# Cambodia Agricultural Value Chain Program (CAVAC)

## CAVAC Inception Report and 2010 Work Plan
## Putting CAVAC on the Road

Australian Government
AusAID

Australian Government
Australian Centre for International Agricultural Research

Cardno
Shaping the Future

# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| ACIAR | Australian Centre for International Agricultural Research |
| AUD | Australian Dollar |
| AusAID | Australian Agency for International Development |
| CARDI | Cambodian Agricultural Research and Development Institute |
| CARF | Cambodian Agriculture Research Fund |
| CAVAC | Cambodia Agricultural Value Chain Program |
| CPF | CAVAC Performance Framework |
| DAE | Department of Agriculture Extension |
| FWUC | Farmer Water User Committee |
| GDA | General Directorate of Agriculture |
| HSBC | Hong Kong Shanghai Banking Corporation |
| MAFF | Ministry of Agriculture, Forestry and Fisheries |
| MOWRAM | Ministry of Water Resources and Meteorology |
| MS | Microsoft |
| M&E | Monitoring and Evaluation |
| MYOB | Mind Your Own Business (accounting software) |
| OC | Operational Contractor |
| O&M | Operation and maintenance |
| PDA | Provincial Department of Agriculture |
| PDD | Program Design Document |
| PDWRAM | Provincial Department of Water Resources and Meteorology |
| RGC | Royal Government of Cambodia |
| SRI | System of Rice Intensification |
| USD | United States Dollar |

# SUMMARY

The Memorandum of Subsidiary arrangements and the Project Design Document form the basis for the next 4 years of CAVAC. A small team has evaluated AusAID's previous experience, Government's strategies and priorities, the planned activities of development partners and the most recent developments in Agriculture in Cambodia. With this knowledge the team has developed a workplan and inception report that gives a framework in which CAVAC will undertake activities that should lead to a sustainable reduction in poverty in 3 provinces in Cambodia. Growth in agricultural productivity will directly benefit poor farm households by giving a higher income and indirectly by offering employment or other sources of income.

CAVAC will focus its activities on both dry and wet season rice production as well as on other crops that still need to be selected.

Initial assessments reveal that good functioning input markets, product markets, access to irrigation and information will be essential to improve the productivity. By working closely with the 2 ministries of MAFF and MOWRAM and by implementing in close collaboration with their provincial departments, CAVAC will implement a number of focussed interventions. It will apply international lessons for successful programs and look for synergies with other donor funded initiatives.

After years of where the government and its development partners needed to focus on direct interventions to alleviate the worst forms of poverty, Cambodia is now at a stage where sustainability of government and donor investments has become more important. The private sector is slowly taking over their core role in the market economy increasing the need for the government to undertake the role of supervision. Putting sustainability at the centre of CAVAC means that the program has to leave systems behind that will continue to support farmers long after CAVAC is finished. This is in alignment with the Paris Declaration's core principle of working with country systems and with Cambodia's Strategy of Agriculture and Water.

Working with existing markets and systems require a change from an output driven program design to an impact driven design. The local players in the systems have to be in the driving seat, changing CAVAC's role to initiating and stimulating changes in the systems without owning them. It requires real partnerships with public and private institutions and companies and therefore flexibility. The CAVAC program needs to develop the skills and capacity to find

and support good developments in existing country systems and withstand the tendency to be bureaucratic planners with pre-determined solutions.
This document explains how CAVAC has translated the Project Document to an operational strategy of engaging with the public and private systems, how it organises itself to do so and what tools it will use to achieve the required impact.
A series of manuals cover in more details how CAVAC mainstreams Gender, People with Disabilities and the Environment.

At the time of submission of this report, CAVAC is in a build up stage. Less than 50% of the core staff is on board; governing systems like the National Steering Committee and the Provincial Coordination Committees are not or are only partly operational and a close alignment with the government has only just started. Three Large research projects, the awarding of 15 research grants and the construction of two irrigation canals shows CAVAC's commitment to action and results and the two implementers, Cardno Emerging Markets and ACIAR are confident that this is how CAVAC will enter history.

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# 1 INTRODUCTION

## 1.1 Purpose of this Inception Report

The Cambodian Agriculture Value Chain Program (CAVAC) had a long design and approval process with interim activities taking place over the last few years. The final implementation stage of CAVAC began with the arrival of the AusAID appointed Team Leader and the ACIAR appointed Research and Extension Manager in February 2009. A small team conducted additional studies, took over ACIAR's Cambodia Agriculture Research Facility (CARF) grant program and undertook preparatory activities like the assessment of three irrigation schemes and preparation of three large research programs. With the awarding of the operational contractor contract to Cardno Emerging Markets in March 2010 and the approval of the Memorandum of Subsidiary Agreement between the governments of Australian and Cambodia, CAVAC the inception phase of began.

This report functions as an overarching document that provides an update to the Project Design Document (PDD) and includes the first Annual Work Plan which outlines priorities for the remainder of 2010.

It should be noted that this report does not aim to replace the PDD, but provides an update to the situation analysis given recent activities. This report also endeavours to operationalise the implementation of CAVAC – being a useful resource to major stakeholders and a tool for the National Steering Committee.

Critical to the implementation of CAVAC is a whole of program approach to implementation. The PDD has used a component structure to the management of CAVAC where activities and outcomes for each component were listed. The PDD was not specific how the outcomes for each component would interact to reach the higher level goals of CAVAC. This report will add this extra layer, leading to one integrated approach.

This report has been highly influenced by the experienced gained by interim activities conducted by GRM as well as by experience gained by a small team that has been present for over one year. It has also been influenced by experience and opinions of senior government officials and representatives of AusAID. The Inception report is a joint effort from the operational contractor Cardno Emerging markets, ACIAR and the Team Leader.

The goal of CAVAC, as stated in the PDD remains: 'Reduced poverty in targeted Provinces'. This will be achieved by the objective of: 'Accelerated growth in the value of agricultural production and small holders' income in the rice based farming systems of the targeted provinces'.

## 1.2 Content of the Inception Report

The report begins with the updated analysis of agriculture in Cambodia and its opportunities for intervention in Chapter 2. It is followed by a description of CAVAC's methodology in Chapter 4, but only after the basis for its methodology is listed in Chapter 3. Chapter 5 gives detailed description of the main activities over the whole program duration and a summary of activities for the rest of 2010. Chapter 6 explains how CAVAC plans to organise itself to achieve this.

In other words:

| | |
|---|---|
| Section 2 answers the question: | What should be done in Agriculture? |
| Section 3 | What makes development programs successful? |
| Section 4 | How this should be translated in a methodology? |
| Section 5 | What will CAVAC really do to address the first question? |
| Section 6 | How will CAVAC organise itself to do this? |

# 2 SITUATION ANALYSIS OF AGRICULTURE IN CAMBODIA

The PDD (sections two and three) gives a solid overview of the state of agriculture and the problem identification. Field research by the interim team and interaction with government officials and development partners have confirmed the overall analysis, but added more details.

Agriculture in the three targeted provinces is diverse and complex. It ranges from very poor subsistence farmers to very large and rich commercial ones, all finding local solutions for their different problems within their own environments. For the analysis below some generalisations were therefore required.

## 2.1 Poverty in the 3 provinces

CAVAC's final goal is sustainable poverty reduction. The final judgment for all interventions will be how it directly or indirectly reduces poverty. To do so it is important to understand and demystify rural poverty in Cambodia. Recent statistics on the prevalence of poverty are not available. The Millennium Development Goal statistics refer to 40% of the Cambodian population living below a $1.25 ppp/day poverty line in 2005. (Worldbank Atlas). The National Cambodian poverty line lists a lower figure of 35 % in 2004 and a rural figure of 38% (Unistad data). With the impressive economic growth over the last 5 years it is likely that these figures have significantly reduced.

Through interviews with farmers and development specialists, CAVAC has developed an impression how poverty manifests itself in the 3 provinces where it will be active. For operational purposes, it categorizes the rural agricultural population in the below numbered groups. In most cases the household is the primary economic unit.

1. Farming families with sufficient land and access to water in the dry season can produce enough paddy to raise income far above the poverty line.
2. Farmers with sufficient land but without access to water for irrigation in the dry season consider rice cultivation as one of the sources of income. More important this additional income is often from daily labor in agriculture, construction, transport or other opportunities close to home or in the cities. Small trade and retail as well as more permanent jobs in the cities or abroad (Thailand, Malaysia) are often mentioned as well. Fruit trees, maize, cashew, or vegetables as well as poultry, pigs and cattle are other means to increase household income. This group is probably the largest. Much of the poverty in the statistics will come from this group, though CAVAC has not come across many cases of extreme poverty and severe malnutrition. Small children do in general go to school and there is access to healthcare. It is important for the household to have

choices, and their secure and direct income is preferred above more risky and long term income from wet season paddy.

3. A third group is those who lack land and labor. Fieldwork gave the impression that most landless have moved to the cities and are therefore a more difficult target for CAVAC. The single female headed households with or without young children seems to be prominent in this group. Not only is it harder to leave the house to find other sources of income, there are also clear signs of cultural barriers. Women are not for example expected to plow or are able to advocate for their rights in representing bodies.

CAVAC will apply an indirect and a more direct agricultural approach to poverty reduction.

- Increased yields and more area under dry season cultivation will create more local income that is likely to be spent locally. It will also create more local employment. The importance of income and jobs being locally available is especially the case for the poorest third group.
- Higher yields in wet season paddy will directly benefit almost all rural households, but household will weigh these benefits against the additional inputs of cash and labor for which there are high opportunity costs.
- Cash crops like vegetables, maize, fruits or cashew will add to the choice that rural households have. They can form an important element in a resilient poverty reduction strategy. These too however have to compete with other sources of family income.

CAVAC's main focus will be on the income element of poverty. It of course recognizes that poverty has many facets. Gender inequality or low opportunities for people with a disability will be integral in CAVAC's analysis and interventions. Voice and the ability to advocate is another element of attention, especially where it affects women.
A striking aspect of rural poverty is the high mobility. Large numbers of farm households claim they have relocated in the last 15 years. Historical events are not the only reason for it; farmers normally explain the relocation by referring to agricultural opportunities.

The focus on poverty will be present in all the stages of the management cycle.

## 2.2 Rain-fed wet season rice production

*Situation summary:*

Interviews with farmers showed clearly that the harvest from rain-fed fields is a basis for families' livelihoods, but is rarely their only income. Most farmers do not show a profit-

maximising behaviour, but rather a traditional low risk approach. For example, the rice seed that is used is kept from previous years or locally traded. The varieties that are suitable for the wet season conditions are meeting local tastes but generally have low yields and are less responsive to inputs. Use of chemical fertilisers and pesticides is not common and in the case of fertiliser probably is perceived by growers as not always profitable for the local varieties that they use. However, more and more farmers use small irrigation pumps to protect the paddy from dry periods during this season.

Family income is augmented by daily labour, petty trade or other sources of income.

The local variety paddy grown during wet season is milled in small local mills which can be found in every village. There is some local trade and some export to Vietnam. These local wet season varieties are not suitable for large scale re-export and therefore are consumed in Vietnam.

Cultivation of 'floating rice' in flood plains has become less and less common. The risk is perceived too high and the returns on labour too low.

*Potential :*

It is unlikely that large numbers of farmers will turn into commercial profit-maximising farmers in the next five to 10 years. Thus, that will not be the aim of CAVAC. Presently, yields vary from less than one to close to three tons of paddy per hectare. It is possible and feasible to increase rice yields substantially. A key starting point will be better varieties. Some better varieties are already available in Cambodia, others will need to be developed and introduced.

The improved varieties should have a similar taste to current varieties but should respond better to inputs, whether organic or chemical fertiliser. Draught, submergence tolerance, and pest resistance are three other desirable qualities. Stimulating identification, development, production and introduction of better varieties with quality seeds can and should be a first step for the CAVAC program.

In parallel, access to water for irrigation and promoting access to better pest control could improve yields and feasibility of rain-fed farming.

Driving through CAVAC's provinces during the rainy season makes the importance of rain-fed paddy unambiguously clear—all farmable land is green rice fields. This means that small changes in yields can have a significant impact given the potential outreach.

## 2.3 Dry season rice cultivation.

*Situation summary:*

Cambodian farmers have developed several mechanisms to use available water for irrigation of rice in the dry season. The wide variety of dry season irrigated rice cultivation again makes generalisations dubious, but for the purpose of this document useful.

On the floodplains of Takeo and Kampot, farmers use fertiliser at rates close to the economical optimal. Interviews with farmers and traders have demonstrated that at present, most farmers have a commercial orientation towards rice cultivation. Varieties are chosen for export demand with high yields (IR 66 / IR504) or high value. Close to the border with Vietnam farmers use large amounts of pesticides; they control rodents and experiment with other yield enhancers – not always those recommended by research findings. Yields in these areas are on average between 5 and 7 ton / ha. This gives a good income to rural families. Incomes are even better if available water allows for a second dry season crop. Observations show that farmers invest more heavily in farm mechanisation.

There is also a large group of farmers that choose another way of farming, hereby influenced by a number of NGO's. When these dry season growers follow the elements of SRI (such as using only organic fertiliser combined with elements of botanical pest management) they have reduce input costs, but also more limited yields (often yields will be less than 3 ton / ha).

Use of inputs is in general significantly lower in Kampong Thom. This is likely caused by the weaker links with Vietnamese traders and different but more fertile soil types.

A special type of irrigated dry season rice cultivation is recession rice where water is retained after the floods and uses the remaining moisture after the water retracts. Sediments left by the floods keep the soil fertile allowing for yields up to 4 tons / ha without the use of fertiliser.

Recently more and more farmers with access to sufficient water move to early wet season cultivation combined with a shorter wet season crop. These are among the most commercial farmers.

*Potential*

High demand from Vietnam is both an opportunity and a risk. It offers an inelastic market where Cambodia can increase production without reducing the price. As such, in the short-term it would be wise for Cambodia to profit from this, whilst also developing alternative export channels to mitigate the risk of a single channel.

An average farming family with a first dry season harvest of 6 to 7 tons / ha and a second rice crop of 4 ton / ha is well off. Takeo province has thousands of farmers like this. The key

challenge for dry season rice production is to learn from these farmers and disseminate their successes to similar farmers with much lower yields in a way that creates sustainable agricultural practices.

In an ideal situation all farmers would have access to unbiased and full information to allow them to choose the best solution for their situation. Farmers should also be able to purchase good quality inputs in well functioning input markets that respect the law and thus, the environment. If on top there are well functioning markets for paddy or rice then yields and profits would increase to levels that significantly reduce poverty. This ideal situation is not a dream, but an achievable aim.

## 2.4 Irrigation

*Situation Summary:*

Irrigation in Cambodia is complex and describing this is beyond the scope of this document. While recognising the risk of simplification, this report will give some major observations on which CAVAC will initially base its strategies.

Irrigation is used as supplementary irrigation in the early wet season and wet season rice crops and as the main source of water during the dry season. The sources of water are rivers and canals, large reservoirs, and all kinds of smaller dams and pools of water. Groundwater use is still rare in CAVAC's focus provinces. Many irrigation systems are interdependent or sometimes multifunctional, like dams that both protect against floods as well as retain water for the dry season.

Where gravity was the main force of distributing water in the past, the current availability of cheap small pumps has opened new potentials, especially in the flat provinces of CAVAC. Large parts of the cultivated land in the dry season depend on these pumps.

The government and donors have invested heavily in rehabilitation of gravity based systems that were often constructed under the Khmer Rouge regime. The systems are in principle cheaper for farmers and still have potential for improvements, but also have general shortcomings. These include suboptimal design, organisational weakness, insufficient funds for maintenance and operational issues. To summarise the main constraints:

- Most farmers refuse to pay water fees in the wet season and many schemes do not have enough water in the dry season to serve more than 15 – 20% of the farmers. Hence with only 15 to 20% of the farmers using water in the dry season, there are not sufficient numbers to cover operational and maintenance costs.
- Most gravity based schemes have simple distribution systems that do not allow for need-based irrigation and farmers are reluctant to give up land to improve this.

- Farmers' ownership through FWUC's is an essential element in a well-functioning irrigation scheme, but has so far been problematic in most cases.
- A realistic agricultural potential analysis based on growers' requirements should be the starting point of a successful irrigation scheme. This is often not the case.

*Potential:*

Discussions with PDWRAMS have indicated that land under cultivation in the dry season has doubled over the last 10 years. These dynamics are very interesting and may show the way for further cost effective investments. Changes like: the improved financial position of communes; the increasing ownership of small pumps that allow for non-gravity based irrigation; and, increased interest of the private sector to invest are opening up potential for new forms of irrigation. These new forms will of course face new constraints that need to be addressed. These new constraints could be related to infrastructure as well as organisational and agricultural challenges

## 2.5 Other crops

*Situation summary*

Thirty to 40 years ago, the surrounding countries of Lao PDR, Thailand and Vietnam had agricultural systems similar to that of Cambodia. Agriculture was mainly rice based. Some of the neighbours like Vietnam and Thailand went through a diversification process. The production of more profitable cash crops grew quickly. It can be expected that Cambodia will go through a similar process over the next decade. Crops like maize, cashew nuts, vegetables and fruits are likely candidates for this change. However, currently there is solid international demand for rice as well as a strong domestic demand for local rice varieties; this is unfortunately is not the case for most other cash crops. The urban fruit and vegetable market is dominated by good quality imports from Vietnam and Thailand. Cambodian producers are also not yet competitive in most other cash crop markets.

*Potential:*

Solutions are likely to require a package of interventions that include most steps of the value chain and that will require time.

Value chain analyses can identify crops with potential, and strategies for how to utilise this potential. A fast growing, well educated and entrepreneurial middle class forms both a demand and innovative spirit for this.

## 2.6 Additional general observations

Land ownership is a sensitive and important issue in agriculture in Cambodia. It however does not seem to hold back agriculture too much in most of the areas. Farmers are investing for example in levelling and in irrigation and land is being traded. The land ownership issue requires constant awareness and monitoring but intervening in this will fall beyond the scope of CAVAC.

Large companies like Bayer Crop Science, East West Seeds and Dupont have entered Cambodia recently. This does not only indicate a positive perception of the potential of agriculture, it also indicates potential for collaboration. Large investors can become a benchmark for smaller local producers.

Both domestic and foreign investment in Cambodian agriculture is high. Indochina Gateway Capital Limited and a few other investment firms are establishing offices, investment portfolios, and attracting foreign and local investment. These companies may be drivers of innovation from where small farmers can profit.

## 2.7 The Environment

Large scale cultivation of mono-crops like rice raises questions about their sustainability and impact on the general environment. The Royal Government of Cambodia (RGC) has made increasing yields in rice-based farming a priority. This clear choice accepts commercial farming with its potential negative environmental effects. It is the task of the government, with assistance from developing partners like AusAID, to stimulate higher yields with minimal negative environmental impact.

Higher yielding existing farmlands has allowed for greater preservation of un-cleared forests and grasslands generally throughout the world. Modern agriculture, while compromising the environment with its monocultured cropping, is essential for feeding the growing populations while preserving those uncleared forests and grasslands.

Wise soil management indicates that nutrients need to be replenished after removal of both grain and straw. Mono-crops like rice are vulnerable for pests and diseases and need to be managed effectively. Significant research is available internationally and one of CAVAC's key tasks will be to assist the government in steering growth in agriculture in an environmentally sustainable way.

## 2.8 Gender

The core unit of decision-making in agriculture appears to be the household. Interviews revealed time after time that major decisions in agriculture are mainly made by women.

Women often buy the inputs and have a large influence on agricultural investments. They are also well represented in farm labour.

CAVAC needs to understand the role that men and women play in agriculture to design effective interventions and to make sure the interventions do not have adversely affect on either men or women. This will be one of CAVAC's core commitments.

## 2.9 Not only yields

A sense of quality and quality control has slowly entered the agricultural markets in Cambodia over the last years. Most of the agricultural products are still low costs and quality, but shops have started to offer 'green' products and there is much talk about aromatic or high-value rice for export. Quality will be important for the long-term competitiveness of Cambodian farmers and should be an integral part of CAVAC's approach to improving farming.

# 3 PRINCIPLES IN RESPONDING

The section above provided a brief overview of the current situation as well as potential for positive change. This section will outline the principles from which all CAVAC interventions will be developed. The history of development aid has not only been a success story. Too many development initiatives were short lived or showed little value for money; too often they did more harm than good. Three related concepts: Sustainability, Efficiency / effectiveness and 'Do no harm' will guide the CAVAC team in all program decisions.

The 3 concepts do not replace the main focus of CAVAC: Poverty reduction. They only help achieving the main aim of poverty reduction.

## 3.1 Sustainability

The concept of sustainability is one where CAVAC will distinguish itself from many programs. CAVAC is not interested in the sustainability of the direct results, but aims to make the capacity of institutions to serve farmers sustainably. Farmers need access to systems that assure good inputs, productive soils and water, knowledge and access to markets to improve production now and in the future. These systems also need the capacity to adapt to changing situations. It is these systems that CAVAC aims to make sustainable.

**Table 1: Two types of sustainability**

| The farmer does not say: | But he or she says: |
|---|---|
| I remember my training | I can get advice if I need it |
| I got a solution for my crop disease | I will find a solution for crop disease when I have a problem |
| A program helped me with market access | These traders will look for markets for my products |
| We were given a great irrigation system | We made and own a irrigation system we can afford to maintain |
| The program assured we have good seeds | We can buy good seeds from several suppliers |

Many programs solve constraints and worry about sustainability towards the end of the program. For CAVAC sustainability is the first element of any intervention. Agricultural economies are dynamic and unpredictable, and sustainability can never be assured upfront. However, programs can follow a few guidelines that will make achieving sustainability likely.

1. *Build on what exists*

Rather than designing solutions upfront and in the office, it is wiser to investigate the reality on the ground and build on this.

2. *Ownership*

Sustainability starts with ownership. Programs like CAVAC are temporary and can therefore never assure sustainability. It has to be the partners with which CAVAC works that assure this sustainability. These partners must be assisted in improving their long-term support, rather than paid to deliver temporary support. Partners can be public or private.

*3. Demand driven, not only need driven*

Interventions have to address not only farmers perceived needs, they need to offer farmers solutions that farmers are willing to both adopt and pay for.

*4. Gender*

Women play an important role in agriculture, both in activities and in decision making. They are however often less visible in representing bodies or in interactions with programs. A blind eye for gender aspects and representation of women will reduce the changes of sustainability.

*5. Environment*

Agriculture depends highly on fertile soils and biodiversity to keep diseases in check. Preservation of these is therefore a precondition to long-term sustainability.

## 3.2 Efficiency and effectiveness

The 'what did we get for our money?' question is strangely enough still not a dominant criterion in development. For a number of American and European donors however the value for money argument has recently become more important. Critical tax payers demand proof! AusAID has also made 'proof of value for money' a key element of CAVAC's design. Unfortunately there are not many reliable impact assessments to create impact benchmarks nor are there any standard systems to measure impact. Monitoring impact (e.g. yields have increased), rather than just monitoring outputs (e.g. training has been conducted) will be an integral part of the methodology. To achieve this efficiency and effectiveness, CAVAC will follow a few principles:

- The Paris Declaration, followed by the Accra Agenda for Action, highlighted the need for local ownership. Where the Paris Declaration produced guidelines for government involvement; the Accra Agenda of Action focused on broader ownership issues, including NGO's and other stakeholders. The core message is to work through existing country systems and this is also the core of the methodology of CAVAC. A fiduciary risk assessment will determine how closely CAVAC will work with and through government systems. For the programmatic alignment, the Strategy of Agriculture and Water is the guiding document.

- To justify large investments in programs like CAVAC, one needs to have a large outreach. This outreach can only be achieved by working with organisations and companies that have or will have large outreach. Direct support will therefore mainly be to these organisations and companies and not directly to farmers
- Organisational structures will adhere to the 'form follows function' principle. The profile of staff, hierarchies, methodologies and partnerships should all serve the purpose of efficiency and effectiveness and be adjusted if not successful.

## 3.3 Neutrality

The (agricultural) economy is complex, driven by competition and market powers. By working with companies, it is possible to improve the livelihood of many farmers but at a price. Non-participating companies or farmers may lose out. They lose out at different levels, for example: 1) by supporting some vegetable producing associations to produce more and better products, other producing areas may sell less; 2) by improving irrigation at one location, availability of water at another location may be reduced. 3) Better machines may improve profits of farmers, but reduce employment. Publicly funded initiatives such as CAVAC must be very careful with these negative side effects, especially when it leads to unfair competition or when the most vulnerable groups are affected. Some guidelines can reduce this risk:

- Consider the negative effects upfront and weigh them against the positive effects.
- Focus on interventions that lead to market creation, rather than to market displacement.
- Offer support in a transparent manner (e.g. tenders). If initially only one or few companies are interested, repeat the offer later to similar companies.
- Monitor effects and be ready to mitigate negative impacts if required.
- Be transparent in choices and actions.

The considerations above have to be included in CAVAC's internal training, in its approval procedures and in its sector development strategies.

# 4 METHODOLOGY

The Methodology in the PDD varies per component and the consistency is not always clear. This section brings together all these elements of methodology. It will describe one methodology that is applicable for all CAVAC's activities. The overarching principles outlined in Section 3 above have formed the basis for the methodology. The methodology is likely to be modified and finetuned over time; the overarching principles from Section 3 will not change.

## 4.1 A logical framework

The final goal of CAVAC is reduced poverty. Increased income and employment are essential elements of this poverty reduction. The Strategy for Agriculture and Water clearly describes that improved yields, improved quality and area under increased cultivations are the route toward this.

Increased yields and improved quality require innovations. It requires farmers to do things differently, to do things better. Farmers have to take these decisions. CAVAC can make these decisions easier by improving access to information, inputs, markets, the cost of doing business, and by reducing risks. Which access CAVAC *should* promote depends on the situation. Which access CAVAC *can* address depends on the available partners and CAVAC's capacity.

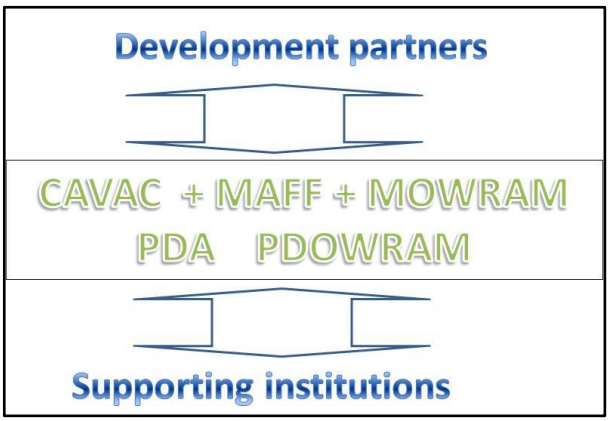
CAVAC's logical framework fixes the final goal (poverty reduction) and the goal (yields, quality and area under cultivation), but the activities will depend on the principles outlined above and on CAVAC's resources.

The outputs are ways to achieve the impact and not means by itself. CAVAC is therefore an impact-driven and not an output-driven program.

## 4.2 Implementation model

CAVAC will be embedded in the structures of the two ministries MAFF and MOWRAM and its provincial departments. It will also engage with development partners to align strategies and implementation or even join in implementation. CAVAC will also purchase services, for example from marketing research organisations. These are CAVAC's development partners.

**Figure 1: Different types of partners.**




The key to achieving the principles of

sustainability and efficiency is working with systems that already exist or that have the right outreach and incentives to remain. CAVAC will therefore not be the one who supports farmers directly; it will build and improve the sustainable support systems and institutions currently in existence.

Table 3 gives examples of potential support providers, their services and what farmer constraints they can reduce.

**Table 2: Constraints and Support Provided**

| Constraint | Potential support providers | Type of support to farmer |
|---|---|---|
| Farming knowledge | Lead farmer (similar to village extension workers) | Day to day solutions, demonstration |
| | Input retailer | Specific advice on disease, fertilizer use or seed varieties<br>Recommendations for input rates and timings. |
| | NGO and GO with long-term funding | Training |
| | Trader | Market information |
| | Large importer | Training, information |
| | Media | Information |
| | Agri-machine traders | Information on innovation |
| | Nurseries and seed producers | Good seedlings and seed |
| Good quality inputs | Input suppliers | Quality inputs<br>Solution to diseases |
| | Input supplier associations | Quality inputs |
| | Government control | Quality inputs |
| Market access | Traders | Good price, low risk |
| | Millers | Good price |
| Access to water | FWUC | Operation and maintenance of scheme |
| | Community / village | Maintenance, conflict resolution |
| | Pump vendor | Flexible access to water |
| | Informal agreements between farmers | Access to water |
| | Commercial water seller | Access to water |
| Innovation | Research institutions through others | Higher productivity |
| | Machine importers and producers | Higher productivity |
| | Traders | New varieties |
| Conducive business environment | Government institutions | Conducive business environment |

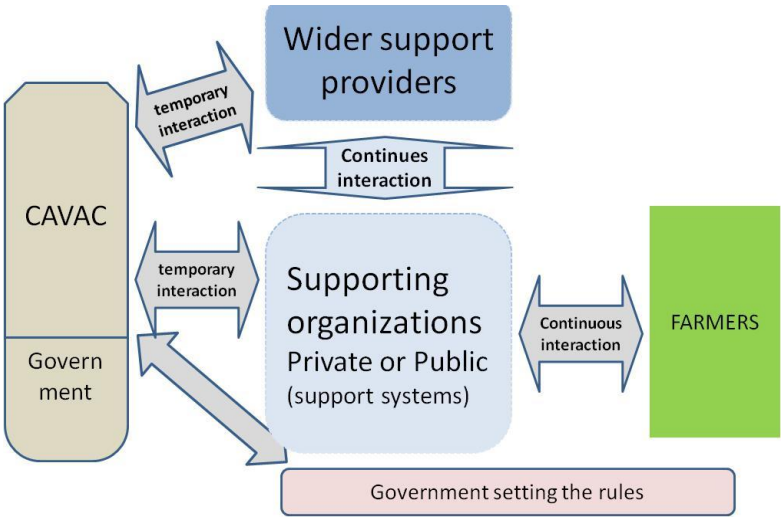
The provider – farmer relation will only last if both sides benefit: the farmer by having higher yields, better quality harvest or better market access. The incentives for the provider can have many forms, including:

- Farmers pay for the goods or service or pay a higher price for better goods or services.
- Suppliers benefits from higher market share due to a better reputation.
- Suppliers benefit through loyal customers.
- Suppliers can get money from others (advertising in media).
- Lead farmers can increase their 'social capital'.
- Traders can commit to better deals because better relations with the farmers will guarantee supply.

In most cases the farmer support systems are markets with competing providers offering farmers a choice. It is rare that farmer support systems are only made up of providers and farmers. Providers are also linked to their own providers. Retailers buy from distributers, lead farmers may get their information from government officials, traders interact with wholesalers or exporters, nurseries work with research institutions. It is not enough to understand the narrow farmer support system, one needs to understand the wider picture.

The wider support providers will include research institutions like CARDI and Centres of knowledge like GDA or PDA's. These wider

**Figure 2: Farmer Support Systems and Wider Support Systems**




**Definitions:**
*(Farmer) support system:* A permanent system consisting of at least three elements: 1) providers of support, 2) farmers and of 3) a support.
*(Support) providers:* Government institutions, NGOs of private sector companies that offer some kind of direct or indirect support to farmers
*Support:* Assistance that farmers need to farm and innovate. It can be access to inputs, information or markets. It can also be related to the business environment.
*Wider support providers:* Support provider who do not directly support farmers, but support indirectly through other support providers. This is the 4th element.
*Facilitators:* Outsiders of the support system who temporary undertake actions to improve the support system.

support providers are not directly supporting the farmers, but rather will be supporting the providers that support the farmers

The role of CAVAC and its implementing partners is to further develop and stimulate the farmers' support systems and the wider support system. 'Further develop' could mean: increasing capacity of providers, improving the quality of the support, increasing demand or stimulating a better environment for the delivery system.

## 4.3 Role of the Government

Over the last 20 years the RGC has supported economic development, focusing on agriculture, with assistance from development partners. The government chose the model of a free market economy and has been successful in developing this. With an increasing capacity of the private sector, the role of the government is slowly changing from a more direct deliverer to one of facilitation and regulation. It supported successful irrigation schemes like PRASAC that found a good balance between private and public functions in water management. With a growing and more complex private sector, the government's involvement will be even more required in enforcing environmental laws, fair competition, public infrastructure, agricultural research and water management. All are public functions and potential constraints to sustainable development. CAVAC can support the government in fulfilling these roles.

CAVAC will also assist the government in stimulating and improving support to farmers through this multitude of farmer support systems. Basic agricultural research will be considered a public good and CAVAC will work mainly through public research institutes like CARDI. For extension the present government's role of being a quality centre of knowledge will be the main focus, while delivery of extension services is slowly taken over by other support providers. In irrigation, CAVAC will assist the government in their role of the institution with the overview, setting the stage and controlling developments in irrigation as well as investing in essential public infrastructure.

## 4.4 Management cycle

Much has changed in agriculture: new players like Crop-Bayer, East West Seeds, Dupont, and Syngenta have arrived and the role of Thai and Vietnamese traders is evident. Investment in farm mechanisation is already high in some areas and growing in others. It is essential for a program to understand these new dynamics and take advantage of the opportunities they offer. This requires a large initial research effort, not only to find constraints but much more to understand dynamics and opportunities.

Initial research has to lead to the drafting of development strategies for value chains and the support systems in them. These strategies must be well aligned with the Strategy for Agriculture and Water and other government priorities. A wide range of interventions will then stimulate the improvements of the support systems. Some will be successful, some will fail and most will need adjustments over time. A well integrated monitoring system has to keep these interventions on track.

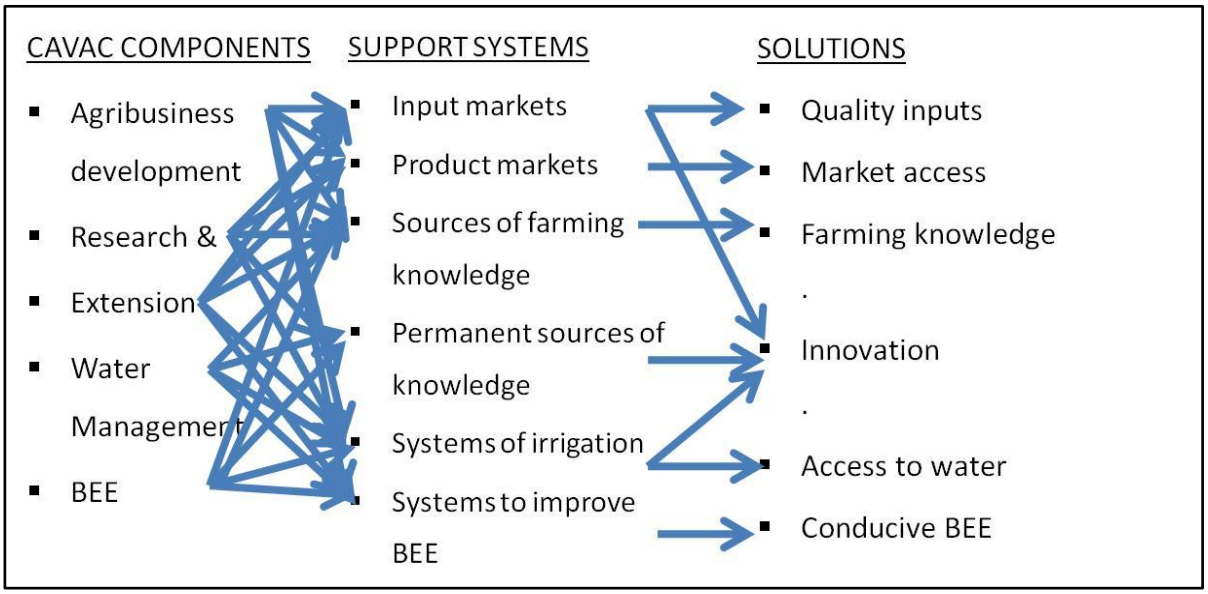
# 5 ACTIVITIES IN EACH BUILDING BLOCK

## 5.1 Components and building blocks

CAVAC's design as described in the PDD is based on a component system with four building blocks Research and Extension, Irrigation and Water Management, Agribusiness Development and Business Enabling Environment. When linking these building blocks to the opportunities and solutions it becomes clear that most components always have to work together to achieve the expected solutions. The component design has been suitable for resource allocation, but is not suitable for designing integrated interventions. CAVAC will build its activities therefore on other building blocks, such as the types of farmer support systems. The links between the components and different types of farmer support systems is shown in Figure 3. This figure shows how complex the relation between components and support systems is. The links between support systems and solutions is more a one-on-one link. Support providers could be in more than one farmer support system. (Input suppliers could be both in the input market system delivering quality inputs and in the sources of knowledge system delivering information).

The same core principles and implementation models as described throughout this document

**Figure 3: Relation between components, farming support systems and solutions**



will be applicable for the 6 new building blocks. CAVAC will have one methodology for all interventions.

In all cases CAVAC will follow a three step process:

1. Identify constraints and opportunities;
2. Identify possible delivery systems that can reduce the constraints or use the opportunities; and then,
3. Interact with the providers to stimulate the delivery.

This chapter will describe these three steps for all building blocks of CAVAC.

## 5.2 Constraints, Opportunities and activities

### 5.2.1 Input and product markets

The design team of CAVAC, together with the RGC, recognised the important role of the private sector in agricultural growth. Analysing constraints and opportunities in the private sector and developing tools to stimulate innovations requires a skill-set that is normally not available in development programs. The agribusiness activities will initially be focusing on three groups of activities.

Good functioning input markets that offer quality inputs and choice will be the first priority. The interim team has conducted initial assessments that show interest and potential to stimulate the input markets. CAVAC will start with a more detailed mapping and constraints analysis followed by partnerships with input companies to improve quality and availability.

A good functioning rice market is the key to the long-term future of Cambodian's agriculture. A more diversified market will increase value added and reduce risk. The rice export market has undergone several changes in recent years, including:

- Europe has awarded a preferential status to Cambodia.
- The private sector has started a number of large investments in milling.
- Large companies, like Indochina Gateway, have entered the country and recently it was announced that the government has eliminated the export license system.

Programs like IFC's Agricultural Value Chain Development and the technical working group on value chains have stimulated changes. CAVAC will team up with the other developing partners and assess where it can contribute to the long-term resilience of rice production in Cambodia.

Thirdly, while CAVAC has a rice-based focus, it will also include other crops within the rice-based system. CAVAC will engage on a value chain selection process where larger value

chains in the three target provinces will be selected by criteria of government priorities, potential impact on livelihood of farmers, feasibility and cross cutting issues like environment and gender. CAVAC will conduct two to four detailed value chain analyses over the next six months and will initiate pilot activities in these value chains.

During the interim phase, CAVAC has assessed a number of value chains and concluded that value chains need a series of interventions to boost production. Traders and links to the final market are likely starting points. It is likely that value chains will be located in production clusters.

*Main activities for the second half of 2010 include:*

- Conduct a value chain selection assessment
- Conduct between two and four value chain assessments
- Conduct an input market mapping and constraint analysis
- Conduct an agro tools demand side assessment
- Develop and test models for support.

### 5.2.2 Permanent sources of knowledge (Research),

Farmer interviews confirmed that farmers struggle with crop diseases, optimal use of fertiliser and lack of use of modern techniques in rice production. There also appears to be large opportunities in new or improved rice varieties.

Cambodia has good researchers in research institutions like CARDI, Universities and the government. It also has a number of capable non government institutions like CRDI. These institutions should be able to address many of the constraints, but this has only partly taken place. Three issues have been hampering this: Funds, Focus and Delivery Systems.

Most research institutes have too limited operational funds to conduct the required research. These limited funds have not stimulated the institutions to set very clear and achievable goals. Institutions have pressure to address everything and are not in a good position to focus on the most important ones. Even when they do develop new varieties or crop protection techniques, the results rarely reach a large group of farmers.

With the CARF funds (Pool A) and through the large research projects (Pool B), CAVAC will stimulate institutions to conduct research that is relevant for rice based farming. The large research proposals also bring research capacity in Cambodia together to focus on finding answers for key needs. The three large research proposals that have started are related to

germplasm (new varieties), rice establishment (modern farming techniques) and improved vegetable cash crops.

*Main activities for the second half of 2010 include:*

- Assisting government research institutes to conduct relevant research under Pool A and Pool B research programs.
- Assessing opportunities through non government research institutions and support those mainly using Pool A funding.
- Assist CARDI with long-term sustainability strategy and short-term financial support.

### 5.2.3 Sources of farming knowledge (extension)

The knowledge of farmers on proper use of inputs, farming practices, pest and disease control and markets ranges from very low to reasonable; thus, it is rarely optimal. Increased knowledge is the key to increased yields.

Internal surveys conducted by CAVAC revealed that at present most farmers learn from their neighbour or a good farmer (often called model or lead farmers). Input suppliers and traders, especially from Vietnam are another source of information. In areas where NGO's are active, farmers also follow their training.

Most farmers struggle with pest and disease control, and have only limited knowledge about optimal use of fertiliser or water. Farmers are often aware of benefits of potential improvements like proper levelling, but lack knowledge to judge if investments are worthwhile. Knowledge of the vegetable farmers visited over the last year was in general lover than those of rice farmers.

CAVAC will have a two-level approach to farmers' extension services: It will develop a knowledge base and in parallel it will develop the delivery channels that use the knowledge base.

Together with MAFF and the PDA offices, CAVAC will set up an extensive knowledge base. It already collected all available extension material in Cambodia, analysed it and where suitable, modified it. Some material can be reprinted and redistributed.

It will also modify and develop good agricultural practice training materials. Results from the large research projects and the CARF funds will also feed into this knowledge base. The knowledge base is an area where CAVAC will work as closely as possible with MAFF and the PDA offices.

For the dissemination of information to farmers, CAVAC will again apply the basic principles of sustainability and efficiency (outreach). CAVAC will stimulate the following farmer knowledge support systems:

- **Lead or Model farmers** are in general well recognised by other farmers in the village. Their fields look better than others, and the lead farmers are respected by other farmers. Other farmers go to them for advice. Lead farmers benefit from giving advice by having a higher social status. Sometimes they sell their harvest as seeds or trade rice of other farmers. Lead or model farmers are also more active in searching for agricultural solutions. CAVAC will aim to train lead farmers and create more permanent links between lead farmers and sustainable sources of information. These sources could be PDA's, input suppliers, traders or media.
- **Input suppliers and traders** are mentioned by farmers as a good source of information. The knowledge of input suppliers is often limited and many input suppliers do not see a benefit in giving additional information. CAVAC will work closely with input suppliers and their distribution networks to improve their knowledge and knowledge dissemination. CAVAC will link the input suppliers to more permanent sources of knowledge and demonstrate the benefit of advising farmers.
- A few **NGOs** and Government implemented programs have a wide outreach and a solid financial basis. It is likely that these NGO's will continue to support farmers in the near future. CAVAC will assist interested NGO's in improving their knowledge and training capacity. CAVAC does not intend to subsidise NGO's to conduct trainings.
- **Farmer organisations** like FWUCs or producer associations who are interested to conduct training for their members, but who lack the knowledge and skills, will be offered capacity building. Again, CAVAC does not intend to pay for the trainings themselves.
- Cambodia has a wide range of **Media**. It has different TV channels, radio and newspapers. Modern media like SMS services and internet are also becoming more popular fast. CAVAC will analyse interest from all forms of media to target farmers with informative programs. CAVAC can help developing media's capacity to make programs and to find commercial ways to make these programs profitable. CAVAC will not pay the media to deliver the programs.

*Main activities for the second half of 2010 include:*

- Support Government (GDA, DAE, PDA) to further develop their role as main source of agricultural knowledge
- Conduct assessments for all potential sources of information to farmers
- Develop and test models of support to these sources of information.

### 5.2.4 Systems of Water Management and Irrigation

Irrigation is unquestionable the key constraint in expanding dry season rice production. Unreliable rain is also the key risk factor in the wet season irrigation as dry periods may damage the crop.

Having studied the irrigation systems in the three target provinces, it is evident that large government investments combined with small farmers and private sector investments have made irrigation very dynamic in parts of Takeo and Kampot. Available water is used in complex systems with often high interdependencies. Drainage is often as much an issue as lack of water. The potential of high yields in dry season irrigated rice production easily justifies investments in most cases. The successful expansion of irrigation in a number of flood plains and river basins also creates new challenges. Increased water use by some reduces the availability for others creating a new need to coordinate and regulate.

Gravity based irrigation schemes with reservoirs are a main potential source of water, but operation is too often far from optimal. Constraints are both technical and organisational. Many schemes are ill-designed during the Khmer Rouge regime, do not have enough water to serve more than 20% of the farmers in the dry season and have soils that are not always suitable for high yields. Most of the existing systems have secondary and tertiary channels that do not allow for demand-based irrigation.

The real growth in irrigation in recent years was driven by the availability of cheap and small surface water irrigation pumps. Irrigation no longer depends on gravity, but only on availability of water. While gravity remains the cheaper and therefore preferred option, irrigation by pumps cannot be ignored.

Operational and management is in general the main problem. The government wisely promotes irrigation scheme O&M ownership by farmers and a water-fee system that should allow for operational and maintenance. The success of exiting FWUCs to finance and conduct maintenance is unfortunately still low.

Province, districts and communes already play an important role in mitigating some of the conflicts of interest between upstream and downstream users, but need more tools and capacity to manage river basins and flood plains.

This simplified constraint analysis justifies the approach described in the PDD: support O&M first and invest where justified.

CAVAC will assist MOWRAM and the PDWRAMs to answer two key questions:

1. What tools do (local) government institutions need to manage the interdependency of irrigation and to identify cost effective investments?
2. How can we fine-tune the FWUC system by using models that work better?

CAVAC will assist MOWRAM in undertaking water availability and irrigation potential studies. These analyses will reveal where land is underutilised, where expansion is possible, where bottlenecks exist and where major upstream and downstream conflicts prohibit optimal use of water. The hydrological analysis mentioned in the PDD will therefore be amended with agricultural and organisational analyses. They will form the basis of targeted solutions and investments. CAVAC will support the capacity of MOWRAM in owning these studies and the implementation. This is the natural public role a government should play.

Once constraints and opportunities are identified, CAVAC has a number of tools to promote improvements that have a high likelihood of sustainability. The demand driven FWUC Investment Fund is a typical demand driven tool that will allow small investments. The extended water availability studies will indicate if the investment is justified and the ability of the FWUC will indicate the likelihood of sustainability.

Focused larger investments will be driven by priorities set by MOWRAM / PDWRAM and justified by the water availability basin studies, but conditional on farmer ownership.

Availability of water is only one side of the coin. Optimal use of the available water is the other. Through its research and extension activities, CAVAC will investigate and promote optimal use of existing water.

*Main activities for the second half of 2010 include:*

- Assist MOWRAM and PDWRAM in their capacity to overview irrigation with capacity building activities and with two water availability studies.
- Prepare support for up to six small irrigation systems for activities in 2011.
- Assess how CAVAC can best support local government and non government institutions in their role in irrigation
- Develop and test models how to support FWUCs and commercial water suppliers.

### 5.2.5 Systems to improve policy

Interviews with businesses in agriculture revealed that the cost of doing business are still high in Cambodia and the laws and regulations that promote fair competition are not always effectively implemented. This not only leads to high transaction costs but also becomes prohibitive for a number of companies.

A major responsibility for improving the enabling environment lies with the government and CAVAC will assist the government if and where requested to do so.

A number of networks help the government with improving regulations. The technical Working groups are one example, companies who advice the government another one. CAVAC will support these systems in a limited way.

CAVAC will also use its own experience to feed into the advocacy and support systems.

*Main activities for the second half of 2010 include:*

- Support government institutions with improving policies, rules, regulations and practices.
- Develop a joint strategy with AusAID on policy issues
- Initiate collaboration with development and private partner organisations to advocate for better policies.

### 5.2.6 Supporting activities

Besides the above mentioned activities, CAVAC will undertake a number of preparatory and cross cutting activities in the second part of 2010. Key activities include:

- Conduct gender, disability and environmental assessments, train staff on these and screen the portfolio on related issues
- Further develop and initiate activities related to Monitoring, Evaluation and Impact Assessment.
- Finalise the hiring process and train staff in all relevant aspects of the job.
- Establish Provincial Coordination Committees and provincial offices.

## 5.3 Partners

CAVAC will work with a long list of partners over the years in different types of relations and with aims. The list below is only indicative and certainly not complete.

**Table 3: List of Partners**

| Type of relationship | Institution | Interaction |
|---|---|---|
| Owning, integrating | MAFF | Aligning |
| | MOWRAM | Aligning |
| | Provinces | Aligning, working closely with |
| | AusAID | Owning |
| | ACIAR | Owning, implementing |
| Long-term development partners | Government institutions | Collaborating |
| | CARDI | Supporting |
| | Member of the technical working groups | Collaborating |
| | GDA, RUA, Banttambang University, Banteay Mean Chey Ag University, Prey Veng Ag University, Mean Chey Ag University | CARF, Knowledge sources, student mentoring, |
| | WB, IFAD, AFD, JICA , IFC etc | Collaborating |

| Type of relationship | Institution | Interaction |
|---|---|---|
| | CDRI | Collaborating, subcontracting |
| Short-term development partners | IDE, SNV, Asia Foundation | Collaborating |
| | Research companies | Subcontracting for surveys |
| | Consultants | Subcontracting for studies |
| | NGO's like CIDAC | Collaborating or supporting |
| Associations | FWUCS | Supporting, irrigation |
| | Rice Miller Associations, provincial and national | Supporting, marketing, policy |
| | Rice Exporter Association | Supporting, marketing |
| | Agricultural Machinery Import Association | Supporting, farmer knowledge |
| Private sector companies | Heng Pich Chhey Import Export Company | Supporting, extension |
| | Agritech Company | Supporting, extension |
| | Crop Bayer | Supporting, input markets |
| | Dupont | Supporting, input markets |
| | Syngenta | Supporting, input markets |
| | Indochina Gateway Capital Fund | Using as benchmarks |
| | BKK Capital Fund | Using as benchmarks |
| | Retailers and distributors | Supporting, input markets |
| | Traders | Supporting, market information |

# 6 ORGANISATION

## 6.1 Organisational Structures

The form and structure of any organisation should follow its function. The function has been described in the previous two sections; this section will explain how CAVAC will be organised to achieve this.

The methodology that CAVAC intends to follow requires an in depth understanding of how farmers and systems around them function and how an outsider, CAVAC, can influence and challenge these. Key characteristics of CAVAC will be: Knowledge based (1), creative (2), business like when working with business (3) and flexible (4). The structures and systems of CAVAC have to be suitable for these characteristics.

(1) Knowledge and information sharing is rarely achieved by documents. Personal interaction and group-work should be the basis, combined with a monitoring system that analyses lessons suitable for the organisation to react upon.

(2) Creativity comes from people who feel encouraged to try new things. The organisation should award risk-takers and accept some failures as part of this. This is best achieved in flat organisations where managers guide the experts, rather than approve activities upfront.

(3) Businesses are often reluctant to work with development organisations because of the bureaucratic behaviour and 'language'. To be successful, CAVAC needs to be able to react fast, deliver as agreed on time and have staff that speaks the business language.

(4) Flexible: The impact-driven nature of CAVAC requires the organisation to understand what works and what not and react accordingly. Activities are driven by what works and what needs further attention. Activities will not be driven by pre-determined outputs. This requires systems that allow for permanent changes.

All these considerations point in the direction of a flat organisation with flexible structures and with analytical and business like staff.

A further organisational challenge forms the component design of the program. Irrigation, Extension, Agribusiness and Business environment are all multi-disciplinary. Irrigation scheme designs cannot be successful without agricultural knowledge. Facilitating extension through private sector partners need both extension specialists and people with business knowledge. For most of the interventions, CAVAC will need to tap into the resources of more than one component. Experience with large programs has shown that this is a concern. Larger programs tend to compartmentalise around managers who aim to deliver their components deliverables rather than those of the whole program. Regular coordination meetings are unlikely to break the component structure when the incentives for staff and managers remain component based.

CAVAC will therefore apply a matrix structure where all specialists are part of a specialisation based component, but where most of the interventions will be conducted on a task force basis.

Every three months, the task for the task forces will be reviewed, the assignments of the tasks forces and their staffing will be updated. Details on the task force structures will be worked out with the managers over the next 3 months.

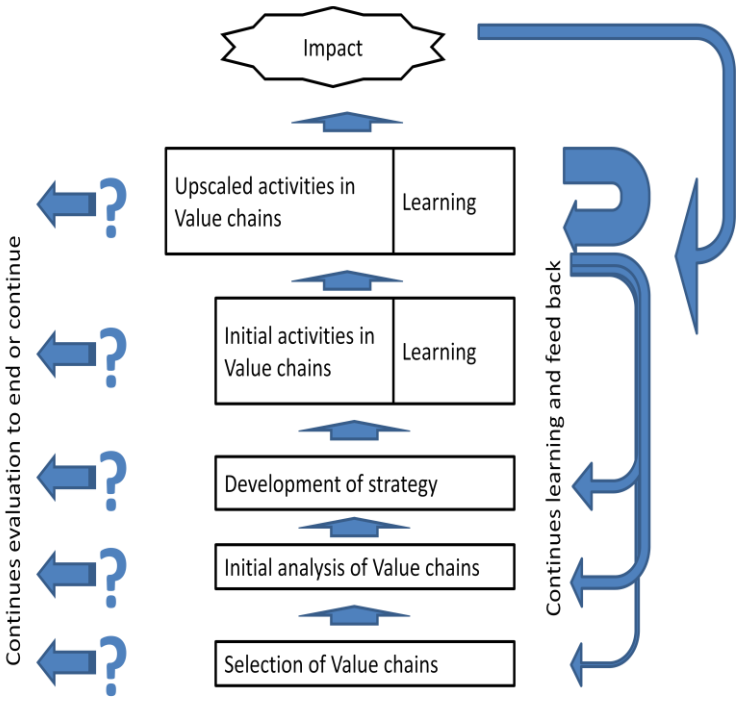
A matrix structure with components and task forces will address design criteria for CAVAC like the multidisciplinary nature of the interventions and the need for flexibility, but it will also raise new problems. Will there be enough accountability in the organisation if people change from one task force to the other task force? Will task forces be able to establish the required links to government departments and will the system not add more complexity in an already

complex program? The program is aware of these issues. It will design strategies to mitigate the problems and monitor the risks.

## 6.2 Management Cycle

Figure 4 gives a graphical overview of the management cycle.

**Figure 4: Management Cycle with Feedback Loops**




It starts with the selection of value chains. The rice value chain has been pre-determined by the program. The other value chains will be selected in the first year of the program based on criteria related to the alignment with government strategies, potential for impact criteria like number of farmers, potential for growth, for gender and on feasibility criteria. For each selected value chain, the program will develop a development strategy. The strategies explain what impact could be achieved and what changes are required for this. Development strategies form the framework within which the program operates. Development strategies are live documents that need to be updated regularly.

Initial activities will test the waters to see if actors in the value chain are really interested and committed to work with the program. Once there in enough confidence, the program will allocate more resources by scaling up the number and the size of activities.

Two elements are key in the management cycle.

1. Each step has an exit point. CAVAC will not scale up without success in pilots; it will not start activities without a strategy and will not undertake any activities without understanding the value chain.
2. The management cycle is not a linear process with artificial feed-back loops. It is a genuine learning mechanism where information and understanding are gained and throughout the process questions are raised continuously on the previous steps as well. The M&E system is essential in this process.

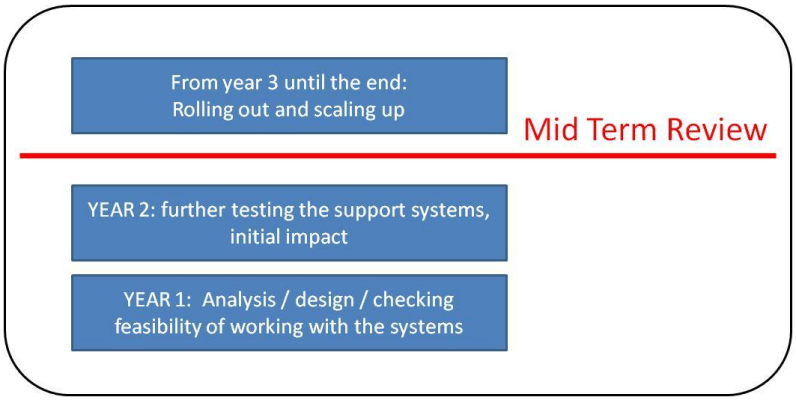
CAVAC will develop, with its managers, systems that ensure that feedback loops are an integral part of the work and that the monitoring system is diverse and efficient enough to allow for continues steering and adjusting.

## 6.3 A Two-Phase Program

As mentioned in Section 4, CAVAC's main development model is improving systems that support farmers. These systems form the backbone of CAVAC's approach.

CAVAC will divide the program in two phases. The first two years are all about testing what support systems are able to make an impact on farmers, how CAVAC is able to stimulate the performance of these systems, what the likelihood of sustainability is and what the potential for scaling up is. The first two years will create impact, but it will mainly reveal where CAVAC can best put resources in the rest of the program. The Mid Term Review then becomes an internal milestone where each support system will be examined and the program will decide if the systems should receive more resources or should be abandoned. CAVAC will produce for each system an investment proposal that contains elements like: Expected potential scale and impact, Resources needed, Sustainability, Gender / disability and Environment. Figure 5 gives an illustration of the 2 phase approach.

**Figure 5: The Two-Phase Structure of CAVAC**




## 6.4 Monitoring, Evaluation, Impact Assessment and Indicators

Good M&E systems fulfil at minimum two purposes: Proving impact and improving interventions. The need for improving interventions is much larger in impact driven programs like CAVAC where the program continuously needs to steer and adjust its interventions to assure it really makes an impact.

A traditional M&E system that measures a baseline of the target group and an impact survey at the end of the program is not very suitable for impact-driven programs. It will not be clear upfront who the target groups will be and what kind of activities will be undertaken. This makes it practically impossible to design a 'quasi-experimental' impact system with control groups. Before / after type of M&E systems also produce information when it is too late to adjust the activities.

CAVAC will work with Impact logics as the basis for its M&E system. The system with impact logics has been successfully tested by a number of similar programs. The Donor Committee (DCED) has developed guidelines how such a system should look like and how such a system can be evaluated by outsiders. CAVAC intends to collaborate with the DCED initiative. The M&E strategy will have more details on this.

CAVAC will be supported by a part time M&E Manager. The M&E manager will assist the program in developing a detailed M&E manual, in training, providing technical advice and he will assure that minimum standards are applied.

CAVAC's PDD requests the program to align its M&E system with the SAW's M&E system. At present, little progress has been made in the development of SAW's M&E system. CAVAC will however interact with the department of planning in MAFF to assure alignment and will offer support to MAFF for finalising the SAW impact assessment system.

The PDD contains an initial framework for impact, its indicators and the targeted values of these. Selecting all indicators and their target values would be sheer guesswork at this stage in the absence of any international benchmarks for similar programs. It would not be of much use.

The program will therefore commit itself in selecting indicators and their targeted values as early as it is feasible. After one year the program will have finalised the selection of value chains and support systems and will be able to determine meaningful indicators. Before the MTR it should be able to set targets for the indicators.

## 6.5 Provincial offices

CAVAC will open a provincial office in each of the 3 provinces. The NSC recommended to first establishing the provincial coordination committees before opening the offices. The establishment of these coordination committees is in progress, but may take some more time. CAVAC has decided to already hire the provincial experts, but house these for the time being in the Phnom Penh office. It was considered beneficial for team building and initial training that the whole CAVAC team would be together for a certain period of time. Lines of communication and collaboration will have to be further developed once the provincial teams are installed.

## 6.6 Cross cutting issues

The inception documents contain detailed strategies for Environment, Gender and Disability.

CAVAC has drafted these strategies based on available strategies from the 2 line ministries MAFF and MOWRAM, on AusAID's legal requirements and on AusAID's and ACIAR strategies while using the experience of CARDNO.

### 6.6.1 Environment

The key approach towards environment is to avoid or mineralise negative impacts on the environment. All interventions will be screened and where necessary external advice will be sought. Depending on the outcome of the screening, interventions will not be undertaken or actions will be designed to mitigate potential negative impact. Environmental checks will be pre-conditions to activities.

CAVAC will build up internal capacity to determine the required level of environmental assessment and to conduct in house simple assessment.

### 6.6.2 Gender and Disability

The Gender and Disability strategy starts by conducting activities to better understand the different roles and responsibilities men and women have in agriculture. CAVAC will use this knowledge to improve its interventions and to avoid negative effects on gender equality. It will have an in-house system that screens all proposed activities on their impacts on gender relations. CAVAC will also pro-actively measures to amend interventions with the intention to improve gender equality. It is not too clear how disabilities reduce the ability to participate in agriculture. Before CAVAC can actively promote the inclusion of people with a disability, it needs to understand better what can and should be done.

The gender and Disability strategy provides more details how CAVAC will mainstream both issues in its activities. For Gender it has a triple strategy:

1. Be aware and learn
2. Influence where possible
3. Do no harm when influencing is not possible.

Two areas of Gender focus will be female participation in representing bodies and economic inclusion of female headed households.

Monitoring is an important tool to achieve the expected results.

## 6.7 Decision Mechanisms

CAVAC's organisational model will place Cambodian experts in the centre. Managers, administration and the finance department all have a supporting, controlling and facilitating role. Cambodian experts who know their country and the systems best and who can effectively interact with farmers, businesses and the government will carry out all organisational functions and will be encouraged to take initiative.

Cambodian experts can only do so if they have sufficient knowledge and understanding what CAVAC can offer to its targeted institutions. For this they need to understand the government

strategies, the value chain strategies and CAVAC's methodology. With this knowledge the Cambodian experts will initiate activities and prepare agreements. The management of CAVAC will assure that all agreements are in line with the business plan, its strategies and guidelines before they turn into tenders, contracts or other kinds of support. Depending on the type of support, CAVAC will have different approval mechanisms that assure this adherence. In general it will mean that a Manager will recommend and that the Team leader will sign off on the technical interventions. The General Manager is responsible for the contractual and procurement adherence.

CAVAC will have a number of special provisions that require special approval mechanisms, these are:

1. The large research pool B funds,
2. The CARF grants,
3. The Agribusiness Innovation Fund (AIF),
4. FWUC investment fund,
5. FWUC maintenance fund,
6. Policy support Funding Facility,

**1. The large research pool B funds:**

Three large research projects have already been approved by the Executive Group of the National Steering Committee (NSC) researching: horticulture, germplasm, and rice establishment. A fourth one on use of water for irrigation is likely to be submitted for approval in 2010.

All pool B projects are prepared and managed by ACIAR. They go through an extensive review and approval process in ACIAR before submitted to the NSC. CAVAC is to recommend to the NSC the suitability of the proposal for CAVAC's goals.

ACIAR has allocated an additional budget for the first 3 large research projects

**2 The CARF grants**

CARF grants have a value of maximum 10,000 USD per year and a maximum duration of three years. There are no upfront requirements for submitting proposals except for being from Cambodians or Cambodian-based institutions. External reviewers will evaluate each proposal and make recommendations to a selection panel for approval. The main criteria are:

- Capacity of the organisation and researchers,
- Quality of the proposal, in how far the proposals address genuine constraints

- Alignment to CAVAC's mandate.

The selection panel consists of representatives of ACIAR, CAVAC, RGC, research institutes and a private sector representative. The panel will approve issuing of the grants.

**3 The Agribusiness Innovation Fund (AIF)**

The AIF is designed in the PDD as a facility that would be open for all good investment proposals from the private sector. CAVAC will adhere to the concept, but will integrate it within the methodology of the program. Only those investment proposals that address constraints listed in the value chain strategies will be eligible for funding. The investment proposals will have to fit within CAVAC's methodology of farmer support mechanisms, and have to adhere to the principles of sustainability, effectiveness and neutrality. The Gender and Disability strategy as well as the Environmental Strategy are equality applicable to these grants.

A major criterion will be the commitment of the company to co-invest. The required percentage of co-investment will not be fixed upfront, but be determined on a case by case basis with as basic criterion that the contribution shows real commitment. Main factors that determine the percentage will be:

- The risk of the investment, Positive externalities;
- The likelihood of competitors benefitting from the investment;
- The time between investment and benefits; and,
- The importance of the investment for the value chain.

CAVAC's financial contribution is more likely to be support knowledge, capacity and marketing, than equipment.

**4. FWUC investment fund**

The PDD describes the provision as to allow FWUCs to invest up to A$ 50,000 per scheme.

To receive support, the schemes need to comply with a number of criteria.

- PDWRAM and MOWRAM and local government structures need to support the investment;
- The river basin studies must support the investment;
- The FWUC must have a good track record on water fee collection and maintenance;

- The FWUC or a number of their members must co-finance the investment to show their commitment. This co-investment cannot come from another donor or from PDWRAM funds; and,

- The investment must comply with CAVAC's Gender and Disability, and Environment strategies and procurement procedures.

CAVAC will set up a system to inform FWUCs about this facility, as well as develop a transparent selection system.

CAVAC may consider opening the facility to other organisational forms of water management, like commune councils, farmer associations or farmer groups in the process of registering as FWUCs.

**5. FWUC Maintenance Fund**

The FWUC Maintenance Fund is a facility that can support irrigation schemes with a maintenance support of A$ 30 per hectare per year for maximum two years. This fund will be used in case small or medium size irrigation schemes are being rehabilitated by CAVAC and the need for initial maintenance support arises in the feasibility study. The decision to use this facility will be integrated with the decision to invest in the rehabilitation of the scheme.

**6. Policy support Funding Facility**

AusAID is responsible for the strategic direction of the Policy Support Funding Facility. Once AusAID gives this strategic direction, CAVAC will develop detailed guidelines for the facility. AusAID will initiate proposals. CAVAC can assist in developing them further. Proposals need to comply with CAVAC's procurement procedures and need approval of the NSC. Proposals have to address key priorities of the SAW.

## 6.8 Human Resources

### 6.8.1 Long-term staff

CAVAC will work closely with the two line ministries and their provincial departments. All have well trained staff with good technical skills. In the teams selection process CAVAC intentionally looked for complementarities. It selected persons with good analytical skills and with the ability to work with both the public and the private sector. This is both the case for the Cambodian as well as the international positions.

Many of the staff that fitted the criteria were relatively inexperienced and will need extensive training in the first two years of the program. Some training will be conducted by outsiders, but most of the training will be conducted on the job and in special training workshops.

CAVAC aims to have the last international manager 'on the ground' in August and will try to have the whole team complete at the end of August.

### 6.8.2 Short-term Consultants

With four international technical managers, CAVAC's need for external consultants is limited. It is however likely that in the next seven months CAVAC will require the services of a Gender and an Environmental specialist. It may also invite value chain analysis specialists and media specialists for short missions.

### 6.8.3 Outsourcing Research versus In-House Research

Experience with other Value Chain programs has shown that outsourcing initial research on value chains is not effective. Staff that design the interventions need detailed knowledge that can best to obtained during the initial studies. Research and interventions are a continuum.

Small form M & E studies can also be best done by program staff, but for larger studies CAVAC will need to involve research institutes or government organisations.

For specific gaps in knowledge, for example related to Gender or the Environment, CAVAC will not have the expertise in house and will need to rely on external support.

# 7 THE WORK PLAN

As explained in Section 6, CAVAC will work in multi disciplinary task forces. The task forces will have to deliver the expected changes in farmer support systems. For this reason it was chosen to use a farmer support system based work plan rather than a component based work plan.

The constraints and opportunities that are listed in Section 2 and that are translated in outcomes in Section 5 form the basis of the work plan. The main headings are the farmer support providers that address these constraints and opportunities.

This format of the work plan will allow the program to easily distil the tasks from the work plan.

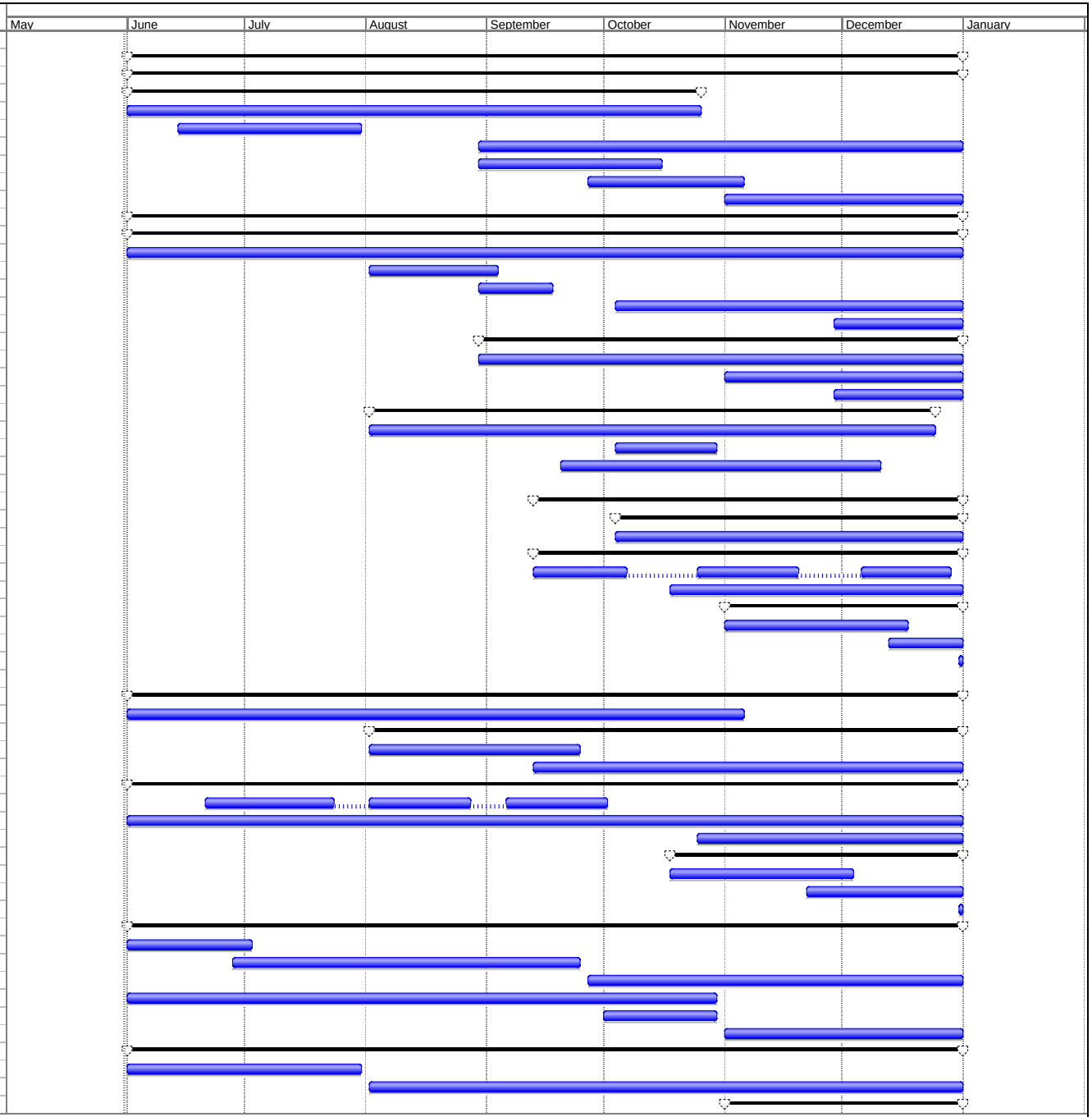
The attached Gantt chart gives in more detail the planned activities for the second part of 2010. Most activities over the next seven months will be directed to gaining knowledge and where possible testing the knowledge in pilots. Attached is also an indicative workplan and budget for the first 6 months of 2011.

# Cambodia Agricultural Value Chain Program (CAVAC)

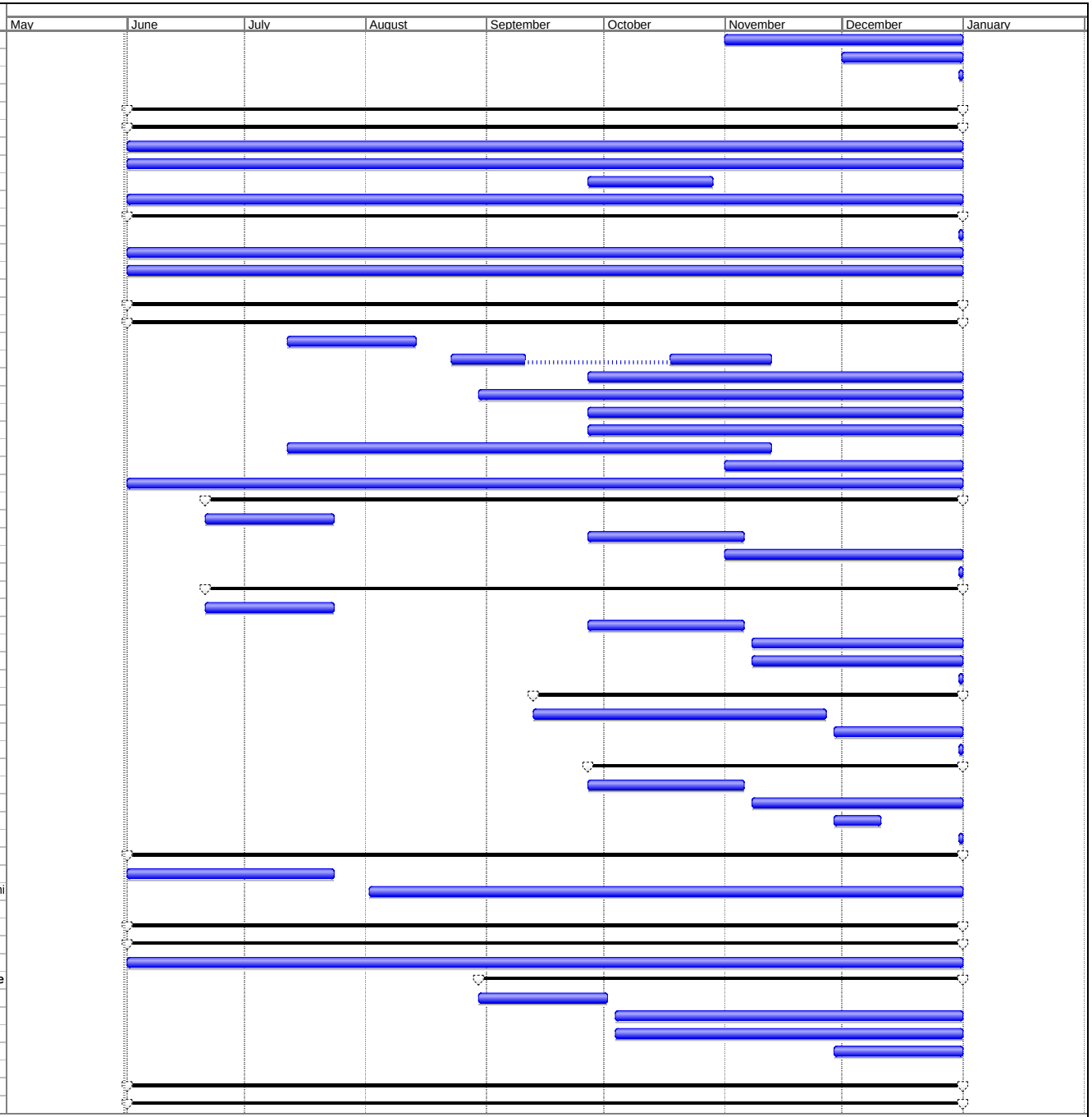
# Annex 1
# Gantt Chart

## CAVAC Inception Report and 2010 Work Plan

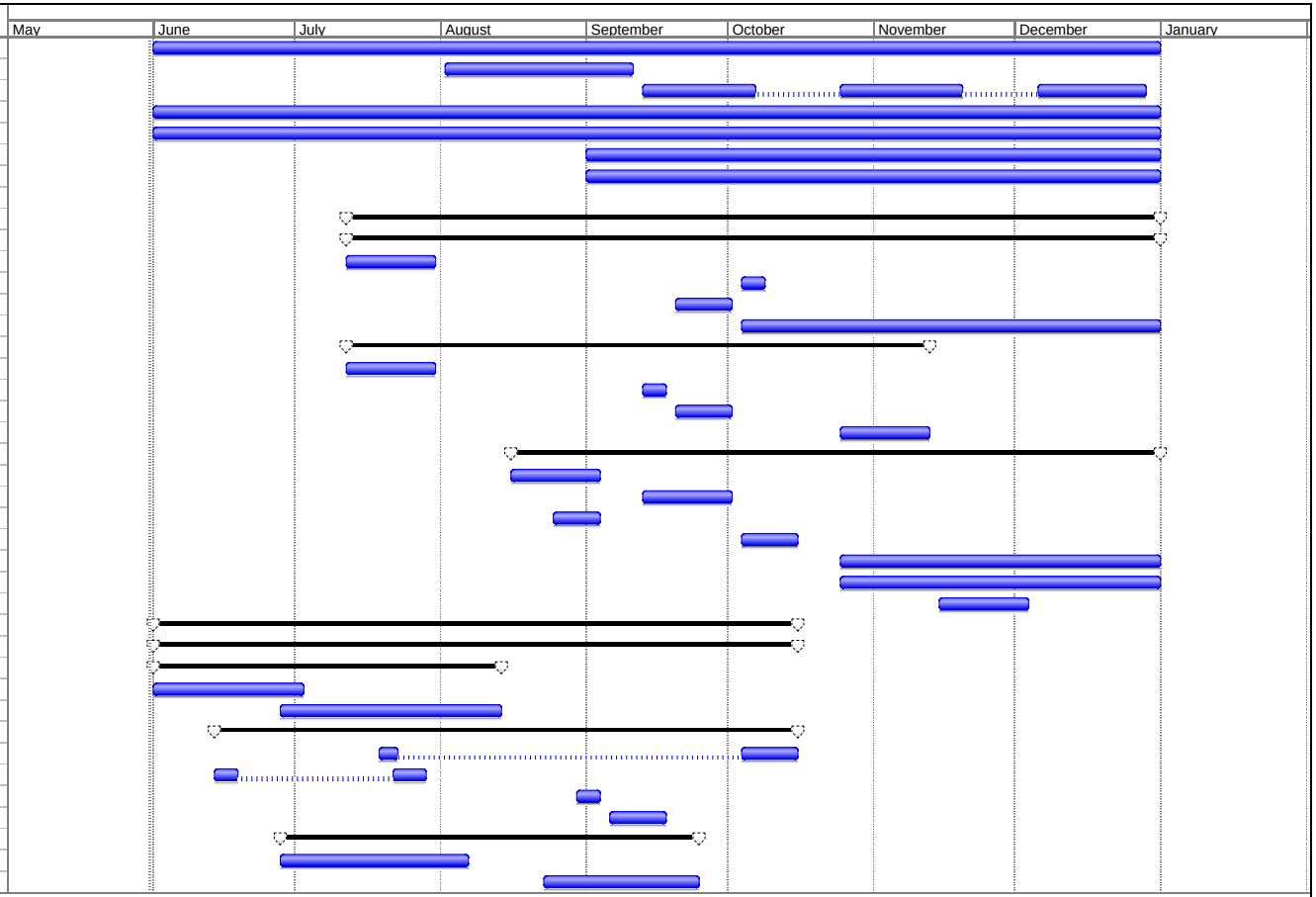
| ID | on going | Task Name |
|---|---|---|
| 1 | | |
| 2 | | **INPUT MARKETS** |
| 3 | | **SEED MARKET** |
| 4 | | Seed market assessment |
| 5 | V | Demand side through Germplasm project |
| 6 | V | Suppliers mapping and analysis |
| 7 | - | Support to seed companies, at least 1 |
| 8 | - | Analyze policy issues in seed sector |
| 9 | - | Analyze potential for small seed producers |
| 10 | - | Support small seed producers |
| 11 | | **Fertilizer market** |
| 12 | | Map existing fertilizer market |
| 13 | V | Demand side through Rice establishment project |
| 14 | V | Suppliers mapping and analysis |
| 15 | - | Analyze opportunities form interventions |
| 16 | - | Design and conduct pilots |
| 17 | - | Support to retailers |
| 18 | | **Pesticide market assessment** |
| 19 | v | Assessment of pesticides and herbicides market and their use |
| 20 | - | Identification of best practices / environmental assessment |
| 21 | - | Initial support to best practices |
| 22 | | **Agritools** |
| 23 | - | Identification of agro tools with high potential. (also in rice establishment) |
| 24 | - | Assessment of agro tools market supply side |
| 25 | V | studies of improvements |
| 26 | | |
| 27 | | **PRODUCT MARKETS** |
| 28 | | **International seed market / millers** |
| 29 | - | Assess the potential for high value rice export and the required support |
| 30 | | **market creation through vegetable traders** |
| 31 | - | conduct a number of value chain analysis |
| 32 | - | Support traders to increase market assess for farmers |
| 33 | | **Market places offering facilities and services** |
| 34 | - | Conduct a physical market assessment in the 3 provinces |
| 35 | - | assess costs and benefits of investments |
| 36 | - | support local markets |
| 37 | | |
| 38 | | **SOURCES OF FARMING KNOWLEDGE** |
| 39 | - | **CAVAC collect, modify and develop basic extension material** |
| 40 | | **Government as source of knowledge** |
| 41 | V | Discuss and agree with Government institutions on a capacity building plan |
| 42 | V | Undertake capacity building activities |
| 43 | | **Embedded information from input suppliers** |
| 44 | - | Conduct a large mapping and market assessment both supply and demand. |
| 45 | V | Support larger companies in improving their supply chain. |
| 46 | V | Support smaller retailers in improving their knowledge |
| 47 | | **Embedded information from traders, farmer organisation and producers** |
| 48 | - | Assess present situation and potential improvements |
| 49 | - | develop models and strategies |
| 50 | - | support traders and linkages |
| 51 | | **Model farmers as permanent extension suppliers** |
| 52 | V | Develop a model for embedded information though model farmers |
| 53 | - | Test the model |
| 54 | - | Select model farmers and conduct the training |
| 55 | V | Select and develop permanent sources of knowledge. |
| 56 | - | Develop model farmers exchange model |
| 57 | - | Conduct linking activities |
| 58 | | **NGO's as permanent extension suppliers / better knowledge** |
| 59 | V | Assess knowledge and interest of NGO's |
| 60 | - | Conduct tailor made support to NGO's |
| 61 | | **Media as permanent source of information** |



| ID | on going | Task Name |
|---|---|---|
| 62 | - | Assess potential and interest of Media related to agriculture |
| 63 | - | Assess advertisement market |
| 64 | - | Support a number of potentially interested companies |
| 65 | | |
| 66 | | **PERMANENT SOURCES OF KNOWLEDGE** |
| 67 | | **Government research institutes and universities** |
| 68 | V | Support small researches through CARF grants |
| 69 | V | Involve Gov. inst. in larger research projects to build capacity |
| 70 | V | Stimulate long term strategies (CARDI) with temporary financial support |
| 71 | V | Assess and promote links between research institutions and the Private sector |
| 72 | | **Private research institutes and NGOs** |
| 73 | - | Assess role, usefulness and required support for major private research institutes |
| 74 | V | Support Cambodian Journal of Agriculture as source of research findings |
| 75 | V | Support small researches through CARF grants |
| 76 | | |
| 77 | | **SYSTEMS OF WATER MANAGEMENT AND IRRIGATION** |
| 78 | | **MOWRAM / PDWRAM in their public role** |
| 79 | - | Assess needs for capacity building |
| 80 | - | Agree on capacity building plan with PDOWRAMs MOWRAM |
| 81 | - | Reassess potential for investment in the 4 medium size irrigation |
| 82 | - | Develop a model for water basis analysis and interventions |
| 83 | - | Conduct jointly a number of water availability studies |
| 84 | - | Support MOWRAM, PDWRAM, AIT, In using the studies |
| 85 | - | Develop smaller irrgation rehabilitatin plans |
| 86 | - | Develop larger rehabilitation plans |
| 87 | V | Support MOWRAM with CISIS |
| 88 | | **FWUCS as deliverers of water** |
| 89 | - | Develop an “offer” for Operational FWUCs and for FWUCs with potential |
| 90 | - | Find FWUCS with potential and agree on support |
| 91 | - | Support FWUCs with small infrastructure or capacity |
| 92 | - | develop with good performers larger investments |
| 93 | | **Informal farmer groups** |
| 94 | - | Develop an “offer” for Informal farmer groups with potential |
| 95 | - | Find IFGs with potential and agree on support |
| 96 | - | Support FWUCs with small infrastructure or capacity |
| 97 | - | Assist FWUCS to become formal |
| 98 | - | Develop with good performers larger investments |
| 99 | | **Commercial water providers as source of irrigation** |
| 100 | - | Assess models and incentives of commercial water providers |
| 101 | - | Assess river basin models for expanding irrigation |
| 102 | - | Support commercial water suppliers in offering or expanding irrigation |
| 103 | | **local government institutions as supporters for O&M** |
| 104 | - | Assess how CAVAC can support local government in their support to irrigation. |
| 105 | - | Assess needs and opportinuties for support (river basin studies) |
| 106 | - | Develop an offer for support to local government |
| 107 | - | Support local governments |
| 108 | | **Pump manufacturers and traders** |
| 109 | V | Investigate appropriateness and alternatives for present pumping practices |
| 110 | - | Depending on outcome, assist importers, retailers and producers in offering better uni |
| 111 | | |
| 112 | | **SYSTEMS TO IMPROVE POLICY** |
| 113 | | **Government institutions improving policies, rules, regulations and practices** |
| 114 | V | Support government institutions with policies, rules, regulations and practices |
| 115 | | **Non government institutions and donors better support government in policy advice** |
| 116 | - | Develop a joint strategy with AusAID on policy |
| 117 | - | Collaborate with other development partners or NGO’s |
| 118 | - | Establish priority issues and develop implementation strategies |
| 119 | - | Support processes of change |
| 120 | | |
| 121 | | **SUPPORTING ACTIVITIES** |
| 122 | | **Major gaps in knowledge** |



| ID | on going | Task Name |
|---|---|---|
| 123 | V | Analyze practices and opportunities in the vegetable market |
| 124 | - | Assess potential for value chains and select ones with high potential |
| 125 | - | Conduct a number of value chain analysis |
| 126 | V | Analyze germplasm potential |
| 127 | V | Analyze rice establishment |
| 128 | - | Analyze actual use of water by farmers |
| 129 | - | Analyze potential for improving use of water for agriculture |
| 130 | | |
| 131 | | **Procedures and structures** |
| 132 | | **Gender / Disability** |
| 133 | - | Institutionalize the strategy in procedures and responsibilities |
| 134 | - | Train staff |
| 135 | - | Screen workplan for Gender activities |
| 136 | - | Conduct focussed Gender studies to fill knowledge gaps |
| 137 | | **environment** |
| 138 | - | Institutionalize the strategy in procedures and responsibilities |
| 139 | - | Train staff |
| 140 | - | Screen workplan for Environmental activities |
| 141 | - | Conduct focussed Environmental studies to fill knowledge gaps |
| 142 | | **M&E** |
| 143 | - | Finalizing M&E strategy and procedures |
| 144 | - | Institutionalizing the strategy in procedures and responsibilities |
| 145 | - | Training of taff M&E staff |
| 146 | - | Training of all staff |
| 147 | - | Commissioning baseline studies |
| 148 | - | Initiating internall impact logics |
| 149 | - | Aligning with DCED M&E activities |
| 150 | | **Operational issues** |
| 151 | | **Human resources** |
| 152 | | **Finilizing hiring process** |
| 153 | V | International positions |
| 154 | V | Cambodian specialists |
| 155 | | **Induction, training and organizational development** |
| 156 | V | Methodology trainings |
| 157 | V | Project systems familiarization |
| 158 | V | Teambuilding exercises |
| 159 | V | Planning exercises |
| 160 | | **Estabishing provincial offices** |
| 161 | V | Estabishing Provincial coordination committees |
| 162 | V | Selecting and equipping offices in the 3 provinces |



# Cambodia Agricultural Value Chain Program (CAVAC)

# Annex 2
# Intervention Budget 2010

## CAVAC Inception Report and 2010 Work Plan

| | | | June | July | August | Sept. | October | November | December | Total | CARDNO | ACIAR | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1.1** | **Intervetion costs for input and final markets** | | | | | | | | | **53,000** | | | |
| | 1.3.1 | Market assessments | | 1,000 | 10,000 | 1,000 | 1,000 | 5,000 | | 18,000 | x | | |
| | 1.3.2 | Support to input markets | | | | 5,000 | 5,000 | 10,000 | 5,000 | 25,000 | x | | |
| | 1.3.3 | Support to market infrastructure | | | | | | | | | x | | |
| | 1.3.4 | Agribusiness Innovation Fund | | | | | | | 10,000 | 10,000 | x | | |
| **1.2** | **Intervention costs Sources of Farmer knowledge** | | | | | | | | | **138,000** | | | |
| | 1.1.1 | Support to central knowledge base | | 10,000 | 8,000 | | | | | 18,000 | | x | |
| | 1.1.2 | Support to providers | | | 5,000 | 8,000 | 5,000 | 5,000 | | 23,000 | | x | |
| | 1.1.3 | Capacity building of MAFF / PDA | | | | 50,000 | | | | 50,000 | | x | |
| | 1.1.4 | Material production | 37,000 | | | | | | | 37,000 | | x | |
| | 1.1.5 | Media potential assessment | | | | | | 10,000 | | 10,000 | x | | |
| **1.3** | **Intervention costs for permanent sources of knowledge** | | | | | | | | | **1,170,856** | | | |
| | 1.2.1 | CARF fund | 28,856 | | | | | | | 28,856 | | x | |
| | 1.2.2 | Pool B funds already approved | 650,000 | | | | | | | 650,000 | | x | |
| | 1.2.3 | Pool B funds (approval by E.G.) | | | | 400,000 | | | | 400,000 | | x | |
| | 1.2.4 | Other research | 10,000 | 10,000 | | | 5,000 | | 5,000 | 30,000 | | x | |
| | 1.2.5 | Capacity building of institutions | | | | | 62,000 | | | 62,000 | | x | |
| **1.4** | **Interventions for Systems of Water management and Irrigation** | | | | | | | | | **646,713** | | | |
| | 1.4.1 | Water availability and agriculture opportunity studies | | | | | 150,000 | | 150,000 | 300,000 | x | | |
| | 1.4.2 | Study on Water management practices | | | | | 10,000 | 10,000 | | 20,000 | x | | |
| | 1.4.3 | Feasability studies for investments in 2011 | | | 5,000 | | 5,000 | | | 10,000 | x | | |
| | 1.4.4 | Support to CSISIS | | | 15,000 | 15,000 | 15,000 | 15,000 | | 60,000 | x | | |
| | 1.4.5 | Support to FWUC development | | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 30,000 | x | | |
| | 1.4.6 | Capacity support to MOWRAM and PDoWRAMs | | 3,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 8,000 | x | | |
| | 1.4.7 | Support to private sector providers | | | | | 3,000 | 3,000 | 3,000 | 9,000 | x | | |
| | 1.4.8 | FWUC investment fund | | | | | | 20,000 | 20,000 | 40,000 | x | | |
| | 1.4.9 | FWUC maintenace fund | | | | | | | | | x | | |
| | 1.4.10 | *Small scale irrigation works* | *66,685* | *66,685* | *36,343* | | | | | *169,713* | *x* | | currently underway |
| **1.5** | **Interventions for Systems to improve Policy** | | | | | | | | | **55,000** | | | |
| | 1.5.1 | Policy assessment | | | | | 5,000 | | | 5,000 | x | | |
| | 1.5.2 | Policy support funding facility | | | | | 20,000 | | 20,000 | 40,000 | x | | |
| | 1.5.3 | Public Private Partnership Intervention | | | | | | 5,000 | 5,000 | 10,000 | x | | |
| **1.6** | **Monitoring and impact assessment** | | | | | | | | | **10,000** | | | |
| | 1.6.1 | Support to MAFF / SAW M&E system | | | 1,000 | | 1,000 | | | 2,000 | x | | |
| | 1.6.2 | Baselines | | | | | 2,000 | 4,000 | 2,000 | 8,000 | x | | |
| **2.1** | **General acitivites** | | | | | | | | | **237,000** | | | |
| | 2.1.1 | Value chain analyses | | 5,000 | 5,000 | | | | | 10,000 | x | | |
| | 2.1.2 | two studies on Gender | | | | 5,000 | | 5,000 | | 10,000 | x | | |
| | 2.1.3 | One study on disabilities | | | | | 5,000 | | | 5,000 | x | | |
| | 2.1.4 | two environmental impact assesment | | | | | 6,000 | | 6,000 | 12,000 | x | | |
| | 2.1.5 | Fiduiary Risk and Procurement Assessments | | | 200,000 | | | | | 200,000 | x | | |
| **2.2** | **Capacity building and support** | | | | | | | | | **20,500** | | | |
| | 2.2.1 | MAFF | | | | 2,000 | 2,000 | 2,000 | 2,000 | 8,000 | x | | |
| | 2.2.2 | MOWRAM | | | | 2,000 | 1,000 | 1,000 | 1,000 | 5,000 | x | | |
| | 2.2.3 | PDOWRAM / PDA | | | | 3,000 | 1,500 | 1,500 | 1,500 | 7,500 | x | | |
| **2.3** | **Training costs** | | | | | | | | | **37,000** | | | |
| | 2.3.1 | Environmental Training | | | | 10,000 | | | | 10,000 | x | | |
| | 2.3.2 | Value Chain Traning | | | | | 10,000 | | | 10,000 | x | | |
| | 2.3.3 | Gender Training | | | | | 10,000 | | | 10,000 | x | | |
| | 2.3.4 | M&E Exchange Visit | | | | | | 2,000 | | 2,000 | x | | |
| | 2.4.5 | seminars | | | | | 2,500 | | 2,500 | 5,000 | x | | |
| **Opertational budget** | | | **792,541** | **100,685** | **291,343** | **507,000** | **333,000** | **104,500** | **239,000** | **2,368,069** | | | |

# Cambodia Agricultural Value Chain Program (CAVAC)

# Annex 5
# Illustrations of Potential Future Interventions

## CAVAC Inception Report and 2010 Work Plan

## ANNEX 5: Hypothetical examples of future interventions.

Below are 4 hypothetical cases as an illustration of what kind of activities CAVAC could do. These interventions have not happened, will not happen, but some of CAVAC's future interventions could be similar to these.

### Hypothetical Case No 1: *Better seeds leading to higher yields*

CAVAC's support to research institutes in the Germplasm project will help understanding what better wet season seed varieties are presently available, and it will lead to the development of new and better varieties. From here it is a long way to poverty reduction. CAVAC will need to find seed producers and need to stimulate the introduction of that new germplasm. Let's close our eyes and imagine how this could happen:

*During the initial assessments, some of CAVAC's staff run into a few rice traders that actively sell and buy rice seed. They complain about the low margins and are looking for ways to turn this into a profitable business. CAVAC organizes a few focus group discussions with 12 interested traders. We organize an afternoon demonstration meeting at CARDI and one trader is so enthusiastic that he starts on his own without any further support. Two other traders also show serious interests, but are less confident how to start. CAVAC agrees to help them for 6 months with various forms of support. Jointly it conducts a demand assessment to understand better what farmers really want. (CAVAC pays) Together a business plan is developed. CAVAC also organizes training and hires a short term specialist to help with setting up the fields for rice seed production. The 2 entrepreneurs both buy the required equipment (their cost).*

*While working on this it turns out that Battambang University is also interested in availing and CAVAC organizes another meeting between BU and the seed producers. It also gives a small grant to BU to set up this service.*

*The first season the seed producers have difficulty to sell the better seeds and show reluctance to continue. Intensive interviews reveal that farmers find it too risky and the advice to combine these seeds with fertilizer is not coming across. CAVAC agrees with the 3 seed producers on a demand creation strategy on a cost sharing basis. It is agreed that all 3 seed producers organize demonstration plots, that we train fertilizer retailers on the better seeds and that we offer 200 farmers a "trial subsidy" if they agree to use the recommended amounts of fertilizer and agree to discuss results with other farmers. Our lead farmer initiative helps to find interested farmers. The strategy works this time. Farmers are impressed by yields that are 30 to 70% higher. In one area where there was a severe draught, only the new seeds survived the draught. CAVAC decides to scale up the initial success and advertises for traders and farmers who want to become seed producers. Thirty-three candidates react and follow a day-long program that explains all aspects of becoming a seed producer. Eighteen agree to follow a 2-day course. CAVAC now needs to stimulate CARDI and BU to offer enough.*

*Now 4 years later the number of seed producers is still growing. The few varieties that have been developed under the rice germplasm program easily find their way through the seed producers. As this program had placed trader/customer traits as the highest priority in its selection process, the rice varieties can meet the needs of both groups. It is estimated that after the fourth year 20,000 farmers have shifted to the improved seed varieties and that 75% of them now use rates of fertilizer that are close to the*

*recommended optimum. A survey revealed that yields are up with 25 to 35% and income on average 10%.*

*Rumors go that 2 Vietnamese importers have staring to buy the new varieties and have offered seed producer loans to produce more seeds.*

*It is a worry that not many of the female headed households, where poverty is highest shift. Inability to control weeds is mentioned as one of the core reasons. CAVAC decides to work with the seed producers and fertilizer seller to promote herbicides as good alternative to hand weeding and to offer 100 of these households a trial subsidy. The CAVAC rice establishment project would have already tested a number of herbicides and would have some recommendations ready through CARDI. Next year it will be clear if this works or if a different approach needs to be followed.*

### Hypothetical Case No 2: *Fighting Brown plant hopper*

Brown Plant Hopper is a real plague in Cambodia and all SE Asia. Whole harvest have been destroyed or seriously diminished. In some places farmers use used car oil or diesel fuel on the field shaking the plants to allow insects to dip into the oil to control the BPH. In other areas farmers use pesticides at high doses or even gave up farming. Let's close our eyes and imagine how CAVAC could address this:

*Interviews with international companies showed that there are good modern solutions to fight the BPH. The key is to break their reproductive cycle by spraying low toxic chemicals at the right moment. The effects are more effective if farmers collaborate in this.*

*International companies like Syngenta and Bayer CS showed interest to sell their products and by this, enter the market as good quality and environmental sound companies, but present rules and regulations make it difficult. Talks with high officials from MAFF explain that the case must be made stronger before they can support a change in law and policy. CAVAC agrees with the 3 large companies for the government to conduct a one-season study combined with a literature survey. One year later the results are in and the 3 companies agree to organize a seminar where the government, Universities, companies and NGO's are invited. The case for the modern approach becomes clear during the seminar. Of all solutions this is far superior in results, costs and environmental impact.*

*USAID and Worldbank agree to assist the government in drafting interim regulation that will allow the companies to come in. CAVAC agrees with each of the 3 companies to assist in a large awareness campaign.*

*Four years after the first talks, many thousands of farmers start cultivating dry season rice again. Tens of thousands of farmers increase yields and profits and an environmental impact assessment shows very sounds gains for the environment compared with previous practices.*

*It is interesting that especially poor small farmers who cannot afford risk also benefit from the solution. Equally promising is the continuation of talks between the 3 companies and the government on other disease and pest controls.*

## Hypothetical Case No 3: *The water melon market*

CAVAC will identify a number of value chains that it will stimulate with a variety of measures.

Let's again close our eyes and imagine how this could happen:

*In the first months of the program, CAVAC staff studied all existing reports on cash crops, spoke to government officials, had joined field trips with PDA experts and other development partners to come up with a list of potential crops and areas where CAVAC might stimulate production. Main criteria were size of market, outreach, impact on poverty, growth potential of the market and feasibility. For all of the initial 10 commodity candidates, CAVAC and the respective PDA officials did an initial field visit to check the data and to discuss with farmers, input suppliers and traders about their interest. It narrowed down the initial value chains to 5 for which it conducted 3- to 5-day value chain assessments with a team of 6 CAVAC experts, 6 PDA experts and 3 additional students.*

*One of the selected value chains was the one for water melons. Presently there are 1,300 farmers in the area producing watermelons. Some are sold directly by farmers, but 80% is bought by around 50 small traders who sell the melons to market traders in Dhaka's whole sale market. Use of inputs is limited.*

*Visits to traders in Dhaka revealed that the local water melons are in high demand with children, but that restaurants require bigger ones, preferably with less seeds in it. Another issue is the very limited time when the melons are available.*

*CAVAC invited 3 farmers and 3 traders to visit Vietnam. Here the group saw that the melons here were 3 to 5 times bigger, had less seeds and were produced during a much longer season.*

*This should be the strategy. Vietnamese variety seeds should improve size, productivity and increase the season, meeting the unmet demand from restaurants and households.*

*CAVAC first discussed the potential with the 10 largest traders who were reluctant to commit anything unless the producers produced. The restaurants were also a bit skeptical and now prefer to import from Vietnam. There are 3 input suppliers in the area but they have never sold seeds and certainly not the Vietnamese hybrid seeds. It looked like a catch-22 where everybody agreed that the end situation of better melons would be good, but no one was willing to make the first move. We agreed on a guarantee scheme. One input supplier will buy the seeds, but CAVAC will reimburse 70% of the costs if the seeds would not be sold in the 2nd year. (Risk 500 USD) We offered 50 farmers who were willing to try a minimum price for one season (expected risk 3000 USD) and we offered the traders a risk sharing premium of 20% of the expected price in case they would not sell at the expected market price. It worked. The melons were large, tasteful and had did not have many seeds in it. Restaurants lined up to buy. From here it was easy. The Vietnamese seed producer agreed to train the 3 input suppliers in Vietnam, and they agreed to send one of their experts to train the now up to 50 traders if we paid for the direct costs. We organized a "supply meet demand" day where 3 large restaurant and supermarket explained to 45 traders what they expected regarding quality, packaging and price and on what conditions they would buy. The traders did the rest. They engaged with farmers offering a wide variety of deals, including small loans to buy seeds and other inputs.*

*Two years later most farmers had shifted to high quality melons and another 1,200 new farmers had starting producing. Profits were easily 40 to 60% higher. CAVAC estimates that the final market potential is double what is now served, but thinks that no further interventions are needed to get there. It only engaged one more time with the seed venders to introduce them to the PDA office and to an internet shop where CAVAC showed them websites with all kind of information on Hybrid watermelons and similar crops and one more time with the traders to explain them about MAFFs SMS service system.*

## Hypothetical Case No 4: *Water pumps*

The use of petrol and diesel pumps has increased impressively over the last decennium. It does not take an engineer to see that the designs of the pumps and the combination is likely far from optimal in efficiency. The perceived low efficiency will lead to high fuel costs. Many farmers consider the use of pumps for supplementary irrigation in the wet season or for early wet season or dry season irrigation but find the operating costs prohibitive. Let's again close our eyes and imagine how this could happen:

*CAVAC identifies if there is any organization in Cambodia with expertise in this field and finds one NGO. It contracts the NGO for a study to find out how far the present pumps, engines and combinations are away from optimal efficiency and what low cost improvements are possible.*

*After a couple of months, the NGO comes up with a few clear recommendations:*

- *Present pumps have efficiencies of half to one third of the best pumps in the market. Welded casings and absence of seals are partly to blame for this. Casted pumps are much better.*
- *Equally worrying is that he required head (pressure) is often much lower than the pump capacity leading to again low efficiencies*
- *Engines often do not match the pump. The optimal pump speed and the engine curve are far away from optimal. No one in the field knows how to match. Operating costs for petrol engines are much higher than for diesel engines.*
- *The tubes used to transport the water are expensive and have resistance much higher than in similar countries.*
- *The durability of pumps and tubes is low. Capacity to maintain and repair is also rarely available.*

*CAVAC now faces a traditional development dilemma. It is easy to come up with technical solutions. It is hard to introduce them on a large scale. What to do?*

*CAVAC chooses to implement a number of parallel activities. It conducts a series of focus group discussions with pump manufacturers and pumps / engine sellers. It explains the results of the technical study and brainstorms with the manufacturers and sellers on solutions. Three Manufacturers and 2 sellers agree to team up for one year to find solutions. Over time the following emerge and are tested:*

- *Jointly a more detailed inventory is made of existing pumps and engines and a very simple questionnaire will be used by the sellers to determine what farmers need and what combination would be most cost and fuel effective.*
- *CAVAC engages 2 experts from MAFF and an international consultant to develop and test improvements in existing designs. The manufacturers agree to make the improvements and monitor farmers' reactions.*
- *An international investment fund agrees to finance the establishment of a small foundry that will cast small pumps with high efficiencies. A Bangladeshi pump manufacturer assists with designs and production. (paid by CAVAC)*
- *A Chinese pump manufacturer meets the group and agrees to offer a few cheap and high efficiency units for demonstration. An importer later agrees to import these on a larger scale.*

- *A plastic molder agrees to invest in a low cost tube extruder, if the pump sellers agree to have it on offer.*

*What CAVAC learns is that the pump market is very diverse and also differs a lot per province. The Cast iron pumps are a big success in Takeo, but not in Kampong Thom. The low cost tube material sells well in Kampot and KPT, but close to the border with Vietnam farmers prefer the Vietnamese solutions.*
*The changes in pump design needed extensive meeting with all local manufacturers. About 60% apply some or most of the recommended improvements.*

*The simple questionnaire to offer the farmer the optimal pump set initially was a big hit until it became clear that the existing stocks did not match the real need. CAVAC had to involve the importers of the second hand engines to improve the availability of the right engines. Those sellers who applied the questionnaire and offered better units did very good business and within a few months we got requests from many other sellers to explain how this works. It was clear that the first sellers wanted to protect their business. We agreed to wait one more year and then conduct an extensive program to get all interested sellers up to speed.*

*What really exited CAVAC is that the initial group still meets regularly to discuss how to improve pump units.*

*The impact is hard to measure. Sales of pump units increased more than before, and the hours that farmers use the pumps also increased. It must have had a large impact on farmer yields. We however do not know how growth would have been without these interventions.*