Cambodia Agricultural Value Chain Program Phase II (CAVAC)

Monitoring and Evaluation Plan

Prepared for CAVAC (internal use only) – 2016

Doc name: Monitoring and Evaluation Plan

Contract Deliverable: Clause 5.7.

Version: 1.0

Date: 11 July 2016

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Revision history:

Version	Date	Author	Detail
1.0	11 July 2016	Makaravy Ty	First draft
1.1	December 2016	Makaravy Ty	Revisions to the entire document.
1.2	March 2017	Cassandra Graham	Edit of the document
1.3	May 2017	Makararavy Ty	Edit core indicators and add new intervention template

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Tables and Figures

Acronyms and Abbreviations

ADR	Aggregate Development Results
AUD	Australian Dollars
CAVAC	Cambodia Agricultural Value Chain Program
DCED	Donor Committee for Enterprise Development
DFAT	Department of Foreign Affairs and Trade
EMS	Environmental Management System
FWUCs	Farmer Water User Committees
IES	Initial Environmental Screening
IMs	Intervention Managers
KAP	Knowledge, Attitude and Practices
M&E	Monitoring and Evaluation
M4P	Making Market works for the Poor
O&M	Operations and Maintenance
PDWRAM	Provincial Department of Water Resource and Meteorology
RGC	Royal Government of Cambodia
SMR	Six-Monthly Review
TMR	Three-Monthly Review
VFM	Value for Money
WEE	Women's Economic Empowerment

1 Introduction

1.1 Introduction to CAVAC

The Cambodia Agricultural Value Chain Program Phase II (CAVAC) is funded by the Department of Foreign Affairs and Trade (DFAT) and implemented by Cardno Emerging Markets (Australia). CAVAC Phase I finished in December 2015. CAVAC Phase II started on January 2016 and is expected to continue for six years.

CAVAC will contribute to the achievement of the following two goals: improved incomes for farmers; and increased trade in milled rice and other crops[1]. CAVAC and similar programs such as Katalyst[2] in Bangladesh, have demonstrated that it is possible to support improvements to market systems that benefit farmers sustainably. It follows the best practice principles of the market systems approach[3] as outlined below:

1. **Analysis** – Good analysis should underpin all program implementation, and should be updated throughout the life of the program.
2. **Learning** – The program should have strong systems for measuring changes in real time and feeding this information back into implementation, sometimes known as adaptive management.
3. **Sustainability** – Interventions should be based on a credible concept of sustainability, such as the performance of improvements to market systems.
4. **Flexibility** – Flexibility should be built into all systems and processes of the program.
5. **Ownership** – The program should ensure it encourages genuine ownership from its partners, especially through aligning incentives and promoting co-investment.
6. **Innovation** – The program should ensure it promotes innovation where possible
7. **Value for Money**[4].

CAVAC comprises three components:

Component 1 – Productivity and Diversification (C1): aims to improve the function of agricultural input and output markets through partnerships with the private sector (known as support providers). The intention is improved knowledge and change practices of farmers, through better use of goods and services. When the demand for improved goods and services is higher, the support providers will have an increase in sales, and an incentive to continue to improve their goods and services. Ultimately, this will lead to increased farming production and result in higher crop yields and increased income for farmers.

Component 2 – Irrigation and Water Management (C2): aims to increase the availability of sustainable irrigation and farmer's access to irrigated water, resulting in increased productivity and income improvement for farmers.

Component 3 – Rice Milling and Export (C3): is a new component for CAVAC and is in-line with the Royal Government of Cambodia (RGC)'s rice export policy. This component will focus on two interrelated markets: alternative rice varieties, and improved seeds.

[1] DFAT – Goods and Services Contract, 71034, 16 January 2016, pg. 55
[2] http://katalyst.com.bd/
[3] http://www.enterprise-development.org/implementing-psd/market-systems/
[4] DFAT – Goods and Services Contract, 71034, 16 January 2016, pg. 57

1.2 Overview of the Monitoring and Evaluation System

CAVAC aims to facilitate change within agricultural value chains and improve access to irrigation that leads to sustainable outcomes for farmers. This includes: production methods, yields, quality, area under cultivation, and poverty reduction.

Figure 1: What is a Market System?

What is a Market System?

Simple exchanges of goods such as farmers selling rice can be more complex than they seem, often involving multiple players such as transporters, millers, wholesalers, retailers and the households that buy the products.

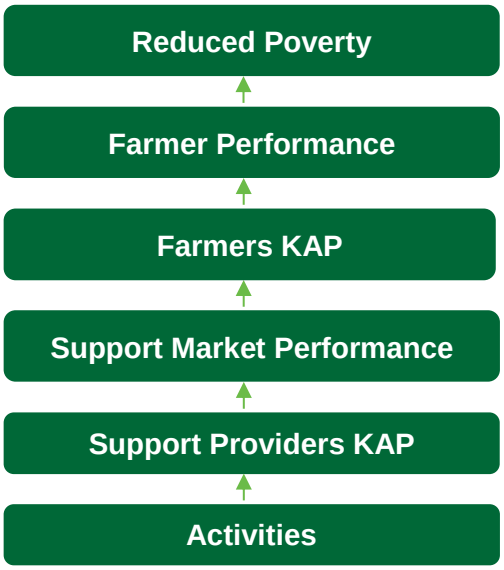
Value chains can only develop if there are supporting functions: services, resources and infrastructure. With rice for example, the supply chain might rely on factors such as access to transport, irrigation, fertiliser and credit. These supporting functions can have a major impact on the revenue that farmers receive for their rice.

Value chains are also subject to rules and regulations that influence the business context and determine the power of buyers and sellers. Governments, regulatory agencies and business associations often create these rules, but social norms and behaviours can also impact how economic benefits are distributed.

CAVAC formally captures causal relationships between support providers and farmers in Impact Logics, which are created for each intervention and the market in which it works. Figure 2 shows a simplified version of the Impact Logic for the whole CAVAC program. There are key steps to changing practices. The basic assumption is that support providers improve their knowledge, attitudes and practices (KAP) and this leads to an improvement in the support market (the market surrounding farmers). These improvements, for example, are the access to services, inputs or information. These changes improve farmers' KAP which leads to better farmer performance.

A more realistic and detailed version of an Impact logic is found in Section 5.1 of this Manual. Impact Logics are not stand-alone documents. The Impact Logic is a diagrammatic version of the logic or thinking behind interventions or activities the program supports – this is based on existing knowledge and assumptions. Impact Logics must be closely monitored to ensure that the assumptions made by the team are correct. A Monitoring Plan is developed and linked to the Impact Logic. This Monitoring Plan is used as a tool to guide the monitoring and evaluation of the intervention.

Figure 2: CAVAC Impact Logic



1.3 Purpose of the CAVAC Monitoring and Evaluation System

A key aspect of an M&E system is to monitor and measure change. CAVAC's M&E system is designed to achieve this but also to be used as an adaptive management tool. As such, CAVAC's M&E system has been designed to: learn to improve; capture change for accountability; and project future impact.

CAVAC's M&E system serves the following three interrelated purposes.

1. **Continuous learning** – to ensure well-structured, continuous learning, and improvement (adaptive management). Activities influence complex, economic systems that rely on choices made by numerous market actors and rarely proceed exactly as planned. CAVAC's M&E system provides accessible information, which allows managers to understand what is happening in real time and make adjustments as needed.
2. **Portfolio management** – CAVAC has been designed to be flexible through a portfolio of intervention activities, which will initially be large in scope, and become smaller through the program. The M&E system enables program managers to track activity progress from an early stage of implementation. It allows managers to make decisions about what interventions need to be scaled up and which ones to deemphasize or terminate, ensuring a balanced portfolio of activities.
3. **Progress reports, impact projections, and calculations** – CAVAC's M&E system will provide regular reporting on intermediate progress. The program can give projections on the potential results/impacts. The projections are not used as hard targets, but assist with communication and shape expectations.

1.4 Learning and Decision Making

CAVAC has an established culture of reflection, learning and openness. It is committed to capturing the continuous program-wide lessons learned and to reflect them in real-time and to improve activities.

The CAVAC M&E system incorporates learning loops for the reporting, discussion, and dissemination of performance information (see Figure 9). In a learning loop, organisations and individuals modify their actions based on the difference between expected and actual outcomes, while simultaneously questioning the assumptions and policies that led to the actions in the first place. CAVAC

accomplishes this by creating formal processes that facilitate and reinforce information sharing and critical introspection at all levels of the organisation.

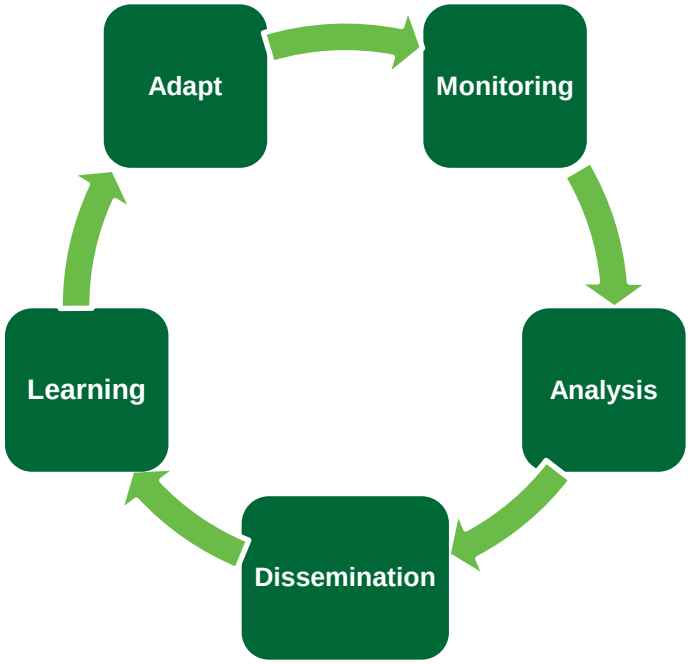
CAVAC defines M&E broadly to incorporate all activities related to the collection, analysis, management, and reporting of program performance. By defining M&E broadly in these terms it breaks M&E out of a silo, which inhibits the creation of internal learning loops.

CAVAC integrates M&E activities into the job responsibilities of program management and staff. Management and staff participate in a variety of ways in the periodic and ad hoc collection and dissemination of performance information related using both formal and informal assessment methods, though with a particular emphasis on the latter.

CAVAC collects, disseminates, and acts on tacit and explicit information. Explicit information is objectively verifiable information that can be readily transmitted to others and stored in certain media. Tacit information is information that is stored in an individual's head or embedded within the program culture. It is the product of interactions between people and between people and their environment. Tacit information is primarily qualitative.

CAVAC holds Three Monthly Reviews (TMR) of selected interventions where management and staff discuss their implementation experience, review M&E findings, and plan activities for the following three months. This occurs on the first and third quarter, i.e. only selected interventions are reviewed. On the second and fourth quarter all interventions are subject to review. The main objective of the TMR is to capture and analyse the tacit information accumulated through the experiences of management and staff over the previous three months. It will then contribute to management's decision making on whether to continue, to adjust, or to stop any of the interventions.

Figure 3: CAVAC Learning Loop



1.5 Building on Lessons from CAVAC

CAVAC's M&E system has been designed to align with the DCED Standard for Results Measurement[5] (See Annex 9 for further details). In 2013, CAVAC's M&E system was audited by the

[5] http://www.enterprise-development.org/wp-content/uploads/OnePageSummary-8Apr16.pdf

DCED and (up to now) it holds the highest score among audited programs using the DCED Standard.

Key lessons from CAVAC's first phase include:

- M&E is essential to understand which activities need adjustment in the complex markets in which CAVAC operated.
- Capturing attributable results in irrigation was not difficult, because the data can be captured through mapping and landholding surveys. The survey results show the irrigated area (hectares of land), and how many households have benefitted from the irrigation.
- It was difficult to attribute changes in simple numbers that could be aggregated in some of the agricultural markets. This is because the end user cannot be captured reliably due to the diversity of products in these markets. There are so many actors in the agriculture sector it is difficult to attribute solely to CAVAC.

The two most challenging elements across the program were:

1. creating a genuine learning culture that accepts failures
2. conducting the impact assessments.

CAVAC's second phase will apply a similar M&E system building on lessons learned and adjusting as international best practices changes.

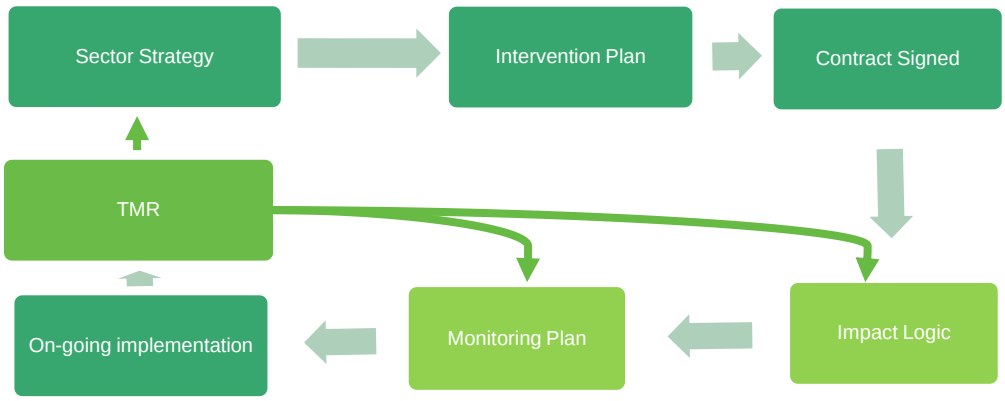
2 Integrated Management Process in the CAVAC Monitoring and Evaluation System

2.1 Component 1 – Productivity and Diversification (C1) and Component 3 – Milling and Export (C3)

C1 and C3 have similar operational processes and M&E systems, this is shown in Figure 4 below. The CAVAC Investment Design Document[6] stipulates that both components use a market systems approach. C1 and C3 conduct value chain or market systems analysis before writing sector strategies, and then an informal strategy for the specific markets in which they intervene. Building on the informal strategy, Intervention Managers (IM) develop intervention plans and look for appropriate partners. The M&E team works with the IMs to develop an Impact Logic and Monitoring Plan. The Impact Logic and Monitoring Plan are revisited every three months during the TMR. The TMR process is detailed in section 4.1 and the Roles and Responsibilities are detailed in section 4.2.

[6] https://dfat.gov.au/about-us/publications/Documents/investment-design-cambodia-agricultural-value-chain-program-phase-ii.pdf

Figure 4: Integrated Management Process of C1 and C3



2.2 Component 2 – Irrigation and Water Management (C2)

An all-in-one Impact Logic and Monitoring Plan for all the rehabilitated/constructed canals is currently in place. The C2 activities are all the same type of activity: design and construction of irrigation canals - unlike C1 and C3 which have a variety of interventions. For this reason, a single Impact Logic and Monitoring Plan was designed for all the irrigation schemes. There are minor variations within the Monitoring Plans with the monitoring dates and expected results being scheme specific. Both Impact Logic and the Monitoring Plan are updated during the TMR. Figure 5 shows the steps of C2 process.

The routine monitoring of the technical work is the responsibility of the C2 Manager and engineering team. The monitoring of the activities with Farmer Water User Committees (FWUCs) are the responsibility of the Operations and Maintenance (O&M) team. The environment and gender specialists (when recruited in early 2017) will monitor the environment and gender impacts based on their respective plans. The impacts from the canals and early signs of sustainability are expected to be visible from 2018. The impacts derived from irrigation can potentially overlap with the impacts of the other CAVAC components.

Monitoring & Evaluation under C2 relies on four key stages: study, quality design; construction of irrigation canals and supporting the establishment of the FWUCs; and post completion monitoring and validation of results.

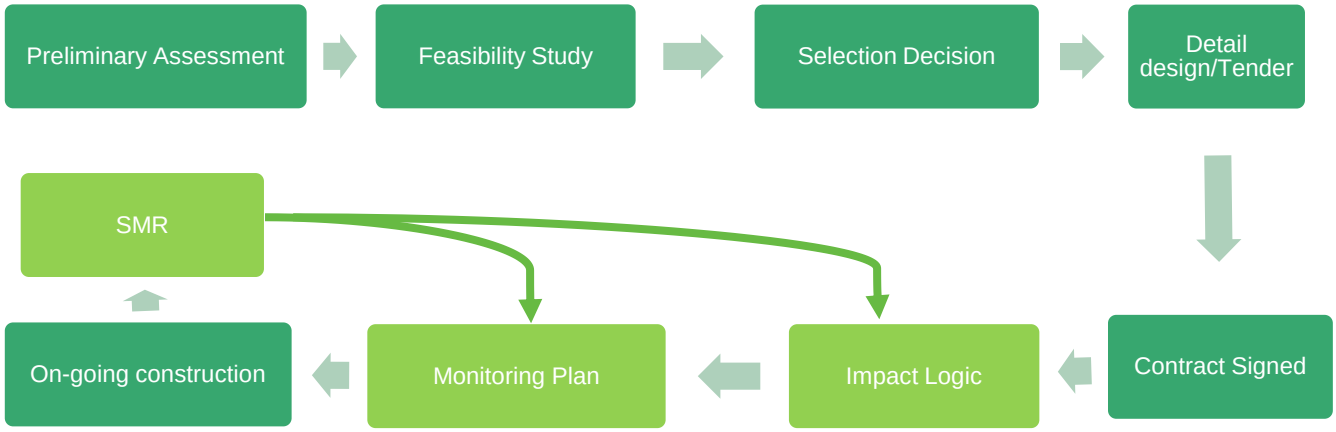
In the study stage, the Irrigation team identifies the location and researches whether canal construction is feasible. If the construction is feasible, the irrigation team begins planning and canal design. The design engineers do a preliminary design, based on surveys and investigations of the area, this leads to a more detailed design. The surveys undertaken include topography, to ensure a water source and flow, and soil investigations to check the acidity of the soil. This process includes the development of a value for money assessment, which considers the total number of households benefiting, and the total number of irrigated hectares of the canal.

The information is included in the feasibility study report (Annex 3: Sample of Feasibility Study Report Content). The implementation stage includes the construction of the canal, the establishment of the FWUC, and landholding surveys. The landholding surveys are undertaken to determine the total irrigated area fed by the canal. The landholding survey establishes a database of farmers, which includes their name and the GPS coordinates of their field on a map. The FWUC uses the database as the basis to collect fees. After the canal is constructed and the FWUC established, CAVAC provides ongoing support and monitoring. The support and monitoring of the FWUC includes regular assessments of the functionality using the following indicators: annual financial revenue produced and shared, fixed term deposit in the bank, and a routine and emergency maintenance plan in place. Following the completion of FWUC support, CAVAC undertakes additional surveys to validate project

impacts, and to ensure that any final lessons are learned and integrated into future designs and O&M support.

The Monitoring Plan for C2 occurs throughout project implementation, and contributes to management information on the progress and can be used for decision making in the future design of schemes. The Monitoring Plan focuses on: evaluating whether the project objectives have been met; the progress against the plan; and if the intended impact has been achieved. The plan enables C2 management to successfully plan the resources and budget in a timely manner.

Figure 5: Integrated Management Process of Irrigation and Water Management



3 CAVAC Monitoring and Evaluation Framework

The CAVAC M&E Framework is designed around the purpose, goal and high level outcomes described in Cardno's contract with DFAT.

Figure 6 below, is a direct excerpt from the CAVAC Head Contract[7], and diagrammatically demonstrates the links between these factors. It combines the theories of change for the three components.

[7] DFAT – Goods and Services Contract, 71034, 16 January 2016, pg. 56

Figure 6: Purpose, goals and high-level outcomes for CAVAC

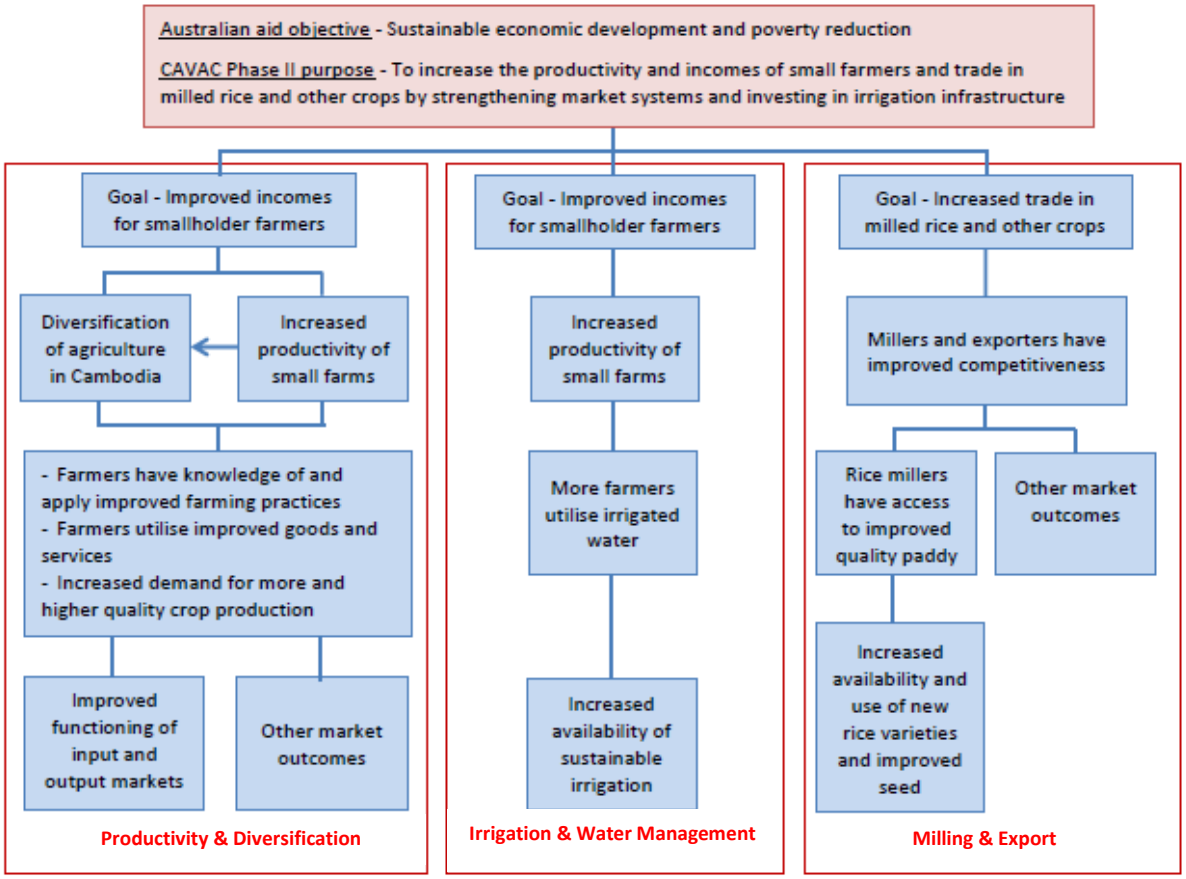


Table 1 below shows the CAVAC M&E Framework, including the expected outputs / activities, outcomes, and impact per year over the life of the program.

The M&E Framework is outlined through the years of the program in the text below:

Within the first two years of CAVAC, further impact assessments of CAVAC will be undertaken. The M&E team will be involved in conducting: value chain studies, baseline surveys, gender typology study; and will take the lead in the impact assessment and validation of assumption for the first year.

In 2016, the focus on C1 and C3 will be to identify new markets, design new interventions, and test new business models (see Table 2 & 4). C2 started several feasibility studies at the end of CAVAC's first phase and will continue to conduct more feasibility studies of possible canals. The detailed M&E framework for C2 is shown in Table 3 below.

In 2017, CAVAC expects to expand into other crops, so value chain studies and baseline surveys will be conducted. The program will be able to begin reporting the changes for C1 and C3 at the support provider KAP, and the areas irrigated by C2 canals. The pre-audit review of the DCED Standard is expected to be conducted in the third quarter of 2017.

In 2018, CAVAC plans to conduct an M&E design workshop to define the impact indicators and program impact assessment plan. The DCED full-audit will be conducted in early 2018 (before the mid-term review), and will be repeated in the next two years.

In 2019, CAVAC will do a full impact assessment based on the assessment plan approved by DFAT in 2018.The program expects to see the early signs of yield increase, and farmers are expected to fully adopt the innovative solutions attributed from CAVAC interventions.

In 2020 and 2021, CAVAC will project its impacts up to two years after the project's end, up to 2023. More impact assessments are expected to be undertaken during this time as results become evident.

Table 1: CAVAC Monitoring and Evaluation Framework Timeline

End Year	Impact	Outcomes	Outputs / Activities	Others
2016			Analysis and selection of new crops Proof of feasibility / business cases of newly selected crops First implementation	Model chosen Establish baseline Develop and update the aggregated database (Datahub)
2017	Evaluate Phase I impacts	Changing KAP of support providers	More implementation	Household typology study for newly selected crops and rice Baseline for other crops (if feasible) Update aggregated database Internal review by Strategic Advisory Team (SAT) DCED pre-audit review review
2018		Changing KAP of farmers	Full implementation	DCED full-audit (Before mid-term review) Mid-term review M&E design workshop to define impact indicators and assessment plan Submit Impact Assessment Plan to DFAT
2019	Early sign of yield of Phase II	Adoption of farmers		Full impact assessment
2020	Yield increase			Full impact assessment
2021	Yield increase			Full impact assessment
2022	Yield increase			Full impact assessment
2023	Yield increase			Full impact assessment

3.1 Monitoring and Evaluation Framework C1

The Productivity and Diversification Component M&E work is outlined in Table 2 below:

Table 2: Monitoring and Evaluation Framework C1

End Year	Impact	Outcomes	Outputs / Activities	Others
2016			Develop delivery models Engage with private sector Analyze value chain for other crops	Model chosen Establish baseline and identify core indicators Literature review of potential yield impacts
2017	Evaluate impacts of Phase I	Improved functions of input and output markets	Pilot delivery models	
2018		Farmers have knowledge of and apply improved farming practices Farmers utilize improved goods and services	Full implementation	
2019	Early sign of yield of Phase II			
2020	Yield increase			Full impact assessment
2021	Yield increase			Full impact assessment
2022	Yield increase			Full impact assessment

End Year	Impact	Outcomes	Outputs / Activities	Others
2023	Yield increase	Increased demand for more and higher quality crop production		Full impact assessment

3.2 Monitoring and Evaluation Framework C2

The Irrigation and Water Management M&E work is outlined in Table 3 below:

Table 3: Monitoring and Evaluation Framework C2

End Year	Impact	Outcomes	Outputs / Activities	Others
2016	Follow up impacts of Phase I		Feasibility study and select the scheme Set up FWUCs and capacity building of FWUCs	Model chosen
2017		Irrigation scheme constructed and rehabilitated Co-investment leveraged for irrigation scheme development Increased private sector participation in scheme development and management Better management of irrigation Operation and Maintenance (O&M) by FWUCs		Early impact
2018	Increase cultivated areas Sign of sustainability of O&M arrangements			Full impact assessment
2019				
2020				
2021				
2022	Sustainable irrigation			
2023	Sustainable irrigation			

3.3 Monitoring and Evaluation Framework C3

The C3 M&E Framework is outlined in Table 4 below:

Table 4: Monitoring and Evaluation Framework C3

End Year	Impact	Outcomes	Outputs / Activities	Others
2016			Promote use of new rice varieties and improved seed Pilot models	Model chosen Baseline study on farmers' behavior to use seed
2017			Full implementation	
2018	Early sign of impact	Availability of existing rice varieties from neighboring countries registered in Cambodia and improved seed Farmers test newly registered seed varieties and improved seed	Full implementation	
2019	New rice varieties and improved seed Increased trade in milled rice	Rice millers have access to improved quality paddy Millers have increased operational efficiency		Full impact assessment
2020	Increased trade in milled rice			Full impact assessment

End Year	Impact	Outcomes	Outputs / Activities	Others
2021	Increased trade in milled rice	Increased targeted investment in milling facilities and technologies Millers / exporters have improved international market linkages Improved industry collaboration (e.g. cooperation to meet large order)		Full impact assessment
2022	Increased trade in milled rice			Full impact assessment
2023	Increased trade in milled rice			Full impact assessment

4 Implementing the CAVAC Monitoring and Evaluation System

The M&E team at CAVAC is responsible for monitoring the implementation of the system and making note of weaknesses that require correction as well as identifying strengths on which the system can build. Implementing the CAVAC M&E system is expected to reveal gaps or other weaknesses not anticipated in the original system design. All components of the M&E system are subject to review and revision as a result of implementation experience.

The M&E team is responsible for monitoring the effectiveness of M&E training and the effectiveness of the M&E system more generally via both informal and formal means. Informal monitoring occurs during the M&E team's routine interactions with program management and IMs. Formal monitoring includes planned and periodic observation of the implementation of the M&E system, discussing implementation issues with management and staff, and reviewing and analysing M&E information.

M&E system monitoring takes one of three forms.

The first form is the ongoing informal monitoring of M&E implementation carried out by the M&E team, management, and field staff. This consists of informal observations, conversations, feedback, and so forth.

The second form is the ongoing formal monitoring of M&E implementation carried out by the M&E team. This consists of planned meetings, formal feedback mechanisms, field visits, spot checks, data consistency and quality reviews, and so forth.

The third form is an external audit carried out using the DCED Standard Guidelines (Annex 9). The M&E team is responsible for identifying the external auditor (in consultation with the Team leader) and developing the Scope of Work. The final Scope of Work is approved by the Team Leader and is contracted through appropriate administrative channels.

At CAVAC, M&E is everyone's business. CAVAC has a dedicated team of M&E specialists. It is essential that all technical staff understand the importance of M&E, are involved in data collection and interpretation, and use the monitoring data to improve program performance with the technical support, coordination and analysis of the M&E team. All technical experts need to schedule at least 10 percent of their time on M&E. The M&E team includes a national M&E Manager and two M&E Assistants and is supported by a short-term international M&E adviser.

4.1 Three-Monthly Review & Six-Monthly Review

Purpose

The Three-Month Review (TMR) monitors the achievements and plans future M&E activities in each of CAVAC's market interventions and irrigation schemes. The meeting is attended by the Component

Managers, Intervention Managers, M&E team, cross-cutting specialists, and, as appropriate, the CAVAC Team Leader. There are two types of TMR: partial and complete for C1 and C3. The partial TMR is scheduled every March and September. The managers decide to select a few interventions considered having the most significant changes impacting on the intervention strategy and the work plan to be included in the partial TMR discussion. The complete TMR is held over a two-week period each December and June. A full day's discussion is allocated for each intervention with the possibility of extension once all the contents have been completely covered.

For C2, there is only a Six-Monthly Review (SMR). The SMR for C2 will follow the same process as C1 and C3. The agenda and discussion questions are discussed with the component manager before the review.

The TMR is the primary method to collect informal information and for capturing tacit knowledge. The information is then disseminated to the team. Every six months (for the complete TMR process), DFAT will be invited to join the TMR briefing which covers all the interventions, and irrigation scheme discussions – changes and actions. This role serves the following three purposes:

1. Discuss and document intervention results over the past three months in terms of the outputs and outcomes specified in the intervention's Impact Logic. On the basis of this discussion, the team reassess intervention strategies and readjust the design of the strategy.
2. Identify key questions to be investigated over the next three months, and develop an action plan.
3. Update the intervention's Impact Logic and Monitoring Plan based on the TMR discussions.

Each of these steps is discussed in greater depth below.

Discuss and document intervention results

During the TMR/SMR, participants review the indicators in the relevant Impact Logic and discuss their status. The Intervention Managers share their informal observations on the status of the intervention, factors related to the intervention, and the broader environment that have affected intervention implementation and results. The discussion leads to looking at the expected course of the intervention over the coming three months. In preparation for the TMR and during the TMR discussion, participants focus on the following four questions:

- What have we achieved in the market? Are we still on course toward achieving intervention objectives? If not, how have we deviated and why?
- Is our market analysis and strategy underlying the intervention design still correct?
- What adjustments do we need to make to the intervention strategy and design?
- Are there any other market actors who wish to work with CAVAC?

To answer the above questions, the TMR/SMR considers a number of discussion points covering the following topics: market dynamics; intervention design and strategy; market leverage; results (achievements); cross-cutting issues; and lessons learned.

Discussion points covered during the TMR include those listed below.

Market Dynamics

- Were our initial analysis and assumptions about the market correct?
- Have changes occurred in the broader market and other (e.g. political, social, natural) environments that call our initial analysis and assumptions into question?
- What factors in the broader market and other environments have affected, or may affect, intervention implementation and results and how?

Intervention Design and Strategy

- Are the intervention objectives still achievable?
- Can we achieve the intervention objectives with our existing activities?
- Is a new or different intervention needed?
- Are new activities needed?

Market Leverage

- Are there market actors willing and able to work with us? If yes, are they capable of significant outreach and impact? Are there any other market actors approaching to work with CAVAC?
- Are we achieving sufficient outreach among support providers?
- Are support providers achieving significant outreach to farmers?

Results (achievements)

- Is the intervention on track?
- Has the intervention achieved its output targets?
- Are there signs that support providers are changing their practices in the desired ways?
- Are there signs that farmers are changing their practices in the desired ways?
- What is the status of other intervention outcomes related to support providers and their performance and farmer KAP?
- Are there signs of crowding-in at support market level?
- Are there signs of copying among farmers?
- Is there evidence that farmers have increased yields, increased the area under cultivation, or sold in higher value markets (increased quality)?

Lessons Learned

- What lessons can we take from the past three months and what are their implications for intervention strategy, design, implementation, and results?
- Can these lessons be applied to other CAVAC interventions?

Cross-cutting Issues

- How have intervention strategies and designs incorporated gender/WEE, disability and environmental issues?
- What can be done to better integrate gender/WEE, disability and environmental issues into intervention strategy and design?
- What issues related to gender/WEE, disability and environmental issues arose during the past three months?
- Do observed results have implications for gender/WEE, disability and environmental issues?

Identify key questions

The TMR/SMR participants will document the questions (as minutes) and propose a plan to answer them by the next TMR/SMR. The plan may be agreed on and finalised during the TMR/SMR, or it may require further development after the TMR/SMR, particularly if it involves additional field research by the M&E team and/or Intervention Managers. The TMR/SMR participants will set a date when the final plan is to be submitted for approval by the Component Manager.

Update the Impact Logic and Monitoring Plan

The TMR/SMR discussion may reveal the need to update the Impact Logic and Monitoring Plan to incorporate changed conditions and accommodate changes to the intervention design and strategy. The output values or results at the support provider and farmer levels will be updated in the Impact

Logic and Monitoring Plan. At the end of each TMR/SMR, the M&E team will work with the Intervention Managers to update the Impact Logic and Monitoring Plan. The updated documents will be submitted for review and approval by the Component Managers and Team Leader.

Roles and responsibilities in TMR/SMR

Participants in the TMR/SMR include the Component Managers, Intervention Managers, and M&E team. The Team Leader may attend on occasion but is not expected to be a regular participant.

The Component Manager is responsible for coordinating the TMR meeting, check the report and upload it into share/P drive.

The M&E team is responsible for: the schedule and agenda; assigning meeting participants; appointing the checklist moderator and reporter for each intervention prior to the TMR/SMR meeting; updating the Impact Logic and Monitoring Plan after the TMR/SMR meeting; ensuring that follow-up activities on the key questions identified are conducted as planned (actual follow-up may be done by any TMR/SMR participants); and documenting the findings of the follow-up activities to present at the next TMR/SMR meeting.

During the TMR/SMR meeting, the checklist moderator is responsible for: ensuring that: relevant discussion points are covered in-depth; required updates to the Impact Logic and Monitoring Plan are identified; and key questions are identified and a plan for answering them is developed and agreed on. The checklist moderator is a rotating position that may be held by any TMR/SMR participant.

The reporter is responsible for: helping the checklist moderator prepare for and facilitate the TMR; document discussions and conclusions; and prepare the TMR minutes.

Table 5 shows a summary of the roles and responsibilities for the TMR among the CAVAC management and technical staff.

Table 5: Roles and Responsibilities in TMR/SMR

TMR Participant	Roles / Responsibilities
Component Manager	Coordinate TMR/SMR meeting
	Appoint Checklist Facilitator and Reporter
	Review and approve the TMR/SMR report
Checklist Moderator	Schedule TMR/SMR meeting
	Assign participants to research and present discussion points
	Facilitate the TMR/SMR meeting and ensure that it adequately covers each of the three TMR/SMR objectives
Reporter	Assist the Checklist Facilitator
	Record the TMR meeting discussion and prepare the TMR/SMR report
Unit Coordinators / Intervention Managers	Participate in the TMR/SMR meeting
	Serve as Checklist Facilitator and Reporter
	Assist the M&E team in updating the Impact Logic and Monitoring Plan
	Conduct follow-up on key questions
M&E team	Participate in the TMR/SMR meeting
	Serve as Checklist Facilitator and Reporter
	Update the Impact Logic and Monitoring Plan
	Conduct follow-up on key questions
	Supervise the follow-up activities on key questions, record the results, and present them at the next TMR meeting

CAVAC does not usually include external stakeholders in the TMR/SMR process. The process has been designed to provide an opportunity for intensive and focused internal reflection and discussion, with a minimum of external 'noise,' a process that CAVAC believes would be diluted by including external entities.

TMR Minute

After the TMR/SMR, the reporter prepares the TMR/SMR minutes. The TMR/SMR minutes are formatted as below:

1 Meeting Details:	Provides the date of the meeting and the meeting participants
2 TMR/SMR Findings:	Updates on support system status, progress, signs of sustainable impacts, and deepening.
	Describe the progress of each intervention and remedial action
	Write up the sign of sustainability, scaling up, deepening, crowding in and gender
3 Follow-Up Questions:	Research questions to be explore further only if the key informationis missing and a description of the plan to follow-up on them
4 Impact Logic and Monitoring Plan:	Updates to the Impact Logic and Monitoring Plans, including output and outcome results reported during the TMR/SMR

4.2 Roles and Responsibilities

Responsibility for implementing the CAVAC M&E system is shared at all levels of the CAVAC team. The drivers of implementing the M&E system include Team Leader, Component Managers, M&E team, and Intervention Managers, although CAVAC Investment Design and Head Contract states that M&E is everyone's business. The specific responsibilities in M&E implementation are described below. For a more detailed explanation please refer to Annex 10.

Table 6: Roles and Responsibilities in Implementing Monitoring and Evaluation System for C1 and C3

Task	Unit Coordinator / IMs	M&E team/M&E Manager	Cross-cutting issues specialists	Component Manager	Market Development Manager	Team Leader
C1 & C3						
Sector Strategy	Draft	Support	Gender/WEE/Environmental check	Endorse		Approve
Intervention Plan	Draft		Checklist	Endorse		Approve
Intervention Coding		Lead				
Impact Logic	Draft	Support		Endorse		Approve
Monitoring Plan	Support	Draft	Gender/WEE/ Environment plan	Endorse		Approve
Three Monthly ReviewTMR	Lead	Coordinate, Update Impact Logics &Monitoring Plans	Support	Coordinate	Panelist	Lead the panel
Routine Monitoring	Support	Lead				
Large survey	Support	Lead	Support	Coordinate	Technical advice	Approve

Table 7: Roles and Responsibilities in Implementing Monitoring and Evaluation System for C2

Task	O&M Team	Engineer Team	M&E Team	Cross-cutting issues specialists	Component Manager	Team Leader
C2						
O&M Strategy	Draft			Support	Approve	
Feasibility study	Draft	Draft		Support	Approve	
Intervention coding			Lead			
TMR	Lead	Lead	Support	Support	Coordinate	Lead the panel
Survey	Draft	Draft	Support		Lead	Endorse
Impact Logic	Draft	Draft	Support		Endorse	Approve
Monitoring Plan	Support	Support	Documentation		Lead	Approve
Routine monitoring	Lead	Lead				
Intervention summary report	Support	Support			Lead	

5 Methods and Approaches

5.1 Impact Logic and Monitoring Plan

Definition and purpose of the Impact Logic

CAVAC creates Impact Logics for every intervention and market in which CAVAC works. Impact Logics illustrate the program's underlying 'theory of change' or 'causal chain,' which is the sequence of cause-and-effect relationships that must take place to achieve the program's Objectives.

Impact Logic assists management with planning, intervention management, and presentations. They are a tool that CAVAC management and staff use to do the following:

- Analyse existing situations during intervention planning and preparation
- Understand how activities are expected to result in changes among support providers and farmers.
- Identify critical assumptions in an intervention's theory of change.
- Identify result indicators to be tracked in the program M&E system.
- Present a summary of the program and interventions to stakeholders in a standardised format.

Conceptually Impact Logics are the same thing as the 'results chains' used by the DCED or 'causal models,' 'logic models,' etc. used by other development programs. In CAVAC, however, the Impact Logic incorporates additional features that enhance its use as a management tool, including the following:

- Identifies the expected intervention results at each of the four primary results levels.
- Identifies one or more result indicators for each result that CAVAC monitors / measures over the life of an intervention.
- Lists the expected and actual completion date of each result indicator.
- Presents a brief description of and / or business case or the intervention.
- Lists critical assumptions that underlie the intervention and its IL.

- Lists ‘projection assumptions’ for the intervention, which are the projected results of selected outputs and outcomes at the support provider and farmer levels.
- Presents the results of CAVAC gender research that summarise the intra-household gender roles in decision-making and production relevant to the intervention.

The Impact Logic provides a detailed, and simple, visual summary of each CAVAC’s market interventions. This enables the CAVAC Management Team to obtain vital information on: the design and objectives of the market intervention; expected timing of the intervention and its results; progress made to date against targets; actual achievements against key result indicators and critical assumptions underlying intervention design; and the expected relationship between expected and observed results to CAVAC’s core result indicators.

The CAVAC Impact Logic is completed in two stages:

Stage 1: The Impact Logic together with the Monitoring Plan is created and approved within a month after signing any activity agreements. This facilitates monitoring of outputs and intermediate outcomes, particularly changes in market ‘support providers’.

Stage 2: As the program identifies and develops an in depth understanding of the markets that it works in and the M&E team are able to define the measurement indicators, the Impact Logic will be finalised.

Market Actors and Results Levels in the Impact Logic

The CAVAC Impact Logics show expected results in two types of market actors and at four results levels, as seen in Table 8.

Table 8: Market Actors and Results Levels in the CAVAC Impact Logic

Market Actor	Results Level
Support Providers	Support Provider KAP
	Support Market Performance
Farmers	Farmer KAP
	Farmer Performance

Support providers constitute the primary target of CAVAC interventions. CAVAC works directly with support providers to develop their capacity to provide more and better information, inputs, and other products/services to farmers. Farmers are the small producers of rice, cassava and other agricultural products that receive information, inputs, and other products / services from the support providers targeted by CAVAC interventions.

The Impact Logic further divides results among support providers and farmers into two types of outcomes: changes in KAP and changes in performance. According to the CAVAC Impact Logic, changes among support providers logically precedes and contributes to changes among farmers while changes in KAP logically precedes and contributes to changes in performance. This logical sequence of cause-and-effect is shown in the CAVAC Impact Logic shown in Figure 2 above and the generic intervention Impact Logic shown below in Figure 8.

Designing Impact Logics

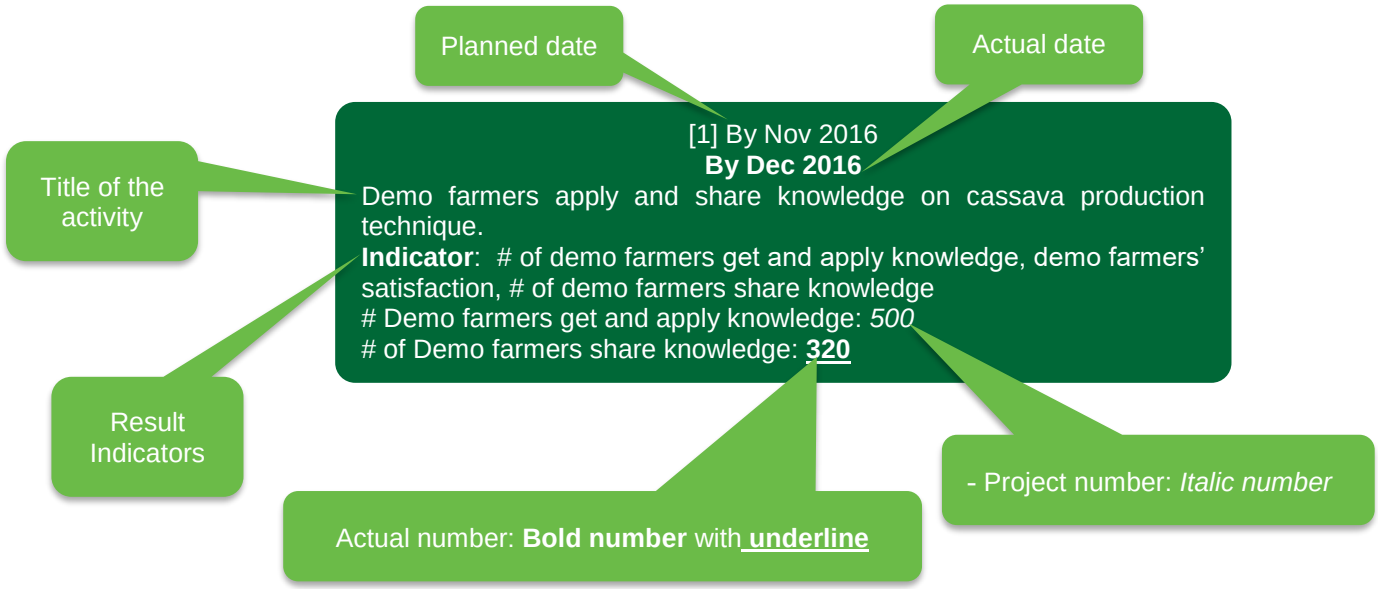
Impact Logics are designed to show the expected results presented in a series of results boxes connected to each other by causality arrows, and show the logical sequence of cause-and-effect underlying the intervention design. Each result box:

- Lists the data of expected completion at the top next to the box number. The bolded and underlined date directly underneath is the actual date of completion.

- Includes a description of the expected result along with the indicators that will be used to measure the result.
- Has the indicator value once the expected result has occurred or has been measured.

The result box is designed as shown in Figure 7.

Figure 7: Information in the Results Box of CAVAC Impact Logic



5.2 Core Indicators

CAVAC has identified a set of four 'core result indicators' to report to DFAT: scale/outreach, yields, area under cultivation, and quality. CAVAC selected the indicators because it judged them as the measures of program effectiveness that could be measured practicably with existing M&E resources and that could plausibly be attributable to the program interventions. The four core indicators are defined as follow:

1. **Scale / Outreach:** The number of farmers who change their practices because of the program interventions.
2. **Yields:** The additional yield (as a result of change in farmer practice) plausibly attributable to CAVAC's activities. When considering changes in yield, CAVAC looks at yield changes for farmers who have accessed services or inputs from support providers supported by CAVAC.
3. **Area under cultivation:** The change in hectares cultivated with non-wet season rice by farmers benefitting from program-supported irrigation schemes. Non-wet season rice includes dry season rice, early wet season rice, and recession rice.
4. **Quality:** The improvement in the quality of a crop produced by farmers impacted by program interventions. The intention of measuring quality in this way is to measure the farmer's specific performance, this does not measure irrigation schemes in the same way (which is taken into account at the activity level.
5. **Income:** The change in farmer income attributable to CAVAC interventions. CAVAC is currently designing a methodology for this and expect to have initial surveys undertaken in late 2017. CAVAC's five core indicators include two indicators (scale/outreach and income) from the set of universal indicators. CAVAC has elected not to collect and report net jobs created (the third DCED universal indicator) as this is not a key priority for the Program.

Defining Indicators

CAVAC Impact Logics show the primary activities under each market intervention and their associated outputs. Outputs are the short-term results associated with specific activities measuring the number of support providers reached by the component activities. Examples include: the number of support providers trained; the number of FWUCs receiving O&M support; or whether certain performance milestones were met (e.g. contract signed).

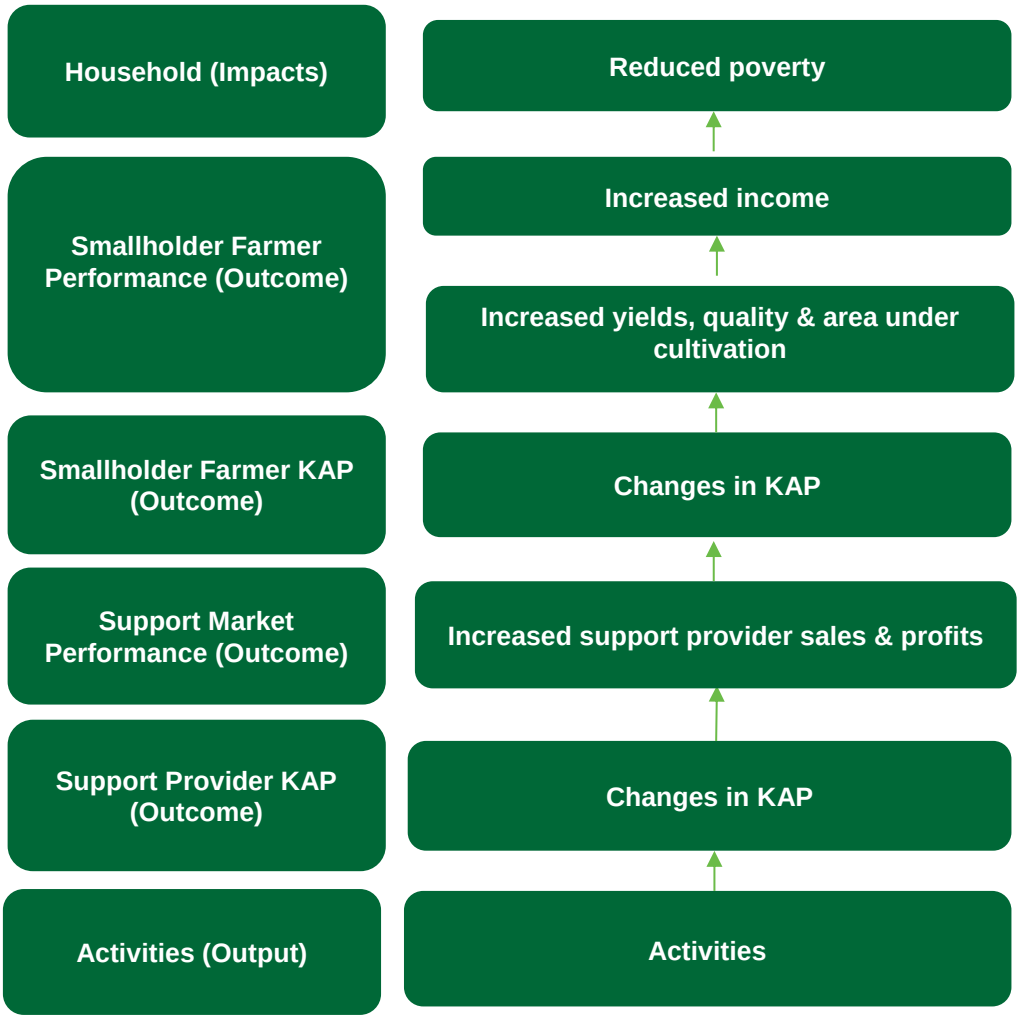
Impact Logics show the expected outcomes for each of the four result levels in their expected logical sequence: support provider KAP, support market performance, farmer KAP, and farmer performance. Outcomes are the intermediate results in the Impact Logic that must occur among support providers and farmers as a precondition for poverty reduction. Outcomes require anywhere from months to years to occur, depending on the specific intervention and outcome.

Improvements in support provider KAP refer to improvements in their capacity to provide farmers with information, and quality products. This includes other products and services that increase on-farm productivity, production, and income. Specific examples of improvements in support provider KAP include:

- Improved knowledge about inputs and input use
- Increased interest and commitment in providing information and / or better quality inputs to farmers
- Increased institutional capacity of member organisations
- More and better training to retailers and extension staff on input attributes and usage
- Increased provision of better quality inputs to farmers
- More and better information provided to farmers on input attributes and usage and cultivation practices
- Increased investment in production capacity
- Increased private sector participation in scheme development and management
- Access to improved quality paddy
- Increased operational efficiency
- Increased targeted investment in milling facilities and technologies.

Note: The indicators for Diversification work will be added once additional work in the market has been undertaken.

Figure 8: Measurement Levels in the CAVAC Impact Logic (generic)



Improvements in support market performance refer to overall improvements in support market outcomes resulting from improved support provider capacity. Examples of improved support market performance include, increased/improved/better:

- Supply of better quality inputs in the market
- Market provision of information to farmers on input attributes and use
- Commercial interactions between support providers and farmers
- More water and more reliable supply
- Management of irrigation Operation and Maintenance (O&M) by FWUCs
- International market linkages
- Industry collaboration (e.g. cooperation to meet large order)
- Trade in milled rice.

Improvements in farmer KAP refer to increased farmer knowledge and attitudes related to inputs, input use, and improved cultivation practices and, more importantly, increased adoption of inputs, better quality inputs, and improved cultivation practices. Examples of improved farmer KAP include:

- Appropriate use of fertiliser, pesticide, and herbicide

- Use of improved seed and new varieties
- Use of other better quality agricultural inputs
- Use of improved cultivation practices
- Cultivation of early wet season, dry season, or recession rice
- Cultivation of cassava.

Finally, improvements in farmer performance refer primarily to increased yields, area under cultivation, and product quality resulting from improvements in farmer KAP. Examples of improved farmer performance include increases in:

- Rice yields
- Cassava yields
- Area under cultivation of early wet season, dry season, and recession rice
- Cassava sales outside of immediate local markets including exports
- Quality of milled rice in terms of reducing percentage of broken grain.

The Impact Logic for each CAVAC intervention follows this same basic structure although the specific activities and indicators in each of the Impact Logics will vary. Although the result indicators tracked in each market intervention are derived from that intervention's unique Impact Logic, there is in an overlap of result indicators across interventions, for a couple of reasons. Firstly, as a means to poverty reduction, CAVAC prioritises interventions intended to increase yields, area under cultivation, and product quality among small farmers. Secondly, different interventions targeted to similar types of value chain actors are likely to seek similar outcomes in terms of improved KAP and improved performance.

In the generic CAVAC Impact Logic, outputs and outcomes lead ultimately to poverty reduction among farmers and farmer households. This relationship is reflected in Figures 2 and 8. In practice, the CAVAC Impact Logic for individual market interventions does not include poverty reduction, both because it is implied in each intervention and because CAVAC does not attempt to measure poverty reduction in its M&E system. Instead, CAVAC's M&E system focuses on measuring and establishing the occurrence of intermediate outcomes among support providers and farmers. This is in the form of improved KAP and improved on-farm performance, which CAVAC considers the most appropriate and useful indicators of program effectiveness given the timeframe of program activities.

CAVAC prepares a Monitoring Plan for each Impact Logic. The Monitoring Plan is an excel worksheet that summarises the contents of the Impact Logic and lays out a plan to collect and report information on each result indicator in the Impact Logic. It includes information required to ensure data collection, analysis and use such as: dates, methods, responsibilities, results, and evidence for information to be collected. Monitoring Plans are prepared by the M&E team in consultation with the IMs, endorsed by the Market Development Manager (for C1 & C3), and approved by the Team Leader.

Figure 9: Example of Monitoring Plan

Level	Box	IL	Planned date Actual Date	Key Questions	Indicators	How (Tool)	Responsible	Monitor Date	Result	Evidence

Each Monitoring Plan includes the following information:

- **Results Levels.** The items in the Monitoring Plans are organised based on the standard CAVAC result levels (Activities, Support Provider KAP, Support Market Performance, Farmer KAP, and Farmer Performance).
- **Expected Results**. The Monitoring Plan show the expected results at each level in the Impact Logic, this is organised by using the result boxes included in the Impact Logic.
- **Key Questions.** The Monitoring Plans identify the key research questions associated with each of the expected results in the Impact Logic.
- **Result indicators**. The Monitoring Plan list each of the result indicators for each of the expected results in the Impact Logic.
- **Methodology**. The Monitoring Plan list the information collection methodologies to be used to measure the corresponding result indicators. For certain outputs (at activities level), collection methodologies involve verifying that certain performance milestones have occurred such as the signing of an agreement, contract, or the completion of a ToR. Other outputs are collected via reports prepared by the implementation teams such as training reports or completion reports. For results at the support provider and farmer levels, collection methodologies listed in the Monitoring Plan include the list or menu of possible methodologies. The actual methodologies used include a sub-set of the possible collection methodologies. Other collection methodologies include surveys, mini-surveys, key informant interviews, focus group discussions or unstructured group discussion. (For more on information collection methodologies see Section 8.) Indicators for farmer performance are in certain cases calculated using the projection assumptions described in the Impact Logic rather than, or in addition to, direct field measurement.
- **Responsible Persons**. The Monitoring Plan list the persons responsible for collecting information to measure the result indicators. Responsible persons include the IM, or / and the M&E team, and Manager. The IM are responsible for informally measuring / monitoring all indicators at the support provider and Farmer KAP levels, and they will occasionally participate in field measurement activities in collaboration with the M&E team. Indicators where the Intervention Managers are the sole persons responsible for collection include either (1) outputs or (2) indicators measured using solely (or primarily) informal measurement methods. The M&E team is responsible for collecting information on the Impact Logic indicators that require actual field measurement. The manager is responsible for calculating the values of farmer's performance indicators using the projection assumptions listed in the Impact Logic.
- **Monitor Date**. The monitor date is when actual measurement of the result indicators is scheduled to take place. The monitor date is timed to correspond with the date that the corresponding result is expected to occur. As a general rule, CAVAC's M&E system times measurement (or collection) activities to the expected date of occurrence.
- **Result**. Once the expected result has occurred and been measured, the Monitoring Plan records the result. Certain outcomes are measured more than once and thus will have two or more results recorded in the results column.
- **Evidence**. The final column in the Monitoring Plan provides a link to CAVAC P-drive where the document reporting the result is found.

The Monitoring Plan is, a detailed tool that the CAVAC management and M&E team can use to inform them on the status of M&E activities in each of CAVAC's market interventions. The Monitoring Plan is also a useful planning tool for the M&E team to coordinate its M&E activities across the many and diverse CAVAC market interventions.

In addition to the individual Monitoring Plans prepared for each intervention, the M&E team also prepares a 'Monitoring Plan summary matrix,' which is an at-a-glance summary of all intervention Monitoring Plans mapped against a calendar showing which M&E activities are planned for which dates over a six-month period. The Monitoring Plan matrix allows the CAVAC management and M&E team to plan more efficiently and to optimise the allocation of scarce program resources and management / staff time for M&E activities. An example of the Annual Monitoring and Evaluation Matrix Plan of January - December 2016 is shown in Annex 7.

5.3 Estimating Impact

CAVAC measures the impact of its interventions at different result levels in two ways: (1) direct measurement and (2) projections. Direct measurement, uses the information gathering methods explained in section 6. CAVAC gathers evidence by doing formal and / or informal research for the program components and M&E research to develop a series of projected assumptions for selected result indicators. It then periodically updates the projected assumptions to reflect new information creating in a series of impact estimates. CAVAC estimates the final impact of each intervention using the following formula:

(Estimated impact at time X_0) **+** (Predicted impact at time X_1) **=** (Total estimated impact at time X_1)

Where: X_0 = Current time; and X_1 = Future time

CAVAC makes projections as:

- Direct measurements instead of projections; and/or,
- Both direct measurements and projections to complement or reinforce each other.

CAVAC relies primarily on direct measurements of support provider KAP and performance and of farmers KAP. This is complemented by projections, and relies on projections of farmer performance and indirect impacts, accompanied by direct measurements.

5.4 Measurement timelines

The measurement of results will align with the expected result timeframe during implementation. Drawing on experiences of other value chain programs and on its own work plan, CAVAC anticipates that program results will unfold as follows:

- Outputs occur immediately as each activity is implemented or each output milestone is reached. They are measured when they occur.
- Changes in knowledge and attitudes of support providers occur soon after a training, workshop, capacity development event (event), etc. is completed. Changes are measured at the time or shortly after such an event.
- Changes in the practices of support providers should begin to emerge during the first production cycle after the event, and emerge more in succeeding production cycles after that.
- Changes in support market performance begin to emerge during the initial product production cycle after the event, but they are more likely to arise one or more production cycles after changes in support provider KAP have occurred.
- The crowding-in of other support market providers occurs only when changes in support market performance have emerged and are large enough to be observed. This should take place within one to two production cycles after improvements in support market performance have occurred. Due to the short period of the program lifetime, CAVAC will not assess the crowding-in but observe the indication of change in the market where it is available.

- Changes in farmer KAP may begin to emerge during the first production cycle after farmers have received information or other assistance from program-assisted support providers, but they are more likely to become visible one or more production cycles after they begin receiving information and other assistance from support providers.
- Changes in farmer performance begin to emerge during the initial production cycle after the farmers start receiving information and other assistance from support providers, but they are more likely to be seen one or more production cycles after changes in farmer KAP have occurred.
- The copying by other small farmers occurs only when changes in farmer performance have emerged and are large enough to be observed. This can take place within one to two production cycles after improvements in farmer performance have occurred. The period elapsed is too long to assess the copying of other small farmers. CAVAC assumes that one farmer will result one other farmer copying. The impact will be calculated on one direct to one indirect basis.
- Changes in household poverty status take the longest to emerge and are not expected to be apparent until two to three years after an intervention is initiated.

5.5 Estimating Attributable Change

Attributing change to CAVAC interventions is a challenge as it is difficult to estimate the impact that the program makes directly in a rapidly changing market. CAVAC takes a practical approach to address this challenge, and has developed a system that is both feasible and credible, and that also satisfies the information needed by stakeholders.

Attribution involves isolating the changes that result from CAVAC interventions and separating them from what would have happened anyway—referred to as the 'counterfactual'. The further up the Impact Logic (i.e. higher level results), the more difficult it is to attribute observed changes back to specific program interventions. Changes at higher results levels are influenced by multiple factors beyond the program's control such as: general market trends; changes in the business-enabling environment; inter-personal or intra-household dynamics (migration work); weather patterns; and, social disturbances, among others.

Establishing a statistically valid counterfactual requires a control group study that compares a treatment group of program beneficiaries to a control group of non-beneficiaries. Methods for establishing a control group include 'experimental sampling methods,' which randomly assign persons into the treatment and control groups – and 'quasi-experimental sampling methods,' which uses known and observable characteristics of groups to match a randomly selected group of beneficiaries to a randomly selected group of non-beneficiaries.

Control group studies are part of the M&E toolbox, their high cost, technical demands, and limited managerial usefulness has limited their role within the CAVAC M&E system. Instead, CAVAC relies on multiple information sources and multiple information gathering methods to estimate attribution. These methods are integrated into the following four-step process:

1. **Establishing baseline conditions**: CAVAC performs a baseline assessment to establish the original conditions, prior to all interventions.
2. **Assessing changes after the program intervention:** CAVAC performs information collection activities to determine the nature and extent of change in its Impact Logic indicators throughout and when interventions end.
3. **Estimating the counterfactual:** CAVAC draws on secondary information and the opinions of expert key informants to form an estimate of the change in the Impact Logic indicators that would likely have occurred in the absence of the program intervention.

4. **Comparing the observed changes to the estimated counterfactual:** CAVAC compares the observed changes to the estimated counterfactual to produce an estimate of the change that can be attributed to the intervention.

Specific methods used to estimate CAVAC's contribution to change at the different results levels include the following:

- **Estimate the likelihood that prevailing KAP would have changed in the absence of program interventions:** KAP tend to be tradition-bound and resistant to change in the short-term. The due diligence research conducted by CAVAC prior to launching an intervention establishes the prevailing KAP in the sector and a trend line. This information enables CAVAC to make an informed estimate on what would have been of the likelihood of change in KAP in the absence of program interventions.
- **Collect information at all results levels:** CAVAC first establishes that the sequence of expected changes has occurred at each results level as a precondition for making inferences about program impact. If change occurs at one results level but not the next, then the Impact Logic is 'broken'. Alternatively, if change occurs at a higher results level but not the lower one(s), then the change was not caused by the program intervention.
- **Conduct quantitative research to measure units of change[8]:** CAVAC administers quantitative research tools to measure specific units of change in result indicators among support providers and farmers. Quantitative tools are administered using both information collection and rapid assessment methods.
- **Conduct qualitative research to understand the change process:** CAVAC administers qualitative research tools to investigate the factors contributing to change or the lack of change in result indicators. Qualitative tools are administered using primarily rapid assessment methods.
- **Conduct trend analysis in targeted sectors**: To provide the necessary context and aid interpretation, CAVAC makes note of and incorporates into its analysis relevant factors in the economic, political, social, and natural environments that might feasibly have also influenced observed differences between CAVAC results and more general results. CAVAC uses secondary information to compare changes in areas where it works, to changes and/or trends at the national level or in other areas where it does not work. Observed differences suggest a range of potential program impact.
- **Conduct special studies on selected topics using quasi-experimental sampling methods**: CAVAC conducts occasional control group studies on selected topics using 'quasi-experimental' sampling methods. (The operational burdens of randomisation make experimental methods unsuitable for CAVAC). Specialised studies are outsourced to external researchers.

5.6 Capturing Systemic Change and Indications of Sustainability

CAVAC uses a holistic approach to measure the sustainability of its market interventions. Using this approach, the results occur at each result level constitute pieces of evidence for intervention sustainability. By looking at all of the pieces, it creates a whole and comprehensive picture of the likely sustainability of program interventions. The evidence consists of the following three points:

1. In this approach, the improvements in support provider and farmer KAP are the first piece of evidence for intervention sustainability. While improvements in KAP do not guarantee intervention sustainability, they are a necessary condition to achieve it. To the extent that

[8] http://www.enterprise-development.org/wp-content/uploads/2_Implementation_Guidelines_Indicators_May_2015.pdf

CAVAC can document that changes in KAP have occurred and have become embedded in the market, the greater the likelihood is that the interventions will produce sustainable results.

2. The second piece of evidence of sustainability is improvements in support providers and farmer performance. Any changes in support providers and farmer KAP must translate into improvements in performance, otherwise support providers and farmers have little incentive to maintain the changes in KAP over the long term. On the other hand, improvements in performance that occur without corresponding improvements in KAP indicate that factors other than the intervention are responsible for the improved performance. CAVAC seeks to document those improvements in performance that are also occurring in conjunction with improvements in KAP.
3. Evidence of indirect impacts provides the final piece of evidence for intervention sustainability. Crowding-in and copying are most likely to occur in successful interventions that have facilitated significant and observable improvements in KAP and performance, and they signal the type of broader-based systemic change that contributes to long-term sustainability.

CAVAC's M&E system collects information on each of the three pieces of evidence described above. While any single piece provides useful information on intervention sustainability, putting the three pieces together allows CAVAC to arrive at an informed judgment on the likelihood that the intervention results will be sustained over the long-term.

If CAVAC interventions lead to improved performance among support providers and farmers, it can anticipate that other support providers and farmers will follow. Other support providers may adopt the same behaviours and / or new support providers may crowd into market. Similarly, farmers may copy other successful farmers. These indirect effects of CAVAC interventions can potentially lead to impacts that extend beyond the group of support providers and farmers that are reached by CAVAC interventions.

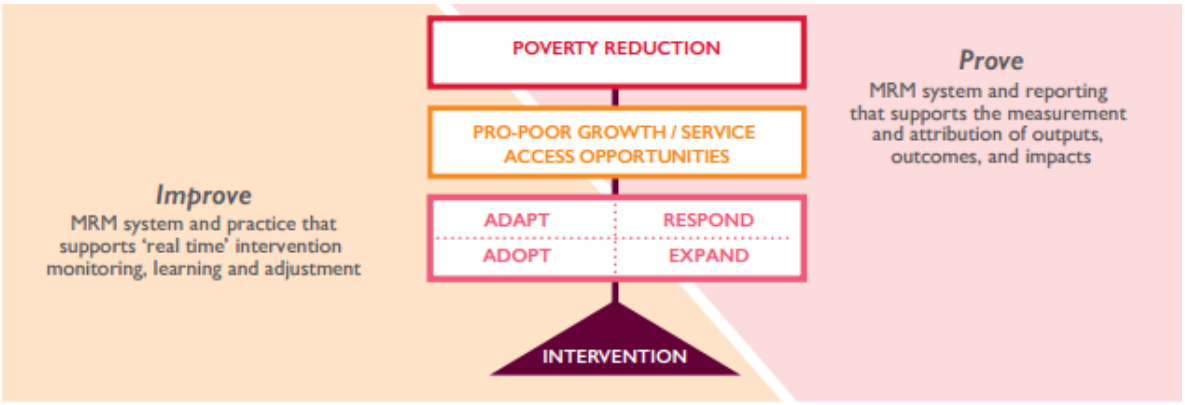
CAVAC initially predicts the extent of crowding-in and copying in each of the Impact Logics. The Impact Logic predictions are then periodically updated, based on information being generated through the M&E activities. CAVAC differentiates between direct impacts and indirect impacts when projecting the possible impact from an intervention. Direct and indirect impacts are reported separately and aggregated together. CAVAC does not evaluate the crowding-in at support provider level due to the limited lifetime of the project. At the farmer level, CAVAC assumes that direct impact on one farmer leads to indirect impact on one other farmer, the estimated attribution of indirect impacts is equal to the one of direct impacts.

If, as expected, support providers and farmers increase their yields, area under cultivation, quality, etc. this is expected to have ripple effects on other participants with the support markets via forward and backward linkages. CAVAC actively monitors to determine if these linkages take place as an indicator of program outreach and sustainability, but it does not estimate their impact.

In the M4P Operational Guide[9], to find out whether the intended intervention is likely to be sustainable, it is suggested that we answer the following questions for each of the key indicators of systemic change as shown in Figure 10: Adopt ➔ Adapt ➔ Respond ➔ Expand.

[9] https://beamexchange.org/uploads/filer_public/14/74/14743b74-c90f-4de5-80d6-f17a34253381/m4pguide_measurement.pdf

Figure 10: Measuring systemic change[10]



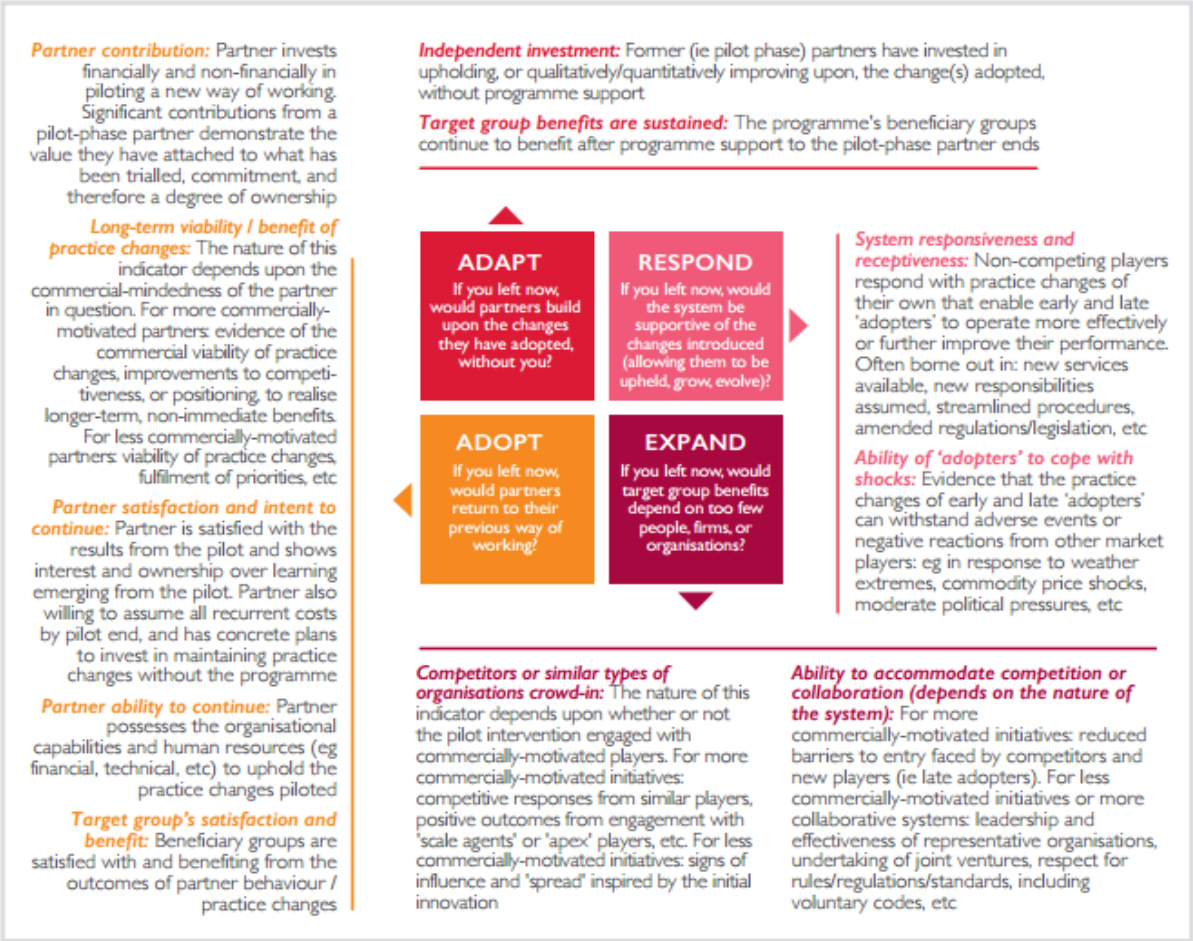
To measure the sustainable changes, the CAVAC M&E system will track the changes at the support market and core market by trying to answer the following questions:

- Are companies profiting from offering better products, and therefore likely to continue offering products?
- Are other companies considering copying the CAVAC supported innovations?
- Are farmers likely to increase using the products?
- Are there indications that market players intend to improve the products?
- Are attitudes and the business environments changing to support the product provision?

Figure 11 illustrates the key questions to be asked and criteria to define whether private partners are in 'Adopt', 'Adapt', 'Respond' or 'Expand' categories.

[10] https://beamexchange.org/uploads/filer_public/14/74/14743b74-c90f-4de5-80d6-f17a34253381/m4pguide_measurement.pdf

Figure 11: Key questions and indicators of sustainability and scale[11]



Indirect results

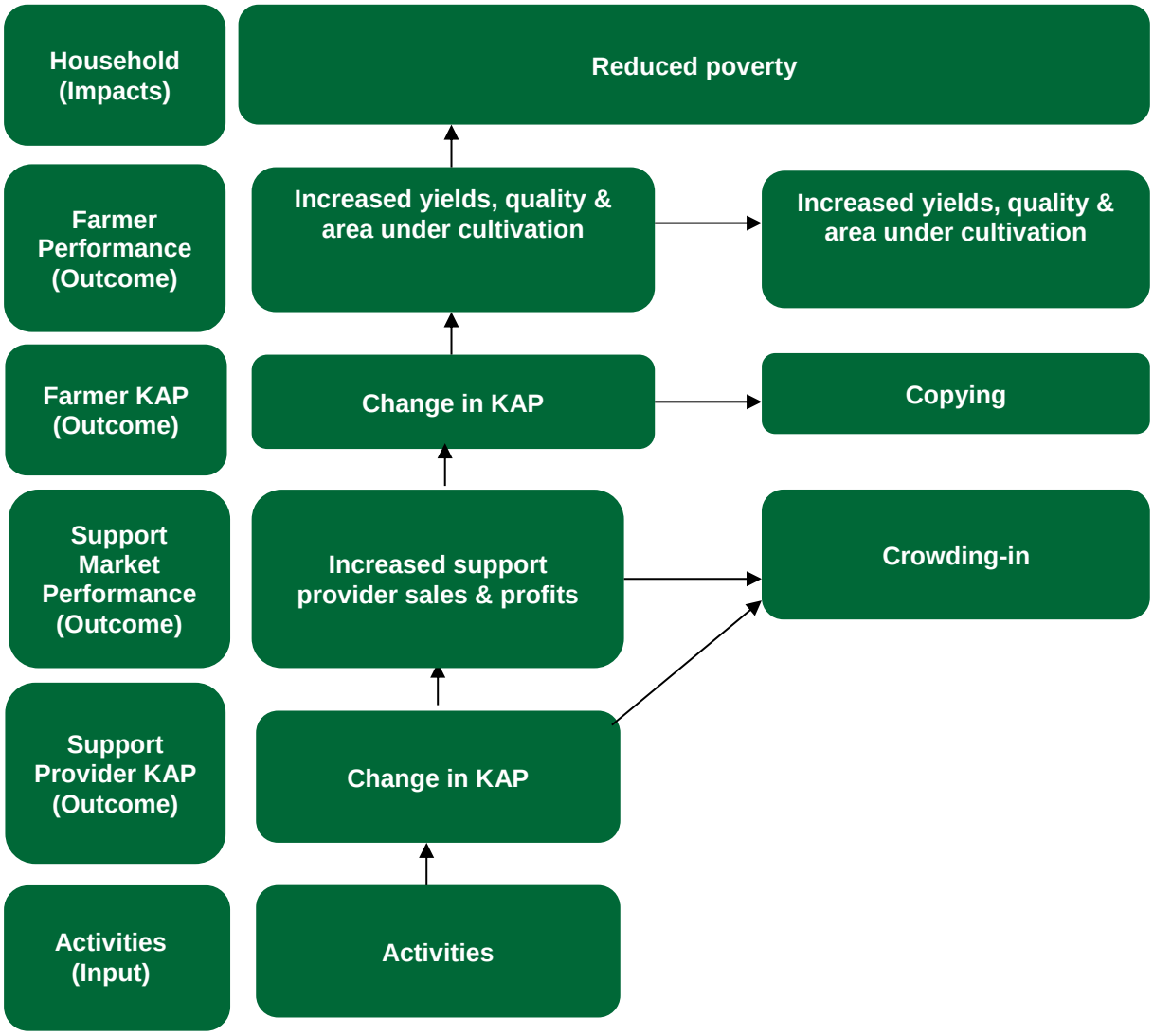
The generic intervention Impact Logic in Figure 8 shows the direct results of CAVAC interventions. CAVAC interventions are also expected to produce indirect results or spill over effects that affect the broader market system as well. Market spill overs result from demonstration effects that encourage other support providers or farmers to adopt similar behaviours as the support providers or farmers targeted by CAVAC activities.

Crowding-in occurs when non-assisted support providers enter the market by adopting the behaviours of program assisted support providers in terms of providing information, quality inputs, and other products/services to small farmers. The indication of crowding-in by support providers will be captured and reported by the Intervention Managers. Copying occurs when other farmers adopt the same behaviours as the farmers initially reached by program-assisted support providers. At the farmer level, CAVAC assumes that one farmer reached by the support providers will lead to copying behaviour by one other farmer.

Crowding in and copying behaviours are expected to improve support provider and farmer performance, thereby contributing to sustainable market outcomes and to generalised poverty reduction. The experience in CAVAC shows that capturing the impact from crowding-in is almost impossible due to its complexity. It only claims the outreach number generated from copying farmers and does not calculate the increase in yields, quality, and area under cultivation from the indirect outreach. Figure 12 shows how spillover effects are captured in the generic CAVAC Impact Logic.

[11] https://beamexchange.org/uploads/filer_public/14/74/14743b74-c90f-4de5-80d6-f17a34253381/m4pguide_measurement.pdf

Figure 12: CAVAC Impact Logic with Direct and Indirect Results



Unintended impacts

The Impact Logic outlines the changes that CAVAC expects after a specific intervention. However, there may be other changes at any of the levels of analysis that result from CAVAC activities.

When CAVAC identifies unintended impacts, it assesses the approximate extent of these impacts. If they appear significant, then the relevant Impact Logic is revised to include these impacts and information collection activities are adjusted to incorporate them. If unintended impacts do not appear significant, then they are not monitored further.

5.7 Displacement

CAVAC interventions benefit some support providers and smallholders while potentially hurting others. For example, if support providers benefiting from CAVAC interventions sell more inputs, this may mean other support providers may sell fewer inputs. This results in competitiveness in the market in terms of quality and price. CAVAC believes that the consequence of this competition is beneficial to the poor farmers, known as buyers. The latter can obtain good quality products at cheaper cost. Alternatively, if some farmers sell more to certain buyers, others may sell less. But this applies only to a saturated market rather than the growing agricultural product markets in Cambodia where local demand and export markets are hardly matched. Displacement refers to the negative effects on those support providers or farmers affected by CAVAC activities.

CAVAC takes displacement seriously into account and, informally assesses the plausible displacement in the intervention markets it supports. CAVAC works in expanding markets and therefore expects displacement to be minimal. Demand is expected to be sufficient in CAVAC targeted markets so that they can absorb expanded production and sales of program-assisted support providers and farmers without significantly affecting the production and sales of other support providers and farmers.

Displacement, however, may be an issue if targeted markets become saturated or their growth slows.

5.8 Aggregated Database

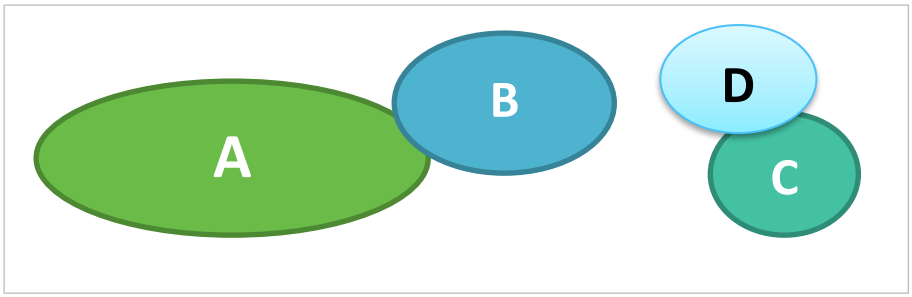
The Aggregated Database tracks the cumulative impacts against the overall goal and reports the results. To aggregate results in CAVAC there are two databases:

1. The Data-hub is a spreadsheet that captures and records the results of each intervention in each market.
2. Geographical mapping is used to track the location of interventions. This mapping enables the calculation of the overlapping effects, as these effects can occur at the multiple interventions in the same market and/or across markets.

The aggregated data allows CAVAC to look at any overlap across the market and geographical locations. When overlap occurs an overlapping discount rating is calculated based on the different scenarios described in the diagrams below. Assume A, B, C and D are the locations where CAVAC has interventions.

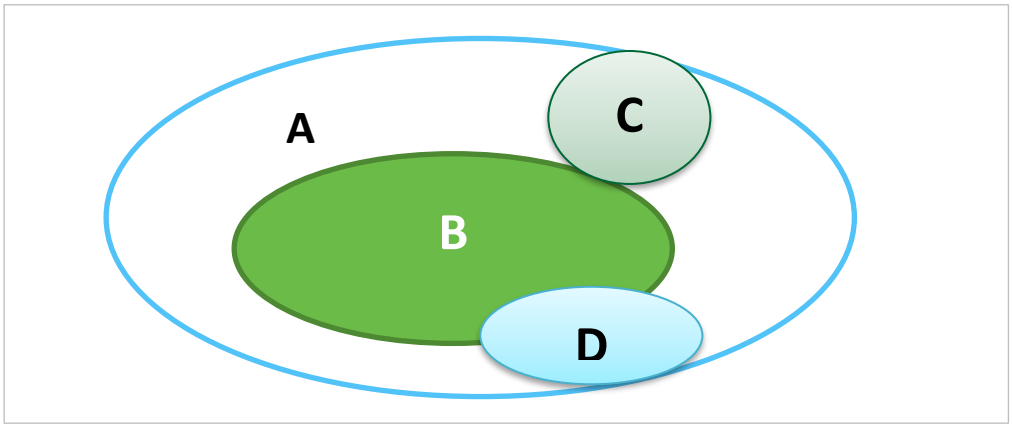
Scenario 1: This does not show any overlapping effects. The impacts will be a sum of all the aggregated results.

Figure 13: No Significant Overlapping Effects



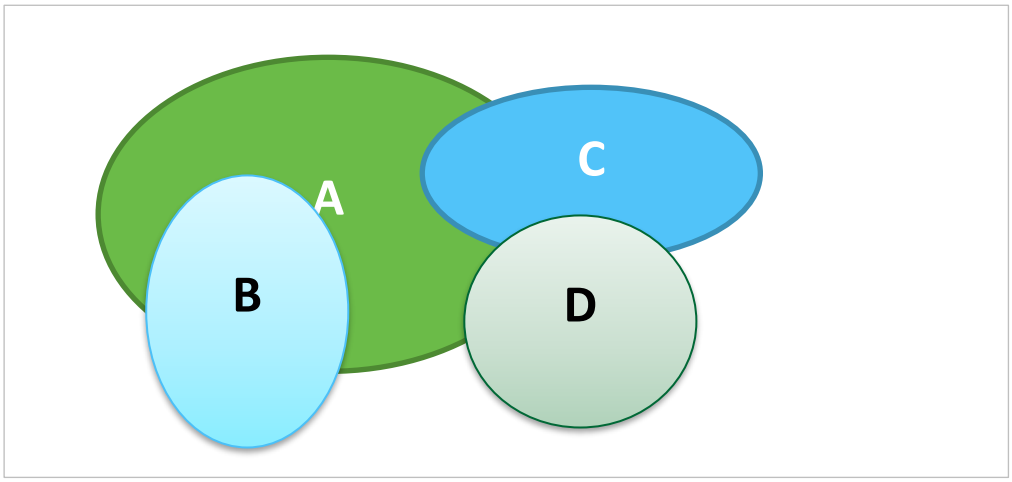
Scenario 2: Only the result of A will be reported as it covers most of the outreach number, B, C and D are ignored.

Figure 14: Largest Intervention covers all Interventions



Scenario 3: There is significant overlapping between the interventions and none large enough to cover all the outreach number. This requires an estimate of the overlapping interventions to be deducted from the total outreach number. The method used to estimate the overlapping number is varied on a case by case basis.

Figure 15: Significant Overlapping Between Interventions



CAVAC will record the number reached and the outreach number for each intervention and will calculate the final outreach number taking into account the overlap. It will also use geographical mapping to estimate the extent of overlapping.

For reporting purposes, CAVAC is required to report based on the Aggregate Development Results (ADR) on a yearly basis to DFAT as specified in the CAVAC Investment Design Document[12]:

- Number of poor women and men with increased incomes.
- Number of poor women and men who adopt innovative agricultural and fisheries practices.
- Value of additional agricultural and fisheries production in US dollars.
- Value of exports facilitated, including new exports.
- Value of private sector investment leveraged.

[12] https://dfat.gov.au/about-us/publications/Documents/investment-design-cambodia-agricultural-value-chain-program-phase-ii.pdf, pg. 48.

- Lengths of roads constructed, rehabilitated or maintained (Note: Relates to rural roads constructed on irrigation canal embankments. Results are therefore likely to be limited)
- Number and percentage of management committees in which women are equally represented (Note: Relates to FWUCs established by CAVAC. Results are likely to be limited considering the current gender gap).

5.9 Measuring Cross-Cutting Themes

Gender and Women's Economic Empowerment

CAVAC will integrate gender and Women's Economic Empowerment (WEE) across the M&E system and program. The Gender and WEE Strategy will be finalised at the beginning of 2017.

CAVAC seeks to mainstream gender into its programming. It is working toward achieving benefits for both men and women throughout its interventions and will measure these achievements.

Success in WEE in CAVAC is broader than measuring increased profits or incomes, but also includes an increase in economic empowerment for women which works toward equal outcomes for both men and women benefiting from project activities.

Enhanced gender disaggregated data is the starting point for monitoring WEE and this will be enhanced by integrating new, appropriate indicators linked to the selected domain of WEE. The selection of indicators is done when the Monitoring Plan is developed. Therefore, a set of indicators specific to WEE will be developed in the Gender and WEE Strategy and will be integrated by the M&E team into CAVAC interventions.

Disaggregated data will be rolled up into the Data Hub which will allow for better analysis of trends demonstrated by women and men. WEE specific indicators will be rolled up as a group in order to understand how and in which domains the project is impacting WEE.

The irrigation and water management related work will put more focus on integrating the gender aspect across its work. C2 has integrated challenging governance work in its irrigation schemes as they aim for community control of the infrastructure. The FWUCs, are a tiered elected body tasked with ensuring the upkeep of the schemes and collecting user fees from the farmers. Previously, CAVAC has struggled to promote women's participation in these groups, with participation stable below 5%. The first phase of CAVAC examined the reasons for this low participation and found that a variety of factors, from time constraints to social norms (women do not hold many leadership positions in Cambodia) to the perceived demand of the positions, have kept women away. Elections have also tended to skew towards men in the community, therefore even as women may stand for the positions, they do not often get elected.

CAVAC provided gender training to the government officials which support the groups and have urged them to support more women into these positions. To date, this has not yielded positive results.

CAVAC will try again to support more women becoming members of these groups. A study will be conducted to better understand the root causes of the constraints and to stimulate creative ideas for potentially overcoming these. Best approaches may be piloted. This will be done within the understanding that (a) the positions are elected and this process should remain true, and (b) the viability of the FWUCs is the primary goal, and this should not be jeopardised.

The key research questions related to gender issues for all the interventions will be added to the Monitoring Plan worksheet and will be addressed through informal or formal studies.

Environment

CAVAC has an established Environmental Management System (EMS) that operates across the program. The implementation of the full EMS is applicable for C2. In C1 and C3, it is mandatory that all interventions undertake the Initial Environmental Screening (IES) checklist and any findings are integrated into the Intervention Plan. If any of the interventions are found to cause negative environmental impacts, then the intervention will not go ahead. The M&E system continues to capture any changes through the Monitoring Plan.

6 Data Collection and Analysis

6.1 Information Collection Methods

The CAVAC M&E system uses a 'toolbox' of data collection methods to measure program results at the support provider and farmer levels. The toolbox consists of a variety of quantitative and qualitative information collection tools administered on a periodic and as-needed basis. Periodic data collection occurs on a planned basis where, as-needed data collection occurs to answer specific questions of interest to CAVAC management and the M&E team, or to follow-up on results found during periodic data collection activities or issues identified in the partial and complete TMRs.

The M&E toolbox is not limited to any specific information collection method; rather it places emphasis on variety and flexibility depending on the information needs of the target audience. There are a number of common methods that CAVAC expects to use. These can be broken down into formal and informal methods.

Data collection methods can be broken down further into quantitative and qualitative methods and special studies. Common quantitative data collection methods are shown in Table 9 below:

Table 9: Data Collection Methodologies

Method	Tools
Quantitative	▪ Surveys ▪ Mini-surveys ▪ Secondary information
Qualitative	▪ Key information interviews ▪ Focus group discussions ▪ Case studies ▪ Mini case studies

Each of these formal data collection methods is described in greater detail below:

Quantitative methods

Surveys

Surveys are used to: gather systematic evidence of program results; to satisfy more rigorous data validity requirements; and to provide stronger evidence of program impact. Features of formal surveys include:

- Include large (and possibly representative) samples of the target population numbering in the hundreds or more.
- May include a statistically valid control group to attribute observed results to program activities with a high degree of statistical reliability.
- Use a formal, structured questionnaire of mostly closed-ended questions that cover specific issues. May also include some open-ended questions.

- Outsourced to external researchers.
- Done on a planned schedule.

Mini Surveys

Mini surveys are used to: validate the findings of key informant interviews or focus group discussions with a sample size; gather quantitative information when speed is a priority; and, gather quantitative information when significant methodological rigor is not required. Mini surveys are not intended to be representative, but rather to give an approximate snapshot understanding of selected issues from a targeted group of respondents. The features of mini surveys include:

- Targeted samples of approximately 20 - 40 respondents selected at random or using specific selection criteria.
- A short questionnaire focused on a limited number of issues (15 – 20 minutes to complete).
- Mostly closed-questions, but may also include open-ended questions.
- Generates quantitative data that can often be collected and analysed quickly.

Secondary Information

Secondary information tends to be primarily quantitative information, but it can include qualitative information as well. Secondary Information is used to: get general information on the target area or sector; get information on production, sales, and other indicators of enterprise performance at the sector, sub-sector, cooperative, or lead-firm levels; compare to the performance of program beneficiaries as a control group (albeit an unscientific one); compare to information gathered through informal and formal methods as a means of verifying the accuracy of the data; and determine the relationships between cultivation practices and yields so as to allow projection of program impacts. The features of secondary information include:

- It is gathered by program staff.
- Sources include government data/research, academic data/research, studies by donors/organisations, and information from industry associations.

Qualitative methods

Key informant interviews

Key Informant Interviews are used to: gather qualitative information; explore processes of change; understand changes in more depth; explore attribution; and provide insight into the nature of problems and offer potential solutions. While key informant interviews are useful for getting in-depth answers to a limited set of questions, they are less useful for getting broad-based answers to a small or large number of questions. The features of key informant interviews include:

- Single respondents selected for their specialised knowledge on the issues being investigated
- Prepared discussion guides and probing on responses
- Conducted by an interviewer and note taker

Focus group discussions

Focus Group Discussions are used to: gather qualitative information; explore processes of change; understand changes in more depth; and explore attribution. Focus Group Discussions allow

observations of group dynamics and first-hand insights into respondents' perceptions, attitudes, behaviours, etc. While Focus Group Discussions are useful for getting in-depth answers to a limited set of questions, they are less useful for getting broad-based answers to a small or large number of questions. The features of Focus Group Discussions include:

- Consist of moderated group interviews of approximately five to ten people selected for their familiarity with the issues being investigated.
- Use prepared discussion guides and probing on responses.
- Interview homogenous participants in terms of demographics and the issues being investigated.
- Conducted by an interviewer and note taker.

Case studies

Case Studies profile particularly successful market interventions. They are used to: highlight successes or lessons learned in a particular intervention or sector; summarise changes resulting from program activities; personalise program results by profiling enterprises and/or poor people who have benefited; and highlight lessons learned. Characteristics of case studies include:

- A clear statement of the purpose for the case study
- Describe the intervention rationale and causal logic for the activity or sector
- Provide personal stories of how small support providers, farmers, or farmer households have benefitted from the program and lessons learned.

Mini-case studies

Mini-Case Studies profile service providers, enterprises, and households that have changed or otherwise benefited from program operations. They are shorter and more focused than case studies and are used to deepen the program's understanding of changes resulting from activities; illustrate how program activities produce results at the service market, enterprise, or household level; and, highlight specific types of results for selected audiences for example results related to gender or environmental sustainability. The characteristics of mini-case studies include:

- Include a clear statement of the purpose for the case study
- Describe the intervention rationale and causal logic for the activity or sector
- Provide a personal story of how one support provider, farmer, or farmer households has benefited from the program and lessons learned.

Special studies

Special studies are a distinct method of information collection that CAVAC commissions to generate more detailed or rigorous information on key performance indicators, generate learning in other areas of interest (e.g. gender, environment, working conditions), validate common assumptions that cut across multiple sectors, or for other purposes. Special studies are formal research exercises normally undertaken by external researchers using more rigorous quantitative and qualitative research methods. Special studies are done on an as-needed basis.

Observation

Observation consists of observations made by Intervention Managers during their day-to-day interactions with and observations of support providers, farmers, and other market system actors.

Informal observations are used to: gather update information about the status and changes among support providers and farmers and in the broader market system; quickly assess whether and to what extent change is happening; obtain a preliminary idea of conditions and changes as a precursor to doing formal information collection, validate findings from other information collection methods.

Levels of rigour

CAVAC aims for different levels of rigor, or statistical validity, when implementing formal information collection methods. Generally, information used to provide statistically reliable evidence of program impact is collected using more rigorous collection methods. The primary rigorous information collection method used by CAVAC is the survey, although qualitative tools such as key informant interviews and Focus Group Discussions, are also subject to standards of rigor.

In contrast, information used to provide periodic snapshots of intervention effectiveness, determine whether intermediate results in the Impact Logic have occurred, or are otherwise used for management purposes is collected using less rigorous (or rapid assessment) collection methods that are implemented over a short period of time and at a reasonable cost. The primary rapid assessment methods used by CAVAC are the mini survey, key informant interviews, and Focus Group Discussions. Rapid assessment methods adhere to a standard of ‘reasonable accuracy’ as opposed to the ‘precise accuracy’ standard of rigorous collection methods.

Baseline data collection

To track the changes in program outcomes over time, CAVAC established baseline values for each result indicator in the IL. CAVAC, however, does not gather baseline information in the traditional sense of using surveys of the target support providers and farmers to establish original conditions at the beginning of an intervention. In lieu of the traditional manner for establishing baseline values, CAVAC conducts thorough due diligence research prior to launching an intervention.

As part of its due diligence research, CAVAC researches existing information sources and data bases, conducts a series of key performance interviews and other rapid assessments, and in certain cases also conducts surveys of market participants. This due diligence research allows CAVAC to form a detailed picture of the original conditions in the sector, which serves as a baseline for making impact projections and measuring change over time.

In addition to its due diligence research, CAVAC may also create retrospective baselines by asking market participants to estimate their situation at the time the intervention was launched. Retrospective baselines can be done at any point in time after the intervention launch with the caveat that longer recall periods generally correspond to less accurate recall.

Annex 1: Glossary

Accountability	Responsibility for the use of resources and the decisions made, as well as the obligation to demonstrate that work has been done in compliance with agreed-upon rules and standards and to report fairly and accurately on performance results.
Activity	Actions taken to produce specific outputs from inputs such as funds, technical assistance, and other resources.
Area under cultivation	The change in hectares cultivated with non-wet season rice by farmers benefitting from program-supported irrigation schemes. Non-wet season rice is included as dry season rice, early wet season rice, and recession rice.
Assumptions	Hypotheses about factors that could affect the progress or success of an intervention. Achieving results depends on whether the assumptions made prove to be true. Incorrect assumptions at any stage can become an obstacle to the validity of the expected results or achieving them.
Attribution	Demonstrating a causal link between observed results and project activities, taking into account the effects of other interventions and possible confounding factors. Attributing results to project activities requires the creation of a 'counterfactual.'
Baseline	The status of services and result indicators such as knowledge, attitudes, norms, behaviours, and conditions prior to the intervention.
Business Enabling Environment	The norms and customs, laws, regulations, policies, international trade agreements and public infrastructure that either facilitate or hinder the movement of a product or service along its value chain.
Capacity	The knowledge, organisation, and resources needed to perform a function.
Case Study	A methodological approach that describes a situation, individual, or the like and that typically incorporates the data-gathering activities (e.g. interviews, observations, questionnaires) at selected sites or programs. Case studies are characterized by purposive selection of sites, or small samples, and the expectation of generalizability is less than that in many other forms of research. The findings are used to report to stakeholders, make recommendations for program improvement, and share lessons with other countries.
Causal Chain	An ordered sequences of events in which one result (or link) in the chain causes the next. In an M&E context, the causal chain refers to the chain of causal relationships theorized to connect project activities to outputs, outputs to outcomes, and outcomes to impacts. The validity of the causal chain depends on the existence of the hypothesized causal relationships at each link in the chain.
Compliance	Satisfying donors' and other external stakeholders' requirements for performance information.
Conclusion	A sound judgment deducted from empirical findings or factual statements corresponding to a specific circumstance.
Copying	The number of other farmers change cultivation technique because of the change of direct beneficiary farmer. The other farmers who change their practice as result of crowding in are counted if practically possible.
Counterfactual	A statement of what would have happened without the project, or if the project had taken a different (but specified) form.

Coverage	The extent to which a program reaches its intended target population, institution, or geographical area.
Critical Links	Links in the causal chain considered most critical for higher-level results to occur. The M&E system should prioritize measuring critical links.
Crowding-In	The number of 'OTHERS' non-assisted support providers copy the business model from the assisted support providers.
Data	Specific quantitative and qualitative information or facts that are collected.
Direct Impact	Changes generated by CAVAC that can be linked in a straight line to CAVAC activities without considering crowding in, copying or new entrants.
Displacement	The amount of negative effect on those enterprises harmed by CAVAC.
Effectiveness	The extent to which a program or project has achieved its expected outcomes under normal conditions in a field setting.
Effects	Changes in knowledge, attitudes, and practices, as well as in systems. The latter can include institutional competency (e.g. improved health-care systems), policy change (e.g. new or revised policies, change of enforcement, etc.) or services (e.g. more effective extension systems).
Efficiency	A measure of how well inputs (resources such as funds, expertise, and time) are converted into outputs. This term is also used more specifically in economic evaluation to mean the cost value of producing a given product or service.
Environmental Scanning	The process of continually acquiring information on events occurring outside the organisation to identify and interpret potential trends. The environmental scanning process entails obtaining both factual and subjective information on the environments in which the project is operating. There are three ways of scanning the project environment: (1) ad-hoc scanning, which includes short term, infrequent examinations often initiated by a crisis, (2) regular scanning, which are more formal exercises done on a regular schedule (e.g. once a year), and (3) continuous scanning, which is continuous structured information collection and processing on a broad range of environmental factors.
Estimated Impact	The outreach and change in an indicator attributable to an intervention, estimated based on the findings of information collection activities. Estimated impact replaces predicted impact in an Impact Logic after data collection and analysis.
Evaluation	The systematic collection of information about project activities, characteristics, and outcomes that determines the merit or worth of a specific project. Evaluation studies provide credible information for use in improving projects, identifying lessons learned, and informing decisions about future resource allocation. An evaluation can use a quantitative approach (e.g. structured or standardized approaches for collecting numeric or categorical data, such as surveys, questionnaires, and checklists, using experimental or quasi-experimental design), a qualitative approach (e.g. semi-structured data collection such as interviews, focus groups, and observation), or a mix of both approaches.
Explicit Information	Objectively verifiable information that can be readily transmitted to others and stored in certain media. Explicit information ends to be quantitative, although it can also be qualitative.
External M&E System	The part of the overall project M&E system that is designed to satisfy the projects accountability requirements to donors and other external stakeholders.

Farmer outreached	The number of farmers who is shared by the support provider changes their practice according the advice. The program will claim the impacts to either the end of the program or to two years after the end of the program. It means that some interventions will be calculated to the end in 2021 and some will be up to 2023. The calculation number is not cumulative.
Farmer reached	The number of farmers have access to the improved goods or services by the support providers.
Feasibility	The quality of being doable with the means at hand and circumstances as they are.
Generalizability	The extent to which findings can be assumed to be true for the entire target population, not just the sample. To ensure generalizability, the sample procedure and the data need to meet certain methodological standards.
Goals	The higher order aims of the program or project, to which the intervention is intended to contribute.
Impact Evaluation	A scientifically rigorous methodology to establish a causal association (or attribution) between projects and what they aimed to achieve beyond the outcomes on individuals targeted by the projects(s). (Also Impact assessment)
Impact	The longer range, cumulative effect of the project over time on what it ultimately aims to change. Impacts are often not attributable to a single project, but a project may, with other projects, contribute to impacts on a population.
Impact Logic	See Casual Chain.
Indicator	A quantitative or qualitative variable that provides simple and reliable means to measure achievement, monitor performance, or to reflect changes connected to an intervention.
Indirect Impact	Change generated by CAVAC that can be linked to CAVAC activities through crowding in, copying and / or new entrants.
Information Collection Methods	The general approach or methodology used for information collection. (Also Data collection methods)
Information Collection Tools	The specific tools used for information collection. (Also Data collection tools)
Input	A resource used in a project, including monetary and personnel resources from a variety of sources, as well as curricula and materials.
Intermediate Outcomes	Indicators measuring whether value chain actors have acquired the knowledge, formed the attitudes, or adopted the behaviours facilitated by project activities. Examples include the number of farmers adopting new technologies or the number of new commercial linkages made by farmers with other value chain actors.
Intervention	A specific activity (or set of activities) intended to bring about change in some aspect of the status of the target population using a common strategy. An intervention has distinct process and outcome objectives and a protocol outlining the steps of the intervention.
Key Performance Indicators	Indicators that measure critical links in the project's causal chain.
Learning Loop	Continual and iterative process in which monitoring information on project performance and environment is collected, analysed and disseminated leading in turn to organisational learning and adaptation.

Lessons Learned	Learning from experience that is applicable to a generic situation, not just to a specific situation. Generalizations are based on evaluation experiences from programs, projects or policies.
Monitoring and Evaluation	A management, accountability, and learning tool that is built around a formal process for evaluating results using indicators that help measure progress toward achieving intermediate targets or ultimate goals. M&E systems comprise procedural arrangements for data collection, analysis and reporting.
Monitoring	Routine tracking and reporting of priority information about a project and its intended outputs, outcomes, and impacts.
Monitoring Plan	A comprehensive planning document for all M&E activities. An M&E plan documents the key M&E questions to be addressed, including what indicators are collected; how, how often, from where, and why they will be collected; what baselines, targets, and assumptions will be included; how the indicators are going to be analysed or interpreted; and how or how often reports will be developed and distributed on these indicators.
Objective	A statement of desired project results.
Outcome	The changes that a project aims to effect on target audiences or populations, such as change in knowledge, attitudes, beliefs, skills, behaviours, access to services, policies, and environmental conditions.
Outputs	The results of project activities. This term relates to the direct products or deliverables of program activities, such as the number of counselling sessions completed, the number of people reached, and the number of materials distributed.
Performance Monitoring	A continuous process of collecting and analysing information to compare how well a project is being implemented against expected results.
Performance	The degree to which an intervention operates according to specific criteria, standards, or guidelines, or achieves results in accordance with stated plans.
Plausible Attribution	Establishing a plausible causal link between observed results and project activities in the absence of a control group.
Predicted Impact	CAVAC's prediction for outreach and change is an indicator attributable to an intervention. Predicted impact is written in each box of an IL.
Process Evaluation	A type of evaluation that focuses on project implementation, including, but not limited to how services are delivered, differences between the intended population and the population served, access to the program, management practices. In addition, process evaluation might provide understanding about a project's cultural, socio-political, legal, and economic contexts that affect implementation.
Process monitoring	The routine gathering of information on all aspects of program or project implementation, to check on how activities are progressing. An example of process monitoring is the routine documentation of characteristics describing the targeted population served, the services provided, and the resources used to deliver those services. It provides information for planning and feedback on the progress of the project or program to the donors, implementers, and beneficiaries of the activities.
Program	A time-bound intervention that consists of a set of planned, interrelated activities aimed at achieving defined outputs. A project usually has a shorter timeframe than a program.
Project Sustainability	The likelihood that political and financial support will last.

Pro-Poor Growth	Economic growth that increases the relative and / or absolute income of the poor.
Qualitative Data	Data collected from qualitative methods such as interviews, focus groups, observation, and key informant interviews. Qualitative data can provide an understanding of social situations and interaction, as well as people's values, perceptions, motivations, and reactions. Qualitative data are generally expressed in narrative form, not numerically.
Quantitative data	Data presented in numerical form such as survey data and epidemiological data.
Readiness Assessment	Diagnostic aid to help a value chain project determine its readiness for establishing an effective M&E system. The assessment consists of eight readiness questions related to various aspects of M&E design, operation, and stakeholder support.
Reasonable Accuracy	Approximate or 'ballpark' accuracy. Reasonable accuracy is a pragmatic trade-off in light of budget, time, and resource constraints. With reasonable accuracy, information is validated through triangulation.
Recommendations	Proposals aimed at improving the effectiveness, quality, or efficiency of an intervention that should be linked to findings based on M&E data.
Relevance	The degree to which the outputs, outcomes, or goals of the intervention are consistent with the needs of the target group, as well as global, national, partners', and donors' policies and priorities.
Reliability	Consistency of the data collected through the repeated use of a scientific instrument or a data collection procedure used under the same conditions. Reliability is not the same as data validity; that is, a data collection method may produce consistent data but not measure what is intended to be measured.
Research design	A plan that defines the research question, hypotheses to be examined, and the number and type of variables to be studied. It also assesses the relationship between the variables by using well-developed principles of scientific inquiry.
Research	Activity that focuses primarily on hypothesis testing, aiming to contribute to generalizable knowledge. Research typically attempts to make statements about relationships among specific variables under controlled circumstances and at a given point in time.
Result Chain	See Causal Chain.
Results Sustainability	The likelihood that project results will last over the long-term.
Results	The output, outcome, or impact of an intervention.
Routine Information Collection	Information collection activities implemented at planned intervals (e.g. every 6-12 months) using a set of traditional information collection methods and tools. Routine information collection is typically undertaken to comply with donor reporting requirements.
Special Studies	Studies that CAVAC commissions on areas of interest such as gender, or working conditions and common types of interventions such as training, or to validate common assumptions that cut across many sectors.
Stakeholder	A person, group, or entity that has a role and interest in the goals or objectives and implementation of a project.
Support provider reached	The number of support providers reached by the program interventions. Only direct impact of the support providers is counted.
Tacit Information	Information that is stored in an individual's head or embedded within the culture of the organisation. It is the product of interactions between

	people, or between people and their environment. It is, moreover, gained only experientially and thus cannot be readily articulated or explained to inexperienced parties. Tacit information is primarily qualitative.
Target Population	Group of people who are the primary intended beneficiaries of an intervention.
Targeted Sample	A non-representative sample of the population chosen purposively from a specific sub-set of the population to answer a specific set of questions related to the population sub-set.
Theory of Change	The theoretical (or conceptual) model describing or depicting the steps leading from project activities to the fulfilment of the project's long-term impacts and the causal relationships between project activities and results that occur at each step along the way.
Triangulation	The analysis and use of data from three or more sources obtained by different methods. Findings can be corroborated, and the weakness or bias of any of the methods or data sources can be compensated for by the strengths of another, thereby increasing the validity and reliability of the result.
Validity	The extent to which a measurement or test accurately measures what is intended to be measured.
Value Chain	A network of enterprises the buy from and sell to one another in order to supply a particular set of products or services to a particular group of final consumers.
Yield increase	The additional yield increase as a result of farmers change practice plausible attributable to CAVAC's activities.

Annex 2: Intervention Plan Format

Intervention Plan No. Xx[13]

Title:			
Market:			
Strategies:			
Component:			
Addressing constraints in strategy:			
Start date:		**End date:**	
Approve date:		**Approved by:**	
IL Required:	☐ yes	**MP Required:**	☐ yes

Coordinators have the authority to approve the IP if an individual activity budget (i.e. survey / partnership agreement) does not exceed USD20,000 and expenditure is in line with the Strategy and AWP budget. Any intervention working across Components needs the signature and agreement from both relevant component managers. If the cost cannot be estimated or if the estimated cost is over USD20,000 the Component Manager must approve. For all activities with work across components, all relevant Component Managers must approve.

Description of the Support System

Concisely describe the supply side, demand side, products/services, and shortcomings associated with the support system.

xxxxxx

Description of the Intended Intervention

Concisely describe how CAVAC will change the performance of the Support Provider and Support Market, and what kind of impact can be expected

xxxxxxx

Points of Attention

In a few bullet points, clearly discuss issues with displacement, and other potential risks, as well as tools used to mitigate them, to ensure the success of this intervention's activities

- xxxxx

[13] Upon approving an IP, the IP Manager must immediately send to the Team Leader and Results Measurement Manager, ccing in your Component Manager, to be given a code.

- xxxxxxxx

Expected Main Activities

List down key activities that need to be done with the Support Provider, i.e. assessing and finding partners, conducting training, etc.

- xxxxx
- xxxxxxxx

Intended Partners and Contracts

If already know, the company/ partner can be listed; otherwise what kind of companies / partners we are expected to work with

xxxxx

Estimated Budget

Coordinators have the authority to approve the if an individual activity budget (i.e. survey / partnership agreement) does not exceed USD20,000 and expenditure is in line with the Strategy and AWP budget. Above this amount must be approved by the relevant Component Manager/s

xxxxx

Cross Cutting Issues

(Need to show that Women's Economic Empowerment (WEE), Disability, Environment is taken into account)

WEE: *CAVAC works with partners to implement the agreed-upon intervention plan. Here CAVAC staff can use their influence as a trusted partner to enhance partners' understanding of gender dynamics and how there might be opportunities in undertaking more gender sensitive business.*

Seeing Women	Yes	N/A	➔ More research needed	Who will do the research?
Does the team understand where women and men are in relation to this intervention and what roles they play?	☒	☐	☐	
Hearing Women				
Have women's voices been heard? Have women been consulted equally in the design of this intervention?	☒	☐	☐	
Have there been separate consultations or interviews with women separately from men?	☐	☐	☐	
Building the business case for women				**Yes** / **No**

Seeing Women	Yes	N/A	➔ More research needed	Who will do the research?	
Does this intervention address a constraint faced specifically by women				☐	☐
Will this intervention aim for equality of outcome between men and women				☐	☐
Can this intervention contribute towards one of the following Women's Economic Empowerment domains?					
	Agency: Decision making, authority and leadership in different spheres			☐	☐
	Agency: Manageable workloads			☐	☐
	Access: Access to opportunities and life chances			☐	☐
	Access: Access to assets, services and needed supports to advance economically			☐	☐
	Economic advancement: Increased income and return on labour			☐	☐

Anticipating and mitigating risks	Yes	N/A	➔ Needs to be done	Who will do the research?
Has the partner been screened for having a potentially exploitative work environment?	☐	☐	☐	

	No	N/A	Yes ➔	Rethink or justify?
Is the intervention likely to negatively impact women's burden of labour?	☐	☐	☐	

Disability:

Does this intervention have a positive or negative impact on people with a disability, and if negative, what sort of measures we will use to mitigate the impacts?

xxxx

Environment:

Please complete Attachment 1 with the Environmental Specialist

7 Attachment 1: CAVAC – Initial Environmental Assessment Check Sheet

Intervention Plan No.:	
Intervention Plan Title:	
Assessed Date:	
Assessor Name:	
EMS Database Doc No.	
Conclusion:	Proceed ☐ EIA ☐ Cambodian IEIA ☐

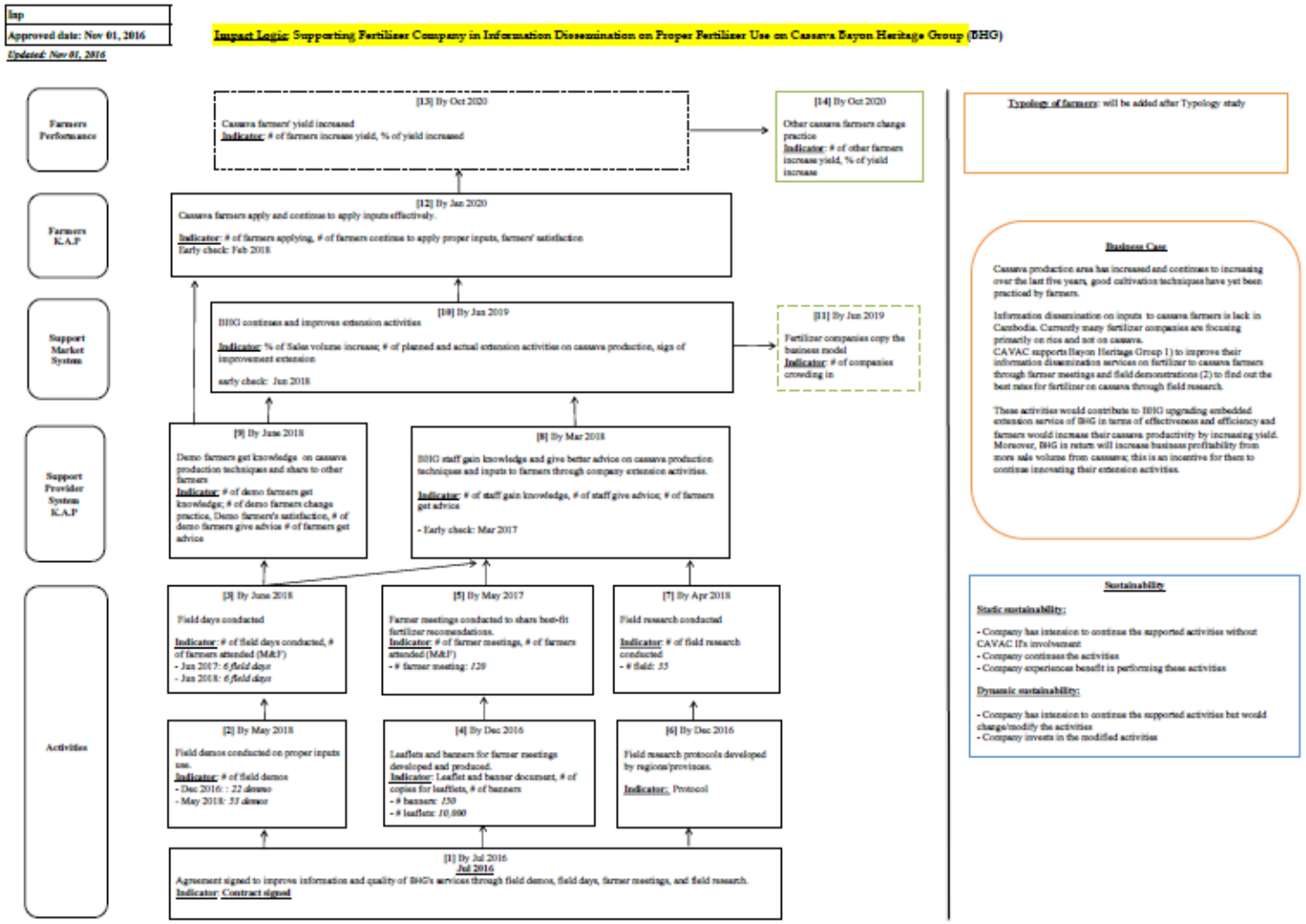
	Yes	No	Not Sure
Q3.1 Will the investment support any of the following:			
Medium to large-scale infrastructure such as roads, bridges, railways, ports, infrastructure for energy generation; or	☐	☐	☐
Development of irrigation and drainage, diversion of water; or	☐	☐	☐
Land clearing, intensification of land use; or	☐	☐	☐
Hazardous materials and wastes; or	☐	☐	☐
Activity in mining, energy, forestry, fisheries, water supply, urban development, transport, tourism or manufacturing sectors?	☐	☐	☐
Q3.2 Will the investment support any of the following:			
Small to medium scale infrastructure such as localised water supply and/or sanitation infrastructure; irrigation and drainage; rural electrification, rural roads; or	☐	☐	☐
Construction/renovation/refurbishment/demolition of any building for example: schools, hospitals or public buildings; or	☐	☐	☐
Localised use of natural resources, including small-scale water diversion, agriculture, or other types of land-use change?	☐	☐	☐
Q3.3 Will the investment contribute to, directly or indirectly, or facilitate, activities such as those listed above, including through:			
Trust funds, procurement facilities; or	☐	☐	☐
Co-financing contributions; or	☐	☐	☐
Support for planning, change to regulatory frameworks, technical advice, training or;	☐	☐	☐
Applied research?	☐	☐	☐
Q3.4 Has an environmental review of the proposed investment already been, or will be completed by an implementing partner or donor?	☐	☐	☐
Q3.5. Does this investment need to meet any national environmental standards or requirements?	☐	☐	☐

Annex 3: Feasibility Study Report Content

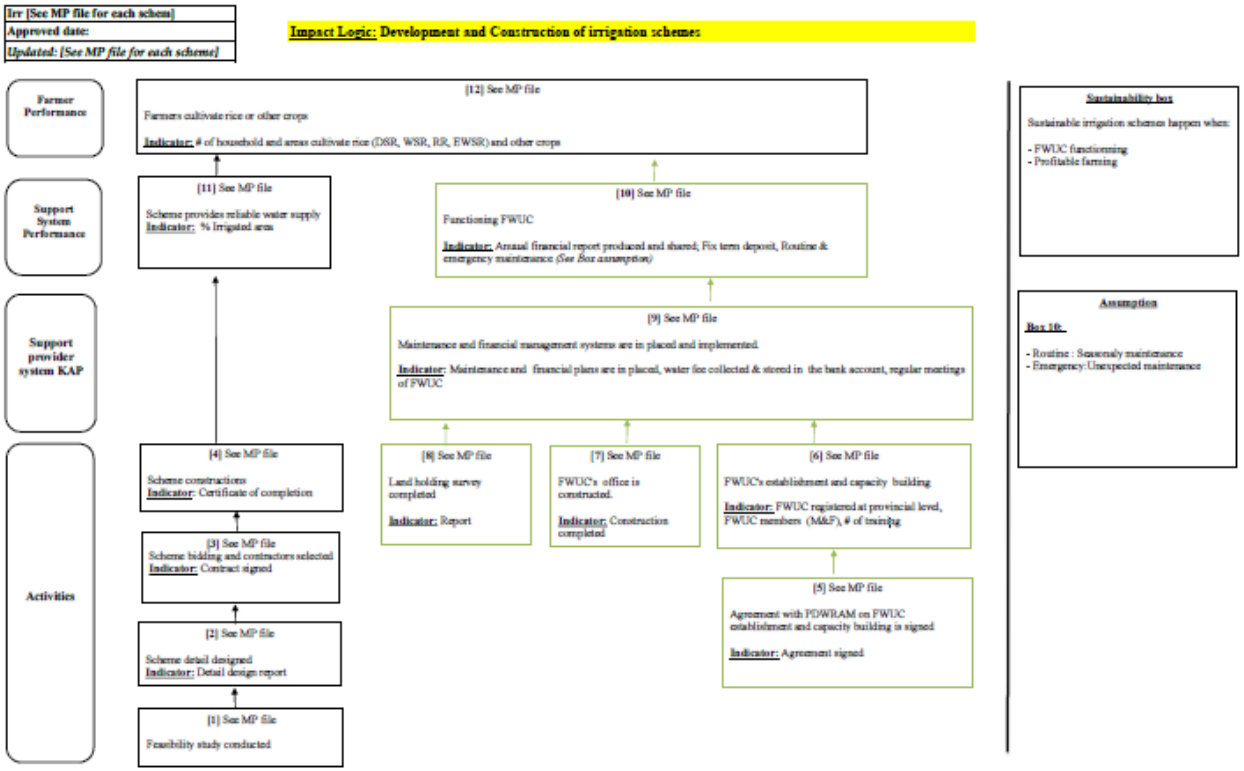
1. Introduction
    - 1.1 Background of the project
    - 1.2 Objectives of the Project Study
2. Agriculture
    - 2.1 Soils
    - 2.2 Proposed Cropping pattern
3. Engineering
    - 3.1 Water Source and Hydrological Regime
    - 3.3.1Types of hydraulic structures
    - 3.3.2 Water distribution within the canal network
    - 3.3.3 Irrigation water requirement
    - 3.3.4 Cost Estimate
    - 3.3.5 Economic Analysis
4. Sociology
    - 4.1 Poverty and Beneficiaries
    - 4.2 Land Loss Impact
    - 4.3 Conclusion
5. Environment
6. Organisational issues
    - 6.1 Organisational structure
    - 6.1.1 Background
    - 6.1.2 Role of PDOWRAM
    - 6.1.3 Role and responsibility of FWUC
    - 6.1.4 The FWUC committee members
    - 6.1.5 Important stage of FWUC establishment
    - 6.1.6 Irrigation Service Fee (ISF)
    - 6.1.6 FWUC Capacity Support
    - 6.1.7 Water conflicts
    - 6.1.8 Water pumping
    - 6.1.9 Cost estimation for subgroups and groups establishment
    - 6.2 Requested Project Intervention
7. Recommendations and conclusions
    - Annex A: different type of crops
    - Annex B: Detailed Cost-Benefit and IRR calculation

Annex 4: Example of Impact Logic

Impact Logic of Intervention on Proper Use of Fertilizer on Cassava Production under C1



All-in-one Impact Logic of Irrigation Scheme – C2



Annex 5: Monitoring Plan: Fertiliser in Cassava Production

Inp
Approved date: Nov 01, 2016

Monitoring Plan: Supporting Fertilizer Company in Information Dissemination on Proper Fertilizer Use on (BHG)

Updated: Oct 13, 2016

Level	Box	Impact logic	Planned date Actual date	Key questions	Indicators	How (Tool)	Responsible	Monitor date	Result	Evidence
F.Performance	Box 13	Other cassava farmers change practice	Apr 2020	- How many farmers copying the practice?	- # of farmers copy	- Survey	I.M QT	- Define in M&E workshop		
	Box 12	Farmers increase yield	Apr 2020	- How many farmers increase yield? - How much yield increase?	- # of farmers increase yield - % of yield increase per ha					
Farmer KAP	Box 11	Cassava Farmers apply and continue to apply inputs effectively	Jan 2019	- How many farmers apply the knowledge? - How many farmers continue applying the knowledge? - Are they satisfy with seed planter service and seed?	- # of farmers apply - # of farmers continues applying - Farmers's satifaction	- Survey	I.M QT	Jan 2019		
			Feb 2018			- Mini-survey		Feb 2018		
SP Performance	Box 11	Fertilizer companies copy the business model	Aug 2019	- How many crowding-in company in the market?	- # of companies crowding in	- Market observation	I.Ms	Aug 2019		
	Box 10	BHG continues and improves their extension activities	Jun 2019	- Does the sale increase after introduce interventions? - What are the future plan for LHB? - What are sign of any improvement on extension activities?	- % of Sales volume increase; - # of planned and actual of extension activities on cassava production; - Sign of improvement	- IDI with company manager	I.Ms	Jun 2019		
			Jun 2018					Jun 2018		
Support Provider KAP	Box 9	Demo farmers get knowledge on cassava production techniques and share to other farmers	Jun 2018	- How many demo farmers get knowledge? - How many demo farmers apply knowledge? - Are they satisfy with information? - How many demo farmers give advice to farmers? - How many farmers get advice?	- # of demo farmer get knowledge - # of demo farmers change practice - Demo farmers' satisfaction - # of demo farmes give advice - # of farnets get advice	- Interview with staff	QT I.Ms	Jun 2018		
	Box 8	BHG staff gain knowledge and give better advice on cassava production techniques and inputs to farmers through company extension activities.	Mar 2018	- How many staff gain more knowledge on cassava productio? - How many of them give advice? - How many farmers reached per staff?	- # of staff gain knowledge - # of staff give advice - # of farmers get advice			Aug 2018		
			Mar 2017					Aug 2017		

Annex 6: Example of TMR Meeting Guideline, December 2016

Objectives

Productivity and Diversification Component, Milling and Rice Export Component

- Discuss the formal and informal strategy

Irrigation and Water Management Component

- Develop Impact Logics and Monitoring Plan for all scheme
- Define indicators of sustainability

Preparations

List all documents and reports and make sure you read them.

Draw the lesson-learned from M&E reports.

Make sure you have the latest Impact Logic and MPs.

Have to

Update IL & MP and completely understand the content of every box. Make sure to feed in the evidence on the due date.

Brainstorm of everything you observed over since the last period in relation to success and problems with the interventions; dynamics in the markets (new players, new initiatives, new regulations etc.); any other relevant observations.

Revisit the strategy of each market and make adjustment where needed.

Discuss the current status and progress of the interventions.

List questions of what is still not clear (Write these all down).

Prioritize of what are the important things that need action and discuss what action and what need further research.

Discuss the cross-cutting issues (gender and environment) (TBD)

Expect to

By the end of the day, team members present the discussion to Component Managers to Team Leader and to a panel assigned by Component Managers.

Write a small report not more than 2 pages.

Include additional plan to M&E Matrix work plan of 2017.

Annex 7: Annual Monitoring and Evaluation Matrix (January – December 2016)

M	#	#INP	M&E work plan	Method	Location	Sampling	Lead	Support	Other resource	Status	Remark
January	1	–	Proposal on enquire techniques	Desk review	PP	–	–	–	–	Send to Team Leader	
	2	–	Search on SNA and PRM	Desk review	PP	–	–	–	–	Check	
February	1	–	Cassava: Join cassava value chain in the West	face-to-face interview	Battambang, Pailin	–	–	–	–	Check	
	2	–	Follow up activities from Phase I	Ask Pieter	PP	–	–	–	–	Done	
	3	–	Work with Pieter on Annual report on Outreach	–	PP	–	–	–	–	Done	
	4	–	Preparing cassva baseline survey	–	PP	–	–	–	–	Done	
March	1	– – –	Preparing cassava baseline survey:	–	PP	–	–	–	–		
			– Testing questionnaire and showcard picture	–	PP	–	M&E Team	Intervention Managers	–	Done	
			– Revise questionnaire, showcard picture	–	PP	–	M&E Team	Intervention Managers	–	Done	
			– Research methodology and sampling	–	PP	–	M&E Team	–	–	Done	
			– Cassava mapping	–	PP	–	Sophoan	–	–	Done	
	2	–	TOR -Recruiting technical consultant	–	PP	–	M&E Team +Intervention Managers	–	–	Done	

M	#	#INP	M&E work plan	Method	Location	Sampling	Lead	Support	Other resource	Status	Remark
April	1	–	Interview technical consultant and field surveyors	Interview	PP	–	M&E Team +Intervention Managers	–	–	N / A	11-15: Khmer New year
	2	–	Interview field supervisor and enumerator	Interview	PP	–	M&E Team	–	–	Done	
	3	–	Research checklist	Checklist	PP	–	M&E Team	Intervention Managers	–	Done	
	4	–	Survey: Data design of cassava survey for data entry	–	PP	–	M&E Team	–	–	Done	
	5	–	Work with M&E adviser (Planning)	–		–	M&E Team	–	–	Done	
May	1	–	Cassava field work survey: data collection	Survey	West and East	512	M&E Team	Intervention Managers	Enumerators	Done	12-13: King Birthday
	2	–	Roadshow study: work on methodology, sampling, questionnaire	–	PP	–	Chanthy+ Riguen	–	–	Move to July	
	3	–	Work with M&E adviser (cassava questionnaire and Training)	–	PP	–	M&E Team	–	–	Done	
June	1	–	Cassava: data processing	–	PP	–	M&E Team	–	–	Done	
	2	–	Data cleaning and analysing	–	PP	–	M&E Team	–	–	Move to July	
	3	–	M&E's manual orientation	Internal	PP	–	Adviser	M&E Team	–	Move to October	
	4	–	Discuss with Rice Unit team on revising Impact Logic and Monitoring Plan on Rapid	–	PP	–	M&E Team +Sophoan	–	–	Done	

M	#	#INP	M&E work plan	Method	Location	Sampling	Lead	Support	Other resource	Status	Remark
	5	–	Work with M&E adviser (Impact review and Aggregation system)	–		–	M&E Team	–	–	Move to October	
	6	–	Testing questionnaire and methodology for seed survey	Testing	Takeo	–	M&E Team +Intervention Managers	–	–	Done	
	7	–	Work with M&E adviser on RM manual (Draft)	–		–	M&E Team +Adviser	–	–	Done	
	8	–	HCC: Monitor boxes 1,2,3	–	PP	–	Phusana	M&E Team	–	Done (Box 1)	
	9	–	AQIP: Monitor boxes 1,2,3	–	PP	–	Ponleu	M&E Team	–	Done (Box 1)	
									–		
July	1	–	Data cleaning and analysing		PP		M&E Team + Intervention Managers	–	–	–	- Submit RM manual to DFAT by mid of July. - Pieter is on leave: 9th July-1 Aug
	2	–	Roadshow study: Methodology and Questionnaire	Case study	Takeo / Kg. Thom	28 Farmers	Chanthy	M&E Team	–	Done	
	3	–	Testing questionnaire and methodology for seed survey (after revising) -> Data collection	Testing	BTB	–	M&E Team +Intervention Managers	–	2 Enumerators	Done	
	4	–	Pesticide survey in rice (Sampling, methodology, Training, testing)	Survey	–	–	Sophoan+ M&E Team	M&E Team	8 Enumerators	Done	
	5	–	TOR -Recruiting RM specialist	Recruitment	PP	–		–		Done	
	6	–	BHG: Monitor boxes 1,2,6	–	PP	–	Cassava team	M&E Team	–	Done (Box 1)	

M	#	#INP	M&E work plan	Method	Location	Sampling	Lead	Support	Other resource	Status	Remark
	7	–	HCC: Monitor boxes 2,3	–	PP	–	Phusana	M&E Team	–		
	8	–	AQIP: Monitor boxes 2,3	–	PP	–	Ponleu	M&E Team	–	Done (Box 2)	
August	1	–	Survey: Cassava survey report (draft)	Survey	PP	–	Intervention Managers + M&E Team	–		Move from June	
	2	–	Interview RM specialist	Interview	PP	–	Pieter, TR, adviser	–		Done	
	3	–	Survey: Pesticide survey in rice : Data collection	Survey			Sophoan+ M&E Team	–	8 Eunumerators	Done	
	4	–	Survey: Rice seed survey: Questionnaire training	Training	Office	Training	Quality Team+Intervention Managers	–	4 Eunumerators	Done	
	5	–	Bayon Heritage Group: Monitor boxes 2,6	–	PP	–	Cassava team	M&E Team	–		
	6	–	AGID: Monitor box 1	–	PP	–	Cassava team	M&E Team	–	Done	
	7	–	HCC: Monitor boxes 2,3	–	PP	–	Phusana	M&E Team	–	Done (Box 2)	
	8	–	AQIP: Monitor box 3	–	PP	–	Ponleu	M&E Team	–	Done	
September	1	–	Cassava survey report (Final draft)	Report	PP	–	Intervention Managers +M&E Team	–	–	Move to October	21-27 (5days): Riguen's on leave 28-29: Pchum Ben day
	2	–	M&E manual presentation by M&E adviser (After M&E manual approved)	–	PP	–	–	–	–		

M	#	#INP	M&E work plan	Method	Location	Sampling	Lead	Support	Other resource	Status	Remark
	3	–	Rice seed survey: Data collection	Survey	BTB / TK / TbK	120 Dry Season Rice farmers 120 Wet Season Rice farmers	M&E Team +Intervention Managers	–	4 Eunumerators	Done	
	4	–	Rice seed survey: Data processing	–	Office	–	–	–	2 data processors	Move to October	
	5	–	AQIP, HCC, SKO: review and update Impact Logic&Monitoring Plan	Meeting	Office	–	Milling&Export team	M&E Team	–	Done	
	6	–	Pheap Phat: Monitor boxes 1,2,3,4	–	PP	–	Sophoan	M&E Team	–	Done (Box 2)	
	7	–	BHG: Monitor boxes 2,6	–	PP	–	Cassava team	M&E Team	–		
	8	–	HCC: Monitor boxes 3	–	PP	–	Phusana	M&E Team	–	Done	
	9	–	SKO: Monitor boxes 1,3	–	PP	–	Ponleu	M&E Team	–	Move to October (Box 1)	
October	1	–	Pest management survey: Data processing	–	Office	–	M&E Team	–	2 data processors	Done	19-21: Staff retreat
	2	–	Cassava gender typology proposal	–	Office	–	M&E Team +Adviser	–	–	Done	
	3	–	Rice seed sruvey: Writing report	–	Office	–	Intervention Managers + M&E Team	–	–	Move to Nov	
	4	–	Rice seed survey: Data processing and draft report	–	Office	–	Ponleu+ M&E Team	–	2 data processors	Move from September	
	5	–	AQIP: Monitor boxes 1,2,3	–	PP	–	Ponleu	M&E Team	–	Done	

M	#	#INP	M&E work plan	Method	Location	Sampling	Lead	Support	Other resource	Status	Remark
	6	–	SKO: Monitor boxes 1,3	–	PP	–	Ponleu	M&E Team	–	Move from September (Box 1)	
	7	–	BHG, LBH, AGID: Impact Logic&Monitoring Plan review and update	–	PP	–	Cassava team	M&E Team	–		
	8	–	Pheap Phat: Monitor boxes 1,3,4	–	PP	–	Sophoan	M&E Team	–	Done (Box 1)	
	9	14.1	Heng Cheng: Monitor boxes 1,2,3,4	Ask company also ask farmers (box 4)	PP	–	Sophoan	M&E Team	–	Done (Box 1)	
	10	–	BHG: Monitor boxes 2,6	–	PP	–	Cassava team	M&E Team	–		
November	1	–	Cassava survey report (final draft)	–	Office	–	M&E Team +Adviser	–	–		14-16: Water Festival
	2	–	Pest management survey: Data analysing and reporting	–	Office	–	Riguen+Sophoan	–	–		
	3	–	Survey: Rice seed survey: Data processing and report drafting	–	Office	–	M&E Team +Intervention Managers	–	–		
	4	–	Pheap Phat: Monitor boxes 3,4	–	PP	–	Sophoan	–	–	Move from October	
	5	14.1	Nileda: Monitor boxes 2,3,4,5	Ask company also ask farmers (box 4)	–	–	Sophoan	M&E Team	–	Move to December (Box 2)	
	6	14.1	Hen Chen: Monitor boxes 2,3,4	Ask company also ask farmers (box 4)	PP	–	Sophoan	M&E Team	–		

M	#	#INP	M&E work plan	Method	Location	Sampling	Lead	Support	Other resource	Status	Remark
	7	–	BHG: Monitor boxes 2,6	–	PP	–	Cassava team	M&E Team	–		
	8	–	SKO: Monitor boxes 1,3	–	PP	–	Ponleu	M&E Team	–	Move to December	
December	1	–	TMR meeting (Date:)	Meeting	Office	–	IM	M&E Team +Adviser	–		26-27: Christmas 1-9: TMR meeting
	2	–	Cassava gender typology- Data collection-> Propose to do in January 2017	Survey	3 provinces	120	M&E Team	–	Enumerators	Move to January 2017	
	3	–	BHG: Monitor boxes 2,6	–	PP	–	Cassava team	M&E Team	–		
	4	–	SKO: Monitor boxes 1,3	–	PP	–	Ponleu	M&E Team	–	Move from November	
	5	14.1	Nileda:Monitor boxes 2,3,4,5	Ask company also ask farmers (box 4)	–	–	Sophoan	M&E Team	–	Move from November (Box 2)	
	6	14.1	Hen Chen: Monitor boxes 3,4	Ask company also ask farmers (box 4)	PP	–	Sophoan	M&E Team	–		

Annex 8: Designing Research

CAVAC M&E system includes a number of design features that ensure both its smooth functioning and the validity of information collected. These design features are described below.

Information collection instruments

CAVAC develops research instruments for all field research done by CAVAC staff or outsourced to external researchers. To ensure effective communication between the researcher and respondent, all information collection instruments are prepared and administered in the primary language of the target respondents. CAVAC also creates English-language versions of each instrument, which are filed in the CAVAC P:drive.

CAVAC uses a participatory process involving iterative rounds of feedback and revision to develop research instruments that includes staff members responsible for the intervention and the M&E team.

Pilot testing

All research instruments are pilot tested prior to rollout. Pilot testing is done to identify inappropriate, confusing, poorly worded, or mistranslated questions; validate the existing coding scheme; confirm the logical sequencing of the questions; identify questions for potential deletion or for potential addition; and train field researchers in tool implementation. Research instruments developed for externally outsourced research are pilot tested twice, once by the M&E team after drafting, and once by the external researcher prior to launching the field research.

Information collection logistics

The M&E team is responsible for ensuring that all logistical arrangements for information collection activities are completed ahead of time and resolving logistic-related issues as they arise. Depending on the scope of the information collection activity, logistics may include the following:

Selection of research team members

Transportation to and from the research site

Meals and lodging

Security arrangements

Communication with respondents

Means of communication between research teams and with the head office

Protocols for addressing problems or questions as they arise

Safeguarding of blank and completed information collection instruments

Transfer and storage of research findings

Quality control

CAVAC implements a variety of quality control measures during and after field research so as to ensure the quality of the data collected. These quality control measures include the following:

Random observations of survey enumerators during the early state of survey implementation to identify and correct observed enumeration errors.

Back checks (or revisits) of respondents to ensure that they were in fact interviewed and to validate the information entered into the survey.

Manual reviews of completed survey instruments to ensure that they are complete and coded correctly and to look for data entry errors.

Double data entry in which key punch operators enter survey into two data sets, compare the results, and correct any discrepancies.

Training

The M&E team conducts training of survey enumerators and focus group discussion moderators prior to undertaking field research. Enumerator training covers the survey questions, proper administration of the survey, recording / coding responses, good enumeration practices, etc. Moderator training covers the roles of moderators and note takers, how to facilitate discussions, how to ask follow-up and probing questions, how to deal with dominant and shrinking personalities, etc. Training also typically involves a role-playing exercises and / or field practice.

Terms of reference

CAVAC uses external researchers to conduct larger-scale quantitative and qualitative researches. To recruit external researchers, CAVAC prepares a detailed Terms of Reference (ToR) and disseminates it on its website (www.cavackh.org) or through its network of contacts. The ToR forms the basis for determining the qualifications of external researchers, developing the research plan, and contract negotiations.

Data Analysis

Information collected in CAVAC M&E system must be analysed so that it can be interpreted and used by management and other program stakeholders. This section describes a set of routine data analysis procedures for quantitative and qualitative data used by CAVAC. Data analysis is primarily done in-house by members of the M&E team with the assistance of the other staff members as appropriate.

Quantitative data analysis

In-house analysis of quantitative data utilizes the following relatively simple data analysis methods:

Frequencies: Summaries of the number and percentage of respondents falling into different response categories.

Central Tendencies: The mean, median, and mode responses.

Correlations: The linear relationship between numeric variables showing how one variable changes given a unit increase in a second variable.

Cross-Tabulations: A table that shows the frequency and / or percentage of respondents who gave different answers to a survey question, and which simultaneously shows these answers for various sub-groups of respondents. Commonly referred to as ‘crosstabs.’

Multiple Linear Regression: A statistical technique that uses several explanatory (independent) variables to predict the outcome of a response (dependent) variable. The goal of multiple linear regression is to model the relationship between the explanatory and response variables.

Wherever possible, CAVAC conducts significance tests to determine whether differences in response patterns across groups (e.g. gender, location) or correlations between variables are statistically significant. Standard tests of significance include the following:

T-Test: Tests whether the difference in mean responses between two groups is statistically significant

Analysis of Variance (ANOVA): Tests whether the difference in mean responses between two or more groups is statistically significant

Chi-Square Test: Tests whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories in a cross-tabulation

Pearson's Correlation Coefficient: Tells the magnitude and direction of the correlation between two quantitative variables. Statistical packages (e.g. Excel, SPSS) typically indicate whether the correlation coefficient is statistically significant. Also referred to as 'Pearson's R'

P Value: The test statistic for multiple linear regression telling the probably that the observed regression coefficient (relationship between the independent and dependent variable) is a product of random chance.

Qualitative data analysis

Qualitative data analysis is analysed using three principle methods. The methods are used in different combinations.

Observer Impression: The analyst examines the data, interprets it by forming an impression, and reports his / her impression in a structured narrative and (where appropriate) quantitative form.

Coding: Coding is an interpretive technique that both organizes the data and renders it into quantitative form. The analyst reads the data and identifies segments within it. Each segment is labelled with a 'code'---usually a word or short phrase that suggests how the associated data segments inform the research objectives. When coding is complete, the analyst summarizes the prevalence of codes, discusses the similarities and differences in related codes across distinct original sources / contexts, and comparing the relationship between one or more codes.

> CAVAC does not recommend coding as the sole qualitative data analysis tool. Qualitative data analysis is concerned not only with response trends but also with the reasoning and perceptions behind the responses. In other words, the analysis is not only about how participants responded but also why they responded as they did. By placing too heavy a reliance on coding, analysts risk turning qualitative data into quantitative data and thereby diluting its potential richness.

Recursive Abstraction: The data is taken through progressive (two or more) rounds of analysis and summarization by different analysts. The end result is a more compact summary and greater emphasis on significant findings.

An advantage of qualitative research is that it allows the program to discuss and describe its impact in human terms told in the words of the people who have experienced it. To preserve this advantage, qualitative data analysis draws heavily on, and incorporates into its narrative, the specific experiences of program participants using (or paraphrasing) their own words. Because it relies heavily on a nuanced understanding of things such as context, body language, personalities, and group dynamics, qualitative data analysis is not outsourced.

Documentation and reporting

CAVAC produces a number of standard and ad hoc documents with information related to M&E to showcase the findings of M&E activities as shown in Table 10 below:

Table 10: Documentation and Reporting

Document	Purpose	Audience	Frequency
IL & Monitoring Plan	Outline and update the Impact Logic and Monitoring Plan	Internal	Updated at least quarterly
Three Monthly Review	Describe changes in the market, enabling an update to the market strategy; lists all the challenges and opportunities including those in cross-cutting themes, lessons learned, some early sign of sustainability and systemic changes; questions for further studies; and projected impacts of the active interventions and the pipeline	Internal	Quarterly

Document	Purpose	Audience	Frequency
	interventions based on realistic assumptions		
Monthly report	Update monthly progress	DFAT / RGC	Monthly
Six-monthly report	Update six-monthly progress	DFAT / RGC	Semester
Annual work plan	Detail annual work plan, revisions to program portfolio, results achieved, value for money (VFM) and management performance, updated risk assessment, and budget update	DFAT / RGC	Annually
Intervention completion report	Summarize the activities that have been conducted, its impacts and the lessons learned drawn from the interventions and the recommendations for the next intervention design	DFAT / Internal	End of intervention
Program Impact Estimates			

Annex 9: The DCED Standard for measuring results in private sector development – Control points and compliance criteria

Please go to this link: http://www.enterprise-development.org/wp-content/uploads/DCED_Standard_versionVII_Apr15_bluecover.pdf

(To avoid too large of a file, we have decided to provide a link to the full document instead)

Annex 10: Roles and Responsibilities

Team Leader

The Team Leader has overall responsibility for the design and implementation of CAVAC M&E system. The Team Leader's specific responsibilities include the following:

Management

- Allocates sufficient and appropriate human and financial resources to implement the M&E system
- Finalizes and executes contracts with external researchers
- Approves Impact Logic and Monitoring Plans
- Approves large-scale field research

System Design

- Contributes to and approves the M&E system design
- Suggests and / or approves changes to the M&E system as appropriate
- Ensures that the M&E system is responding to the information needs of internal and external stakeholders

Analysis and Use of M&E Information

- Participates in researching and developing projecting assumptions
- Makes and / or approves impact predictions based on projecting assumptions

Dissemination and Decision Making

- Ensures that M&E information is disseminated at all program levels and to external program stakeholders
- Ensures that M&E information is integrated into program planning, decision-making, intervention design, and day-to-day operations

Reporting

- Approves reports, documents, media, and other information submitted to DFAT and the National Steering Committee (NSC) or shared with other external stakeholders
- Approves intervention reports
- Reviews and provides feedback on reports by external researchers

Market Development Manager

The Market Development Manager is responsible for the Market Systems Development approaches technical backstopping of C1 and C3.

Component Manager

Component Managers are responsibility for M&E primarily through their roles as coordinators of the intervention task force team. The Component Managers' specific responsibilities include the following:

Management

- Approves strategy and Intervention Plan (IP)
- Endorses the Impact Logic and Monitoring Plan
- Coordinates the TMR meetings and checks the results of the TMR reports
- Coordinates the monitoring matrix plan
- Contributes feedback on large-scale field research

Analysis and Use of M&E Findings

- Reviews M&E findings
- Uses M&E findings to make decisions and adjust intervention strategies as appropriate
- Assists Intervention Managers in using the M&E system to improve intervention implementation and results
- Reviews and provides feedback on external research as appropriate
- Participates in researching and developing projecting assumptions for CAVAC interventions
- Develops and updates impact predictions based on projecting assumptions

Dissemination and Decision Making

- Ensures that information about M&E activities and results within the sector are disseminated to the Team Leader and the M&E team

Reporting

- Reviews and endorses intervention reports
- Reviews and provides feedback on reports by external researchers
- Follows-up on Six-Monthly Progress Reports

M&E Team

The M&E team has a primary role in the implementation and oversight of the M&E system. It involves directly, with varying levels of responsibility, in all aspects of M&E implementation. The M&E team specific responsibilities include the following:

Management

- Supports the development of Impact Logic
- Develops Monitoring Plans
- Provides technical support on M&E topics to the Team Leader, Component Managers, and Intervention Managers
- Provides M&E training to CAVAC staff
- Develops Terms of Reference to recruit external researchers
- Manages M&E data and ensures safety and integrity
- Monitors the implementation of the M&E system and recommends changes to it as appropriate
- Participates in TMR

Information Collection

- Collects information using the methods in the M&E toolbox
- Supports Intervention Managers in information collection
- Supervises or monitors work done by external researchers
- Leads large-scale field research
- Establishes and implements data quality control measures

Analysis and Use of M&E Findings

- Conducts and supervises analysis of M&E data
- Provides M&E data and analysis to the rest of the CAVAC team on request
- Supports management, as necessary, in using M&E data for decision-making related to specific interventions and direction of the overall program portfolio
- Reviews and provides feedback on external research
- Assists with annual program-wide aggregation of impact predictions and estimates
- Follows-up to ensure that important M&E findings are disseminated to the appropriate audiences

Dissemination and Decision Making

- Disseminates M&E findings to the rest of CAVAC team
- Advises Component Managers and Team Leader on integration of M&E findings into planning and decision-making

Reporting

- Prepares research reports
- Contributes content to the Six-Monthly Progress Report
- Reviews and provides feedback on reports by external researchers
- Files and organizes M&E documents in CAVAC P-drive

Unit Coordinator / Intervention Manager

Intervention Managers participate in M&E primarily through their role as members of intervention task force teams. They play an important part in developing Impact Logic for each intervention and for carrying out much of information gathering. The Intervention Managers' specific responsibilities include the following:

Management

- Develop strategy and intervention plan
- Develop Impact Logic
- Provide feedback on Monitoring Plans

Information Collection

- Collect information using methods and tools in the M&E toolbox

- Conduct ongoing observation and environmental scanning
- Lead the TMR process
- Support large-scale field research

Analysis and Use of M&E findings

- Assist the M&E team to conduct data analysis

Reporting

- Support preparation of the Six-Monthly Progress Report
- Prepare TMR reports
- Prepare the intervention report
- Review and provide feedback external research reports