

# **Achieving policy change through a market systems approach**

## **An analysis of how a market systems development program supported regulation change in the Cambodian pesticide market**

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### **Purpose**

The Cardno Policy Influence Series presents case studies of different approaches taken to achieve policy change through our international development programs. The first study in this series, CAVAC, demonstrates how a market systems approach can influence policy change by supporting a business enabling environment. This study highlights the myriad interrelated activities undertaken by CAVAC and the Royal Government of Cambodia to navigate the complexities of the pesticide market. Lessons learned during the process to achieve policy change may offer perspectives benefiting other programs.

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## Overview

Cambodia has become one of the first developing countries to standardise labelling with a mode of action code<sup>1</sup> for the safe and effective use of chemical pesticides. This seemingly simple regulatory change is the culmination of many years of effort by the Australian Government-funded *Cambodia Agricultural Value Chain Program (CAVAC)*<sup>2</sup> to improve the market practice and legal framework for the sale and use of chemical pesticides in Cambodia.

By using a market systems approach, CAVAC has ensured that changes in the pesticide market are long-term and sustainable.<sup>3</sup> CAVAC is an example of how a market systems program can enhance the business enabling environment and lead to policy change. Policy change was not explicit in CAVAC's design; rather, it was a consequence of the systems thinking underpinning market driven approaches.

Through ongoing market analyses combined with a systems approach<sup>4</sup>, CAVAC identified areas where the needs of farmers, the private sector and government intersected in order to target interventions. CAVAC came to understand that improvements in the pesticide market could only be achieved through policy and regulatory changes. The process was not linear, nor was it simple. The team consistently went back to the drawing board to learn from failures. The first few years were marked by trial and error and painstaking effort to build a body of evidence and identify individuals in the

private sector, government and academia who could influence change. For more than eight years, CAVAC collaborated with these 'champions' to change perceptions about pesticide use, and to develop regulations and support structures to enhance the business enabling environment.

CAVAC's flexibility in adjusting to shifting conditions based on a near real-time monitoring system has been a defining characteristic of its approach. CAVAC's funding model supported the need for different activities and ongoing research to build an evidence base. The donor understood the potential benefits of adaptive management and was willing to take calculated risks. In addition, CAVAC's broad portfolio of work meant that the success or failure of the whole program did not depend on the pesticide's work alone. This gave the team freedom to move slowly and deliberately towards interventions in the pesticide market. The adaptability of CAVAC allowed the program to change approach, be opportunistic, weather failure, and most importantly, use learning to steer its course.

CAVAC's support to the Royal Government of Cambodia (RGC) has led to clearer registration processes, guidelines, and approval mechanisms that have lifted companies and retailers out of a 'grey' zone into an open market. Today, Cambodian farmers are able to access internationally recognised pest control solutions as well as information on their correct and safe use, improving both yields and environmental impact, and the government promotes best practice in pest management based

### About CAVAC

The Cambodia Agricultural Value Chain Program (CAVAC) is an Australian government-funded development program designed to reduce poverty and support economic growth through agriculture growth. The program works to lift productivity and improve competitiveness while also addressing the constraints to rural development. CAVAC improves the functioning of agricultural markets through partnerships via a market systems approach. CAVAC has implemented a range of interventions in areas such as fertiliser provision, pest and disease management and mechanisation that are of demonstrable benefit to both farmers and agri-business.

1 The 'mode of action' identification indicator allows users to distinguish between similar products with different modes of action. The indicator is part of a labelling strategy in the overall management of resistance to herbicides, insecticides and fungicides.

2 CAVAC is currently in its second phase. CAVAC (phase one) ran from 2010–2015, with a value of AU\$46.6 million. CAVAC Phase Two, 2016–2021, is valued at AU\$89.7 million.

3 CAVAC promotes best practice in both biological and chemical crop protection.

4 A systems approach recognises the interrelated and interdependent nature of actors and actions. It endeavours to understand a problem or issue beyond the symptoms, looking instead to underlying causes. A systems approach also focuses on the importance of ongoing analysis to effectively catalyse positive change in a complex and changing system. Further definitions of systems approaches can be found at <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/833.pdf>

on evidence. Early findings suggests that this has led to farmers reducing the amount of chemical pesticides they use.<sup>5</sup>

## Understanding the context

CAVAC started in 2010 with a mandate to increase farmers' incomes, a key aspect of which was improving rice productivity. Available data showed that pests were wreaking havoc on Cambodia's primary food staple, rice; farmers attributed losses of up to 50 per cent for wet season rice and 40 per cent for dry season rice to pest infestations.<sup>6</sup> From initial market research, CAVAC understood that effective pest management would significantly reduce yield loss.

However, the issue of pest management was complex. The non-chemical integrated pest management approach encouraged by the RGC and most donors was not being followed and an estimated 93 per cent of farmers were using chemical pesticides.<sup>7</sup> Farmers had no access to credible sources of information and were using chemical products indiscriminately and unsafely.<sup>8</sup> Despite widespread use, there was almost no data on the impact of these pesticides on rice production or on the environment.<sup>9</sup>

The legality of trading and using chemical pesticides was unclear. Whilst it was not prohibited to trade in these goods, the use of chemical pesticides was not supported by the Ministry of Agriculture Forestry

and Fisheries (MAFF); indeed, it was illegal to sell these products in the minister's home-province. The misconceptions within government around chemical pesticides was compounded by a dearth of technical knowledge in chemical pest management throughout the country; agronomists were not trained in chemical pest control as university degrees did not offer this as a topic.

In this uncertain regulatory environment, companies and retailers were working in a 'grey' market; selling products of dubious quality and unable to offer proper advice on their safe or effective use. Through these companies, CAVAC saw an opportunity to improve the market. The program's initial strategy focused on supporting companies and retailers to improve their products and services. However, early attempts to engage the private sector proved difficult; importers and retailers survived by working under the radar and, as such, deemed it too risky to partner with CAVAC. The business enabling environment needed to support the market was not yet there.

**“ CAVAC has had a significant impact on the Cambodian agricultural sector and a direct impact on increasing farmer's livelihoods. The rice pest manual has been invaluable in supporting both government technical officers as well as farmers. Farmers can now access best practice on pest management.”**

Mr Heng Chhunhy, Deputy Director, Department of Plant Protection, Sanitary and Phytosanitary, General Directorate of Agriculture, Cambodia

### Aid partnering with the private sector

CAVAC was Australia's first aid-funded market systems development program and a robust example of how Australian aid can partner with the private sector to achieve greater impact. Given that the regulatory environment in which the private sector works is critical to the effective functioning of the market, the Royal Government of Cambodia continues to be a critical partner of CAVAC.

5 In 2015 CAVAC undertook a small survey (169 farmers) looking at early changes in pesticide use, building on the baseline survey of 600 farmer in 2013. The survey showed that farmers were spraying less often and were inclining towards less preventative and more curative spraying habits, overall reducing pesticide use. This is a strong indicator of transition towards knowledge-based pest management.

6 *Cambodian Rice Production and Pesticide Adoption Survey*, Jay Cummins, 2012

7 *ibid*

8 *Death in Small Doses: Cambodia's Pesticides Problems and Solutions*, NGO Forum, 2002

9 An initial rice market analysis undertaken by CAVAC found that whilst the RGC and most donors promoted non-chemical integrated pest management, the majority of farmers were using chemical pesticides. A study commissioned by CAVAC from the Economic Institute of Cambodia, *Pesticide Market Study in Kampong Thom, Kampot and Takee Provinces*, June 2011, confirmed these findings.

The first agreement reached with a pesticides company fell through under somewhat suspicious circumstances. This was a watershed moment as the CAVAC team realised the constraints these companies operated within. It took the team another year before they were able to find a company established enough to withstand outside pressures and in mid-2011, CAVAC partnered with a local input supply company to provide training to their field staff; the company was reluctant to extend training to retailers as this would draw unwanted government attention.

In 2012, the RGC passed a new law establishing the first legal framework for the use of chemical pesticides.<sup>10</sup> The law required companies to register to sell pesticides and seek approval for any training or advice they provided to retailers or farmers, proving a significant constraint on the ability of companies to provide information to clients. Moreover, the law was not supported by regulation or guidelines, leaving companies unsure how to comply.

The mixed experiences with the private sector, and the ongoing legal uncertainty of the pesticide trade, made it clear to CAVAC that change in the sector could only be achieved if the market was able to operate more openly and be guided by regulations. This could only come through altering the government's perceptions around chemical pest control.

CAVAC targeted its engagement within MAFF, specifically with the General Directorate of Agriculture (GDA) and the Provisional Department of Agriculture, Forestry and Fisheries. CAVAC also saw a potential partnership with the Department of Agriculture Law (DAL), though it would take several years before this would prove successful. As with CAVAC's earlier attempts to partner with private companies, efforts to engage the GDA and provincial department were complex; the complexity was due to existing misconceptions and a lack of technical understanding of chemical pesticides in the sector. Whilst continuing to collaborate with existing

partners, CAVAC broadened its strategic direction once again to engage academic institutions—Cambodian and Australian universities—to build a knowledge base around the use of chemical pesticides.

## Creating a knowledge base through theoretical and diagnostic tools

In 2012, CAVAC partnered with the Royal University of Cambodia to produce the nation's first comprehensive textbook on chemical pest management, *Pesticides and Herbicides and their Safe Usage*.<sup>11</sup> This textbook ensured that agronomy graduates had a background in chemical pest management, bringing much needed technical knowledge with them once they joined either the private or public sectors.

Following this, CAVAC worked with the GDA on a practical guide on pest management. In 2013, the *Manual of Rice Pest Management*<sup>12</sup> was produced and became a seminal tool used by agronomists, government staff, and retailers alike. CAVAC funded MAFF to disseminate the manual through government-led workshops, signalling an early and important shift in policy around the use

### Driving change

Market system approaches work with 'market actors' (the private sector, industry groups and government) to drive change; they do not work directly with farmers. Market system programs can raise farmer incomes while also achieving outcomes for agri-businesses through improving the interaction between farmers and market actors. It is these mutually beneficial arrangements which drive sustainability. By working with businesses which interact with farmers and demonstrating commercial benefits, businesses have the incentive not only to maintain the initial business change, but continually adapt to market needs. Not only does this approach benefit farmers and businesses, it ensures the sustainability of information and quality of products.

<sup>10</sup> Law on Agricultural Pesticide and Fertiliser Management

<sup>11</sup> *Pesticides and Hebrides and their Safe Usage*, Dr. Cheang Hong, Royal University of Cambodia, 2013

<sup>12</sup> *Rice Pest Management Manual*, General Directorate of Agriculture, October 2014

of chemical pesticides. The value of the manual was also endorsed by other agricultural programs, including the USAID-funded Harvest program who requested the manual to use in their program. This was a critical moment in highlighting the changing approach by the ministry to chemical pest management. With this manual, the market now had guidelines to follow, and the government had the standard it needed to approve trainings provided by the companies.

Though the manual was an important step forward, it was primarily an academic text and did not clearly link diagnosis to solutions. CAVAC saw the need for a practical diagnostic tool allowing companies to include solutions for pests and diseases, and in 2014 commissioned the Queensland Alliance for Agriculture and Food Innovation to produce the Rice Pest Diagnostic Tool, aptly named RaPID.<sup>13</sup> In a telling example of how CAVAC's work with government was 'closing the loop' in the market, the tool was tested in the field with CAVAC's first private partner. Once trialled, CAVAC offered RaPID for free to all reputable companies on the condition they could demonstrate a credible strategy for using the tool to help farmers. Agreements were reached with several companies and CAVAC provided technical support to use the tool.

## Building momentum within a changing market

By 2016, the nature of the pesticides market had changed. Investing in research, targeting well-connected private sector organisations, and developing government-approved diagnostic and technical tools were contributing factors guiding this change.

The first sign the market was starting to open was in 2012 when CAVAC expanded its initial partnership with the input-supply company to include training of retailers. This highlighted the changing risk profile of operating as just one year prior, the company had considered retailer training too risky to pursue. CAVAC leveraged this success into negotiating new

partnerships with two additional companies. For the next three years, CAVAC continued to reach out to the private sector, and by 2014, had reached partnerships with seven additional companies. These partnerships were based on CAVAC building the business case (repeat sales, increased client base, etc.) for improving information services and products to farmers.

Another sign of a more open environment became evident later in 2014 when CAVAC supported the Provisional Department of Agriculture, Forestry and Fisheries to provide technical training to retailers in three target provinces using the GDA-approved pest manual as reference. This demonstrated further changes in perceptions across the ministry in the use of chemical pesticides.

## Further work in policy and regulations

After six years, CAVAC had built the trust necessary for the program to support further policy reforms. In 2016, CAVAC conducted a new market analysis which identified inconsistencies on product labels as a major problem for farmers and retailers. The team interviewed over 300 farmers and 200 retailers and compared 600 chemical pesticide bottles. Two results emerged from the survey: first, there were three versions<sup>14</sup> of the same name for pests and diseases, leaving both retailers and farmers utterly confused as to what product they were using; and second, there was no mode of action allowing users to distinguish between similar products with different modes of action.

With this research, CAVAC presented a clear case to DAL, who were in the process of formulating a *Prakas* (proclamation) on pesticide labelling, for the need to develop a consistent naming convention and include a mode of action on the labels. CAVAC supported the passage of the *Prakas* by further presenting to an inter-departmental committee. The committee agreed with CAVAC's findings, and in April this year, the Minister of Agriculture, Forestry and Fisheries approved the *Prakas Guidelines for*

<sup>13</sup> From 2013–2015, CAVAC's technical staff worked with the Queensland Alliance for Agriculture and Food Innovation, a research institute of the University of Queensland, to produce an electronic tool based on the International Rice Research Institute model.

<sup>14</sup> A formal Latin name, a common descriptive name, and a local name.

### *Labelling and Models for Pesticide Information.*

The new labels not only standardise common names of pesticides and diseases in Khmer, itself an innovation, but display a clear mode of action; an invaluable tool to help farmers and retailers fight against pesticide resistance. This has strengthened agricultural-based regulation. CAVAC is now supporting DAL to socialise the *Prakas*, and helping GDA to produce an official glossary of common names of pests and diseases in Khmer.

## CAVAC today

CAVAC has leveraged its success and continues to expand in the market working with the private sector to improve the information and advice they provide to farmers. CAVAC's presence also allows ongoing collaboration with the RGC to better govern the sector. CAVAC has made strides in its relationship with DAL and now supports this department, along with the GDA, to improve licencing training for pesticide dealers; the compulsory licencing training affords an opportunity for ongoing quality control of the pesticides market.<sup>15</sup> Over the next few years CAVAC will continue to provide support and adjust its approach in order to support policy improvements.

## What can we learn from CAVAC?

### **Flexibility and adaptability must be built into program design and supported by funding models**

The process for change takes time and success is more often than not due to adaptability; the ability to respond to opportunities and learn from failure. CAVAC was designed to be a program that could change. Adaptability was built in through a near real-time monitoring system that allowed activities to be adjusted based on changing conditions and evidence. The monitoring and evaluation (M&E) system was integrated into program management, making M&E 'everyone's business.'

The flexibility of CAVAC in shifting program resources allowed the program to be opportunistic. This was facilitated by routine systems that created feedback loops between implementing and M&E staff with program leadership.

CAVAC's evolving strategy in pesticides reflected the entrenched power dynamics in the market. When initial work with the private sector failed to gain traction, the program looked to other system actors that could influence change. CAVAC used a number of tools including investing in research, supporting government partners to develop guidelines, providing technical advice, and collaborating with universities, to name a few. At the same time, CAVAC continued to support the private sector in other areas, and re-engaged on pesticide use as government policy evolved and the market opened. None of these activities were expensive, and work with the private sector was always co-funded, but they were all critical to transforming the market.<sup>16</sup>

### **An evidence base leads to change**

Building a body of knowledge through research creates the foundation needed for meaningful dialogue and sustainable change. As a market systems program, CAVAC continuously gathered evidence via extensive surveys and in-depth canvassing of market actors. Through these analyses, CAVAC understood that the government had no technical basis from which to develop regulation in this field. CAVAC's investment into academic research created this basis, and by doing so, established CAVAC as a trusted authority on pesticides, allowing the program to influence partners and engage with government. Furthermore, both ministry and private companies benefited from the new cadre of graduates trained in chemical pest management. CAVAC continues to build the case for change by supporting academic research.

### **Policy change requires champions**

Working with individuals who have the clout to influence change is critical to success. Programs need to identify influencers across the sector, including within ministries, private sector, academic

<sup>15</sup> Every three years, companies are required to pay for government training in order to renew their license to sell pesticides. As this is a paid service, government will continue to consider the training a priority, enhancing the sustainability of this approach.

<sup>16</sup> The Office of Development Effectiveness' evaluation of the first phase of CAVAC noted the average leverage ratio for the agribusiness portfolio was 0.66; for every dollar invested by Australia, private partners invested 0.66. In 2018, CAVAC is calculating its leverage ratio as 2.21; private partners are investing \$2.21 for every Australian dollar invested.

institutions, the media, and other donor programs. However, it is equally important to identify potential supporters; individuals who may not yet be influencers but who can help identify opportunities.

CAVAC identified influencers and supporters in a number of ways: through market analysis, efforts to understand the political economy within ministries, utilising relationships developed through CAVAC's work in other markets (including the fertiliser market), communicating with other donor programs, and by leveraging success of other activities to gain access. CAVAC's quarterly review sessions (built into CAVAC's M&E model) meant that the team could share intelligence and ideas on potential influencers and supporters, and develop strategies for working with them. Over time, CAVAC cultivated champions within government, private sector and academia, and worked with them to communicate ideas, change attitudes, and improve regulations and guidelines.

### **A portfolio of diverse activities is key to success**

Portfolio management is a key aspect of success. CAVAC had a number of activities with differing risk profiles. A few activities, including the work on pesticides, were considered high-potential, high-risk interventions. Other activities brought smaller returns, but carried less risk.

CAVAC was able to take this approach as the donor was willing to work flexibly and take calculated risks in implementation. One of these risks was continuing to support work in pesticides despite a difficult start; the first three years of the work in pesticides moved slowly as CAVAC looked for suitable entry points into the market and built enough rapport with officials to gain traction within government. CAVAC's broad portfolio of activities allowed the program to carry on even when interventions in pesticides were stalled. Without faster-paced interventions in other sectors, it would have been difficult to justify continuing with pesticides. Other activities ensured that CAVAC's success was not dependent on progress in pesticides alone.

### **A market systems approach can support policy change**

Market systems programs can effectively engage with policy and regulatory changes and improve the overall business enabling environment. They are process driven, using ongoing market analysis, strategy development and interventions to ensure sustainability through partnerships and facilitation, rather than direct implementation. This approach understands the market from the perspectives of the beneficiary along with public and private actors. Interventions and partnerships provide direct links to these market actors, affording insight into changes that are required. It is this mixture of interventions, multiple entry points into a market, and diversity in partners, that can create the necessary windows of opportunity for policy change. Only with hindsight is it possible to know which activities—or combination of activities—will lead to success; designing a systems approach means accepting retrospective coherence as part of the process.

The regulatory change that has been supported by CAVAC is an example of how positive outcomes can result from understanding the needs of farmers, the constraints and opportunities for private sector and the government, in addition to understanding the formal and informal rules governing the sector. A market systems approach is designed with the tools of adaptive management (near real-time M&E system feeding into management), creating an evidence base, identifying partners and managing a portfolio of activities. These in-built design features allow market systems approaches to influence market-driven policy change. ■

**“ With CAVAC's support, Cambodia has technical guidelines and regulations we need to advance policy in the agricultural sector.”**

Mr Ker Monthivuth  
Director, Department of Plant Protection, MAFF