline the planned schemes.

Table 2 Selected schemes and provisional budget (15 December 2015)

Scheme Name	District	Provisional Construction Budget in AUD ⁽¹⁾	Remarks
Takeo ⁽²⁾			
Wat Thmey ⁽³⁾	Prey Kabas	1,656,749	Pumping scheme; 456 ha
Canal 90	Koh Andeth	2,281,429	Pumping scheme; 600 ha
Prey Veng			
Peam Ro	Peam Ro	2,087,279	Pumping scheme; 291 ha
Angko Ang	Peam Cho	2,143,711	Pumping scheme; 382 ha
Anlung Reach	Kampong Trabaek	2,461,390	Pumping scheme; 343 ha
Kandal			
Sambour Preaek Char	Lvea Eam	2,015,471	Pumping scheme; 435 ha
Chrouy Chreae	Lvea Eam	2,309,124	Pumping scheme; 565 ha
Total		13,510,315	3,073 ha

Notes:

- 1 Budget includes construction of canals, structures, pump house and purchase and installation of pumping equipment
- 2 Budget is based on Engineer Estimate. Final budget is known after signing of construction contract.
- 3 Tboung Khmum is also a Target Province but will be included in 2017 work plan.

Takeo

Two (2) pumping schemes will be constructed:

- > The Wat Thmey 3 scheme's source of water is the main canal of the Wat Thmey irrigation scheme. The command area is located at a higher elevation and therefore needs a second pump station. As the area is not flooded during the wet season farmers can grow multiple crops.
- > Canal 90 is an existing canal constructed in the late 90's. The work will consist of the rehabilitation (de-silting) of the main existing canal, construction of secondary canals and construction of a new pump house installed with electrical pumps.

⁶ Potential command area is the area that can be brought under command by the completed scheme for both wet and dry cropping seasons. Farmers not always irrigate to the full potential of the scheme for reasons of available resources (cash and labour), or other reasons. We monitor actual versus potential command irrigated for all cropping seasons of completed schemes.

Prey Veng

Three (3) pumping schemes will be constructed:

- > Peam Ro is located on the floodplain of the Tonle Touch River. Construction can only start after the harvest of the recession rice crop in February. Construction will include a new pump house and concrete lined canals.
- > Angko Ang, is different in the sense that farmers grow more non-rice crops such as maize and sesame. However with the proposed pump station and lined canals farmers have more alternatives for cropping patterns, including double rice cropping. The source of the water is the Stung Slot River, which is a very secure water source.
- > Anlung Reach, is a similar project also consisting of a pump house and lined canals. The command area is not flooded so farmers can grow three (3) rice crops per year. The source of the water is the Kampong Trabaek River.

Kandal

In Kandal province, the selection process of schemes was done together with the PDWRAM and the GLO of MOWRAM. The final decision on scheme selection is discussed with all stakeholders, and based on mutual agreement. CAVACII agreed that two (2) schemes in Lvea Eam District. The source of water is the Mekong River and soils are very fertile. Parts of the command area located at the flood plain is flooded, so early flood protection might be provided in 2017 to guarantee a second rice crop harvested in July / August. In some years, when Mekong floods arrive early, farmers lose their rice crop as they cannot harvest in time.

Other Construction Activities

Five (5) FWUC offices will be constructed in 2016. Wat Thmey 3 will share the office with the one constructed for Wat Thmey 1 and 2. The two (2) schemes in Kandal will share one (1) office as they are located next to each other and share the same pump house.

The floods of 2014 caused damage to the Wat Thmey 1 & 2 scheme. The CAVACI budget in 2015 was insufficient to repair the damages or provide some additional cross drainage structures. This was subsequently delayed for implementation in year 1 of CAVACII.

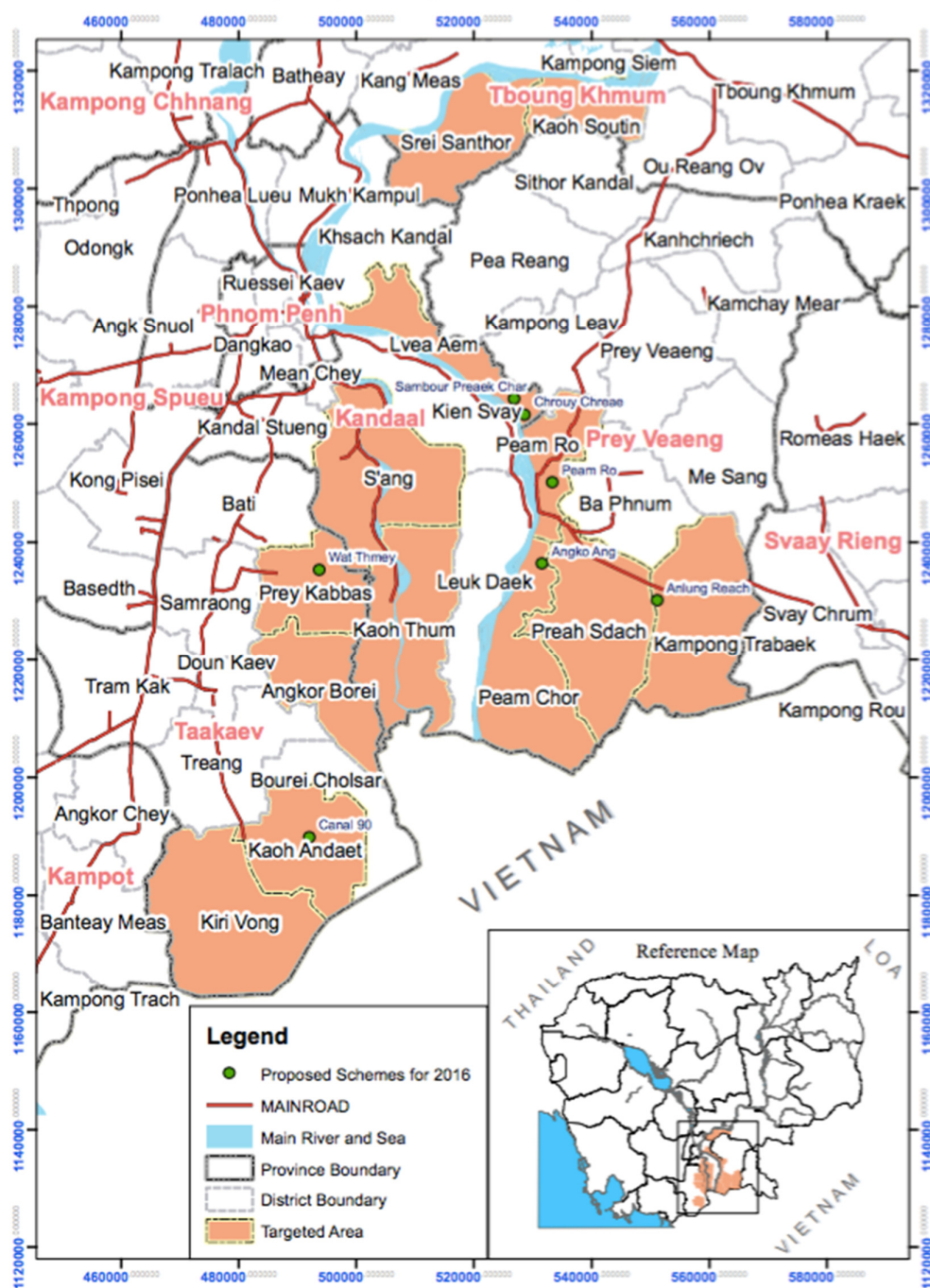
The on farm water management activities will consist of:

- > land levelling;
- > construction of field channels; and
- > early flood protection.

The activities will be implemented on a small number of schemes where farmers have shown an interest in doing the combination of land levelling and construction of field channels. These so called 'model schemes' will be shown to farmers of potential schemes for following years. Levelled fields result in reduced pumping costs and increased yields.

Early flood protection can be done in a number of schemes with partly flooded command areas. Early flood protected dikes (not complete flood protection) of limited height can only be constructed if farmers agree with the land losses needed for the construction of these dams. The early discussions were started on the schemes in Kandal but needed delay till 2016 for finalization of designs and consensus on related land losses.

Figure 1 Map of Irrigation Target Provinces



Operations and Maintenance

The operation and maintenance phase of the work is essential for ensuring sustainability of the schemes. The FWUCs for all new schemes will be established at the start of the construction activities. They need to be involved in the exact location of irrigation and drainage structures, field channels and the FWUC office. After that they will be trained in the operation, maintenance and management of their scheme. Training will be provided by the PDWRAM, CAVACII and external service providers depending on available resources at the respective PDWRAM office. During the construction period, a landholding map will be prepared to enable the FWUC to set up a transparent

system for fee collection. An Operations and Maintenance (O&M) manual will be prepared to facilitate the FWUC in managing their schemes based on agreed roles and functions of the FWUC members and operational rules. After completion of construction of canals and installation of pumps, the FWUC will receive further training in maintaining an administrative and financial system to guarantee a sustained use of their scheme and maintain it properly. In 2016, the program will also look for contributions it can make to stimulating improved public and private institutional supports to FWUCs to improve the sustainability of the schemes.

Work Planning

The planning schedule presented below is from 2015 and used to pre-qualify construction contractors during the final months of CAVACI. This was required to ensure that there was construction of irrigation canals in the 2016 calendar year as the commencement of wet season mid-year precludes major excavation and construction in the final six (6) months of each calendar year. Construction of most of the schemes is planned to be completed before start of the wet season of 2016. There are some risks to the plan which the program will seek to reduce:

- delays to the works due to contractual disputes related to tax, quality of construction, and/or cash flow problems of subcontractors;
- change at any government level;
- worsening market conditions for paddy production may mean that FWUC members struggle to pay fees that sustains the scheme; and,
- FWUCs receive insufficient financial support for periodic maintenance of schemes.
- Weather conditions such as early commencement of wet season;
- Unforeseen cost increases such as labour rates, fuel, and concrete.

Table 3 Irrigation component Gantt chart

	Description of Activity	Province	2015					2016												Remarks
			Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	Scheme Design & Construction		DESIGNS 2016 SCHEMES					CONSTRUCTION												
1.1	Wat Thmey 3	Takeo																		Design completed earlier this year
1.2	Canal 90	Takeo																		Flood plain, construction can only start in Feb
1.3	Peam Ro	Prey Veng																		Flood plain, construction can only start in Feb
1.4	Anlung Reach	Prey Veng																		
1.5	Angko Ang	Prey Veng																		Flood plain, construction can only start in Feb
1.6	Sambour Preaek Char	Kandal																		
1.7	Chrouy Chrae	Kandal																		Flood plain, construction can only start in Feb
2	Other Construction Activities																			
2.1	5 FWUC Offices	All																		
2.2	Scheme improvements 2015 schemes	Takeo																		Flood damage on some schemes
2.3	OFWM Activities	All																		Land leveling, field channels, early flood protection etc.
3	O&M	All																		
3.1	FWUC Training	All																		Intermittant; jointly done by CAVAC and PDWRAMs
3.2	Landholding Surveys	All																		Outsourced to private company
4	Preparation for 2017 worplan																			
4.1	Surveys & Studies	All																		Tboung Krum will be included as well
4.2	Designs of 4 to 6 schemes	All																		
5	Procurement		PROCUREMENT 2016					PROCUREMENT 2017												Pumphouse; civil works; pump installation
5.1	Pre-qualification of contractors																			For canal construction only
5.2	Selection of pre-qualified contractors																			10 to 15 contractors
5.3	Preparation of Tender Documents																			Will start after all designs are completed
5.4	Selection of Tenderers																			Done by Tender Evaluation Committee
5.5	Preparation of Construction Contracts																			Complete before end of the year

Component 3: Milling and Export

The target of this component is to facilitate the introduction and use of five (5) new rice varieties and the increased availability of quality seed that stimulate increased export of rice. This focus is seen as the most practical and feasible contribution that the program can make. For the purpose of the AWP the following interventions are planned:

- > The availability of 5 new rice varieties suitable for the export market is the core outcome for Component 3. Considering the limited availability and short varietal development pipeline at both CARDI and IRRI this goal will be difficult to achieve during the project's lifetime. Component 3 therefore will adopt a two pronged approach:
- > Stimulate the introduction and seed availability of varieties that are already released in Cambodia but not widely used by farmers. Good examples are the recently released CAR 14 and CAR 15 varieties and the aromatic variety Sen Kra Ob.
- > Work with two (2) seed companies that are registered and well established in Cambodia to register and release their most promising white and fragrant varieties through GDA.
- > The variety release and registration system in Cambodia would benefit from support. There is currently a decree (Prakas) under consideration which will lay down the rules for seed registration and certification and Component 3 will actively work with MAFF/GDA on its implementation once signed by the Minister of Agriculture, Fisheries and Forestry.
- > The Cambodia Rice Federation (CRF) is mandated by the RGC to represent rice exporters, millers, traders and farmers in Cambodia to promote Cambodian rice internationally. The CRF is the result of a merger of four previously existing Associations and has representation of rice millers, rice exporters, traders and farmers. The day to day management of the CRF is in the hands of a secretariat and managed by a Secretary General. The CRF recognizes that the capacity to successfully run the federation and be seen to represent its members is still in its infancy and has requested CAVACII to make a management consultant available to mentor secretariat staff in its various duties. During the reporting year an experienced management consultant will be embedded inside the secretariat (1-3 days a week).
- > AQIP is currently the only recognized seed company in Cambodia and came into existence with Australian Government funding. Currently, AQIP produces between 2,000 and 3,000 metric tons of rice seed per annum. This production level has been more or less stable over the past five (5) years, and the organisational structure of AQIP make franchising this threshold difficult. AQIP produces a number of rice varieties suitable for export (Sen Kra Ob, Phka Rumduol) and has increased the availability of quality seed for these rice varieties. This will be crucial if Cambodia wants to achieve and maintain its export targets. Component 3 will work closely with AQIP and private sector partners in close consultation with DFAT, to find ways which will allow AQIP to increase volume and maintain seed quality of key export rice varieties.
- > AQIP intends to make a short term Seed Business Management Consultant available with specific terms of reference to look at AQIP management capacity (general management, seed production management, commercial management), study the AQIP product portfolio and mix and recommend improvements and assess the current AQIP assets and make recommendations for refurbishment or new investments.
- > Farmers in Cambodia use large quantities of seed for paddy production (up to 300-400 kg/ha). It is impossible to build a sustainable seed system when farmers use these seeding rates. Dry seeding of rice has been practised in other countries for many years and reduced seeding rates to between 30 and 60 kg. Efficient and low cost seeders are available from Thailand and during 2016 Component 3 will, in collaboration with private sector partner, GDA and AQIP demonstrate the use of these implements together with other good agronomic practises such as weed control. Target

beneficiaries will be seed producers, seed companies, extension staff, rice millers and their paddy out growers.

- > Although many seed producer groups have been trained by various projects in the past, seed quality and seed production management remain a constraint. Component 3 will in collaboration with the CRF AQIP and GDA pilot a model seed production farm which will be used as a training ground for seed producer associations, emerging seed companies and rice millers that produce seed for their paddy out growers.
- > Seed production is best done under irrigation in the dry season. Component 3 will work closely with Component 2 to identify seed production opportunities in CAVACII supported irrigation schemes, thus adding value to previous and current CAVACII investments. At the same time Component 3 will leverage knowledge gained by Component 1 on best practices in fertilization and pesticide use in rice (seed) production.

Risks

The international rice market is highly competitive due to reduced global demand and increased supply. In the South East Asia region there are several countries with mature industries and established trading relations. Myanmar's political and economic transformation may soon see this country increasing its trade, adding to the competition. Unfortunately, global prices are low, having fallen over the last five (5) years from about \$500 / MT to about \$350 / MT. This increases the pressure on the Cambodian industry to be efficient. In combination, this is a difficult external context for Cambodia. However, a focus on higher-value varieties, improved use of irrigation infrastructure and more private sector involvement in farm productivity could help the country to achieve its export targets.

Cross-Cutting Issues

Gender

A draft Gender Strategy will be prepared in 2016 and due by January 2017⁷. It will describe the program's approach to this important topic, including: seeking to increase poor women's access to markets, as consumer or supplier, helping market enablers in government positions and managers of businesses to understand the different ways that men and women interact with markets, and ensuring the gender aspects of the DCED results measurement standard are applied.

The Gender Strategy will comply with Cardno's obligations to promote gender equality in the workplace under the *Workplace Gender Equality Act 2012* (Commonwealth WGE Act)⁸.

The program has put into place current measures to ensure gender is considered in all recruitment practices, for example, a gender question is asked related to the position in interviews, the panel is a balance of males and females, and data is disaggregated for applicants to ensure we are accessing acceptable numbers of males and females applying. These practices will be reviewed during the creation of the gender strategy throughout this year, with a final draft due in January 2017.

Research

Funds will be used to support program implementation as needed. Expertise from Cambodia or other countries will provide answers to specific, practical issues of direct relevance to achieving the component targets. The research will be short duration and make full use of existing knowledge.

⁷ (Schedule 1, Clause 6.6), DFAT – Goods and Services Contract: 71034

⁸ <https://www.legislation.gov.au/Details/C2012C00899>, 28 March 2016.

Communications

The program exists to assist Cambodia's sustainable economic development and poverty reduction. Its contribution is direct through works and facilitation, but also indirect by influencing the work of others through communication. A Communication Strategy and Plan will be developed by 31 December 2016⁹ appropriate to the influencing and reporting aims of the program and its related audiences. A range of media will be used to reach audiences. The web is an important media channel and so the program website, once upgraded, will be available by July. A related online photo library will be established during the year categorised by key program topics. A Communications Manager will be recruited by May 2016 to manage this agenda. The Communications Manager will be responsible for writing the Communications Plan with close consultation with DFAT and Cardno, ensuring that the Commonwealth Government Style Guide¹⁰ is followed, including any special requirements set by DFAT and/or Cardno.

Measuring results

Information about results serves two functions: prove and improve. The former is about reporting on progress to agencies external to the program, such as DFAT and the RGC, and internally to managers who supervise the implementation of program activities and overall strategy. Improving is a function that helps the program to learn and change tactics. Generally, information about results is required to be known early in the program period so that it can be used. Also, information about the early signs of sustainability are needed to verify if the activities are correctly designed. In components 1 and 3, the program will adopt the DCED results measurement standard¹¹, seeking to be audited on its performance measurement once all new staff are competent. A program measurement plan will be prepared by July 2016. A DCED trained Results Measurement Adviser has been recruited to support the program with a solid footing in M&E. The Results Measurement (RM) Manager was appointed internally. During 2016, the results of CAVACI will continue to be measured and attributed. This information will be reported in the program impact estimate report to be presented at the end of 2016. A dissemination workshop of CAVACI results is being considered for RGC, development partners, and the private sector further discussions will be held with DFAT and RGC.

Environment

An Environmental Management System¹² will be established by 18 May 2016, in line with the 'Environment Protection Policy for the Aid Program' (2014)¹³, to guide how the program will assess, mitigate, and monitor environmental issues. This includes conditions under which full or partial environmental impact assessments will be required. The program will continue to seek opportunities to have a positive impact on the environment, for example, improve poor farmers' resilience to climate shocks and trends.

Operations and Financial Management

CAVACI's management approach and operational systems are currently being developed, such that: the systems and processes will support implementation, and ensure that all commitments are met on time and within budget.

Administration, finance, ICT, and procurement systems from CAVACI have been implemented as an interim arrangement. This has ensured that program activities, staff contracting, and contracting of

⁹ Schedule 1, Clause 9.7. DFAT – Goods and Services Contract - 71034

¹⁰ <http://www.australia.gov.au/about-government/publications/style-manual>

¹¹ The DCED Standard is a framework which helps practitioners to articulate the hypothesis very clearly, and to systematically set and monitor indicators which show whether events are occurring as expected. DCED: <http://www.enterprise-development.org/page/measuring-and-reporting-results>

¹² Schedule 1, Clause 6.11. DFAT – Goods and Services Contract – 71034.

¹³ <http://dfat.gov.au/about-us/publications/Pages/environment-protection-policy-aid-program.aspx>

construction contractors (for irrigation canals, pump houses and supply pumps that was tendered in CAVACI) could be completed quickly in CAVACII.

A new Operations Manuals, which includes the following sections:

- > Financial management and accounting procedures;
- > Administration and logistical support procedures;
- > Personnel management procedures, including recruitment and performance management processes;
- > Procurement procedures;
- > Physical assets management procedures;
- > Fraud control and audit procedures; and
- > Risk assessment and management procedures,

Will be developed within the first three (3) months of the program (18 April 2016).

The development of an accounting system that can ensure the cost of interventions is tracked, in as much detail as possible, in order to be compliant with DCED results measurement standard. The reporting and recording system will be flexible enough to allow value for money assessments to be made at many levels, including market and intervention, whilst still complying with contractual reporting requirements of DFAT.

Staffing

The contracting of all staff novated from CAVACI was completed by the end of January 2016. Recruitment of 13 new positions and replacement of short-term consultants with long-term staff will be undertaken within the first year of CAVACII. The initial recruitment of the following Locally Engaged Staff (LES) positions is currently underway:

- > Human Resources Manager
- > Office and Logistics Manager
- > Finance Manager
- > Communications Manager
- > Results Measurement Manager
- > Intervention Managers
- > Rice Seed Expert
- > Procurement and Grants Manager
- > Operations and Maintenance

Staff recruitment to fill vacant positions in the Operations Team is a priority. The recruitment of the following positions have been filled and staff have commenced in April the composition and scaling up of the Operations Team positions will be reviewed and matched to current program needs. This may also require internal and external training. Once new staff are recruited assessments of needs can be made, the appropriate training will be sourced and conducted.

Training

Cardno's staff induction training consists of the following briefings of Cardno/DFAT policies, which include:

- > Fraud and Anti-Bribery;
- > Procurement;
- > Work, Health, and Safety – Zero Harm
- > Human Resources processes and policies;
- > Financial procedures; and
- > Cardno Child Protection Policy.

These policy briefings are to be conducted by Cardno staff and completed by the end of April.

On-the-job training will be arranged for Intervention Managers, as required, to improve their skills. Where appropriate Intervention Managers will attend formal training on the Springfield Centre course 'Making Markets Work'¹⁴.

Drivers specifically, will undertake road safety training, and a first aid refresher course to reduce the risk of road accident, and keep staff safe as they travel.

A significant investment in both internal and external training will be made for staff requiring technical skills. This is particularly important with 13 new positions recruited before the end of the year. Part of the HR performance management practices will be managers and individual staff assessments of training and development opportunities for staff annually.

Facilities

The CAVACII office is located on:

Level 2 and 3, the Emerald Building,
64 Norodom Boulevard, Daun Penh,
Phnom Penh, Cambodia.

The CAVACII office has been designed to allow for the expansion to 60 plus staff for CAVACII, and to ensure the CAVACII team working environment meets the needs over the six (6) year life of the program. The move to CAVACII office happened on 7 March 2016. The CAVACII office has been appropriately fitted out to ensure that Work, Health, and Safety (WHS)¹⁵ standards were considered in all areas of the office.

To support the program, procurement of a new robust ICT system¹⁶ consists of new hardware and software, which has the durability and functionality required to support CAVACII over six (6) years. This procurement process is planned to be completed and installed by the end of May 2016. The availability of quality (and required quantity) of ICT equipment in-country, and delivery times, are up to three (3) months and this has caused delays to the installation of the new system. The ICT facilities used during CAVAC I will be used during the inception period, and all required data transferred to the new system once new equipment is delivered. The superseded ICT equipment will be handed over to the RGC counterparts once data is removed.

Vehicles older than two (2) years old that were acquired during the CAVACI will be used during the inception period, and the replaced by new vehicles within the first nine (9) months of the program. The delivery time of tax free vehicles in Cambodia can take six (6) months. However, with the cooperation of the relevant Royal Government of Cambodia counterparts to approve tax exemptions for the procurement of the vehicles quickly, the registration of the vehicles could occur within 6 months. This

¹⁴ <http://www.springfieldcentre.com/training/current-programmes/>, March 2016.

¹⁵ <https://intranet.au.cardno.com/PoliciesandProcedures/Pages/policy-english.aspx?View=%7b04F59126-9D36-489E-AC03-D615979D792A%7d&FilterField1=PPF%5Fx0020%5FType&FilterValue1=Group%20HSEQ>

¹⁶ Schedule 1, Clause 9.4. DFAT – Goods and Services Contract – 71034.

would expedite the handover of the former CAVACI vehicles to the RGC counterparts. CAVACII will keep the recently purchased (2014) Prado from CAVACI, as there is no requirement to replace it or hand it over to the RGC.¹⁷

Procurement

Significant procurement will be completed in 2016 as irrigation works tendered at the end of CAVACI have been contracted during the first quarter of 2016. The irrigation schemes planned in 2017 will be tendered and contracted prior to the end of 2016 to ensure that the construction can commence at the end of wet season in 2016. This allows adequate time for the construction of the irrigation canals prior to the wet season in 2017. The partnership agreements, grants, and contracts will be conducted in accordance with the CAVACI Procurement Manual, and Commonwealth Procurement Rules¹⁸.

The lessons learned and more robust procurement methods employed during 2015 should improve the quality of the construction contractors, and therefore eliminate delays in construction and improved the quality of works. These methods will continue to be implemented if progress of construction completion is delivered on time, and as planned. The pre-qualification process implemented at the end of CAVAC I, proved to be successful, and will be refined and implemented on CAVACII, CAVACI also worked with contractors to ensure work plans were realistic, achievable, and outlined the penalty clauses. This acted as an incentive for timely completion of schemes which will be taken into CAVACII program. These systems and processes will continue to be used to monitor, evaluate, and ensure all work will be completed before 31 December 2016 to an acceptable quality.

Contracting of short term construction supervisors, land surveys, UXO clearance and other services required to support the irrigation works will be conducted throughout the year.

Grants

Output based contracts and the required monitoring arrangements will be the focus for working with government partners both in the provinces and at the national level. It is expected that grant facilities and outputs based agreements will be used to engage private sector partners working in agriculture, rice seeds, and community stakeholders in the irrigation component. These agreements will be styled as partnership arrangements where there is clear contribution from both parties.

Research style grants are also anticipated in all three (3) components. In the inception phase, CAVACII will develop Grants guidelines to establish policy and processes for both; output based and research grants.

¹⁷ See CAVAC Handover Report, 2015 for further information.

¹⁸ <http://www.finance.gov.au/sites/default/files/2014%20Commonwealth%20Procurement%20Rules.pdf>

Annex 1: List of Feasibility studies carried out by CAVAC

Scheme Name	District	Feasibility ⁽¹⁾	Remarks
Takeo ⁽²⁾			
Wat Thmey 3	Prey Kabas	F	Selected for 2016
Ta Soung	Prey Kabas	NF	Farmers and Local Authorities unwilling to charge ISF; Farmers are supported by external source.
Canal 13	Angkor Borey	NF	Command area small versus investment costs; Most farmers prefer to use alternative water source.
So Hang 2	Borey Chulasar	NF	Unlikely to form a FWUC as too many sub groups existing with competing water rights
Canal 19	Angkor Borey	NF	Land loss issues
Canal 90	Koh Andeth	F	Selected for 2016
Canal 45	Koh Andeth	F	Might be selected for 2017
Canal 85	Koh Andeth	F	Might be selected for 2017
Prey Veng			
Peam Ro	Peam Ro	F	Selected for 2016
Angko Ang	Peam Cho	F	Selected for 2016
Anlung Reach	Kampong Trabaek	F	Selected for 2016
Taketh	Preah Sdach	?	More study required.
Dey Kraham	Preah Sdach	NF	Land loss issues and existing PWS wants to be compensated
Kra Chap Kroam	Kampong Trabaek	NF	Land loss issues
Kandal			
Preaek Ngoung	Koh Thom	F	PDWRAM did not support
Preaek Tiv	Koh Thom	NF	Overlap with AFD project
Kraing Yov	Saang	NF	Big landowner
Mlech (reservoir)	Koh Thom	NF	Scheme too big
Kampong Os	Ponhea Leu	NF	Land loss issues and political interference
Sambour Preaek Char	Lvea Eam	F	Selected for 2016
Chrouy Chreae	Lvea Eam	F	Selected for 2016

Notes:

- > F = Feasible; NF = Not Feasible
- > Tboung Khmum is also a Target Province but will be included in 2017

Annex 2: Budget January–December 2016

General	Particulars	Budget AU\$
Productivity and Diversification Budget		10,400
Recruitment		
Field Research		
Rice Unit		254,150
Pest Control		
Intervention	3 New Interventions	
Rapid version 2 development		
Intervention	1 Rapid v2	
AI on label		
Boomsprayer		
Pest Control Survey (Diagnose, Prescribe and Apply)		
Rapid version 3 feasibility		
Fertilizer		
Field specific advise research		
Intervention	2 New Interventions	
Cassava + 1		104,000
Key Expert check		
Inputs Cassava	2 New Interventions	
Labor Saving Cassava	1 New Intervention	
Cassava practice baseline		
Research one more crop		
Baseline one new crop		
Intervention	1 New Interventions	
Diversification		71,500
Experimental Interventions with seed companies		
Study on constraints of processing		
Study on farmers drivers of diversification		
Information Unit		39,000
Social Media Study		
Intervention	2 New Interventions	
Roadshow study		
Interventions	2 New Interventions	
PDA/GDA		185,900
3 PDA' with PDA retailer training	3 contracts	
3 PDA' CASSAVA Geo graphic Survey	3 Contracts	
3 PDA's New crop	3 contracts	
GDA Cassava Policy		
Total P&D	Total	664,950
Irrigation and Water Management		
Construction of Canals	Wat Thmey 3	
	Canal 90	
	Peam Ro	

General	Particulars	Budget AU\$
	Anlung Reach	
	Angko Ang	
	Sambour Preaek Char	
	Chrouy Chreae	
Additional works	Additional Works at Boeung Leas	
	Additional Works Wat Thmey 1 & 2	
	Co-Investment Fund	
	Additional Works other schemes	
Construction of Pump Houses	Canal 90	
	Peam Ro	
	Anlung Reach	
	Angko Ang	
	Sambour Preaek Char	
OFWM	Field Channels at Wat Thmey	
FWUC Offices	Canal 90	
	Peam Ro	
	Anlung Reach	
	Angko Ang	
	Sambour Preaek Char	
Pumping Equipment	Pumps, pipes, fittings and accessories	
Total Construction	Total	14,023,270.72
Survey & Design	1: Survey and design contracts	
	2017 Scheme Designs	
	2: Landholding Surveys	
	Canal 90 (600 ha)	
	Peam Ro (291 ha)	
	Anlung Reach (382 ha)	
	Angko Ang (343 ha)	
	Sambour Preaek Char (435 ha)	
	Chrouy Chreae (565 ha)	
FWUC establishment and cap. building	Canal 90	
	Wat Thmey 3	
	Peam Ro	
	Anlung Reach	
	Angko Ang	
	Sambour Preaek Char	
	Chrouy Chreae	
Construction Supervision	Canal 90	
	Wat Thmey 3	
	Peam Ro	
	Anlung Reach	
	Angko Ang	
	Sambour Preaek Char	
	Chrouy Chreae	

General	Particulars	Budget AU\$
ST Consultancies	Independent verification of schemes	
	Private Sector Involvement	
	Preparation O&M Manuals	
	Pump Design 2017 schemes	
Other Costs	1: Environment	
	2: Support costs	
	Irrigation	
	Environment	
Total Non-Construction		993,426.20
Total Irrigation		15,016,697
Rice Milling and Export		
Total Rice Milling and Export		442,000
Cross Cutting Issues		
Communications		65,000.00
Gender		26,000.00
Environment		65,000.00
Total Cross Cutting		156,000
Total CAVAC II		16,279,647