



## Australia Awards

Australia Awards – Africa  
2017 Agribusiness Short Course Award

# DEVELOPING GARLIC VALUE CHAINS IN NORTHERN MOZAMBIQUE



### AWARDEE: AVÊNCIO MATENGA

Agribusiness Advisor for the Swisscontact's horticulture value chain project in Northern Mozambique called Horti-Sempre.

“ I am an agribusiness and local economic development expert, with over 15 years of working with NGOs and local governments in Northern Mozambique. Prior to that I was a teacher for over 8 years. I have a BSc in Agriculture – Rural Engineering and Diploma in Local Development Management. I have practical experience in agricultural value chain projects and market studies; extension and capacity building for smallholders, and technical support for small- and medium-sized enterprises working across agribusiness value chains. I have started to integrate consumer research as key critical step in value chain studies, and I hope that soon I will become a practitioner and trainer of trainers at local and national level. ”

Diversity of domestic-garlic sold by retailers in Waresta Municipal Market



## VALUE CHAIN APPROACH

A value chain approach means taking a whole-of-chain perspective from primary producers and their input suppliers, through every stage until the product reaches the end consumer. It examines the flows of products, money and information, with a focus on how these are influenced by the relationships among chain members. Of particular importance is the need to understand markets and consumers, and the state of collaboration among chain members.

A value chain approach highlights how effective partners can align better their skills, resources and behaviour to deliver products and

services to different market segments and to reduce waste, with the resultant financial returns being distributed equitably so as to sustain partnerships within the chain. This improves the competitiveness of each business and helps chain members to recognise their interdependence, and the consequent benefits of solving shared problems.

Detailed advice on adopting a value chain approach is provided in *A Guide to Value Chain Analysis and Development for Overseas Development Assistance Projects*, by Ray Collins, Benjamin Dent and Laurie Bonney, available free at <http://aciar.gov.au/publication/mn178>.

## CONTEXT

In 2013 the Swiss Foundation for Technical Cooperation (Swisscontact) launched a project to increase the income of horticultural smallholders in Northern Mozambique to provide an alternative to traditional but declining cash crops like tobacco and cotton. Matenga explains that, “We were attracted by garlic’s potential because local conditions were suitable for its production; it has a long shelf-life without needing a cool chain, and there is an opportunity for domestic production to substitute for imports from China.”

Typically, local farmers cultivate less than a quarter of a hectare and yields are low due to pests, use of rudimentary agricultural practices and the degeneration of seed varieties used by farmers. “It was clear that since farmers have very limited capacity to invest, any upgrading of the chain would have to deliver better returns to sustain farmers’ ability to pay for improved seeds. This is why we undertook a value chain analysis.” This VCA focused on three questions:

1. What attributes of garlic do consumers value, and how much are they willing to pay for them?
2. What activities across the chain contribute to these attributes, and how should they be improved to deliver a product more highly valued by consumers?
3. How can relationships be developed to ensure these coordinated improvements are made, and the benefits shared so that they are sustained?

## HOW CONSUMER RESEARCH LED TO CRITICAL CONTROL POINTS OF VALUE

Matenga’s research primarily targeted domestic consumers. This involved shoppers from both open markets and supermarkets through observation, focus groups and intercept interviews. The team also conducted taste tests of different varieties. However, they were also interested in whether restaurants had any distinctive requirements. “The sample size was small, but enough to understand, in qualitative terms, the attributes and their preferences. The attributes which emerged as most influential were taste and aroma - where spiciness was key - as well as shelf-life and freshness, and bulb color and clove size. Supermarket shoppers also had some packaging preferences, while restaurants stressed easy peeling as important.”

Having identified the key product attributes, Matenga had to find the critical control points of value. These are the inputs and activities across the entire chain which can positively or negatively affect those product attributes which most strongly influence consumers’ decision over whether and how much of the product to buy, and how much to pay for it. If chain members are to align themselves collectively with their target market, they all need to focus on these activities. The critical control points for garlic that Matenga identified are shown in Table 1.

“Essentially, we found great potential for expanding the market for domestic garlic, especially considering supermarket consumers were willing to pay significantly more if the product fulfilled their preferred attributes. However, we found that currently domestic garlic is only sold in open markets because it does not reach supermarkets’ standards for clove size, cleanliness, packaging and reliable supply.”

“Accordingly, the critical control point analysis emphasized that domestic chains resolving these problems and so competing against imports would require aligning a number of improvements across the chain. If chain members just acted independently, there was a high risk that value created in one part of the chain would be destroyed in another, and so anticipated results would not be realised.”

Table 1: Critical Control Points of Value

Product Attribute	Valued Characteristics	Sources of Valued Characteristics	Responsible Chain Members
<b>Taste</b>	Strong acidity and spiciness	Seed variety Farming practices Post-harvest practices	Research institute, input dealers and farmers
<b>Aroma</b>	Strong, spiced aroma	Seed variety Farming practices Post-harvest practices	Research institute, input dealers and farmers
<b>Size of cloves</b>	Larger cloves which are easier to peel	Seed variety Farming practices Sorting and grading	Research institute, input dealers, farmers and traders/wholesalers
<b>Shelf-life</b>	Up to a month	Seed variety Harvest Post-harvest practices Storage and conservation	Research institute, input dealers, farmers, traders, wholesalers and retailers
<b>Availability</b>	Year-round	Would require off-season imports, so: Procurement Distribution	Traders, wholesalers and retailers
<b>Appearance</b>	Color Sorted into single varieties Cleanliness	Seed variety Farming practices Harvest Post-harvest practices Sorting and grading	Research institute, input dealers, farmers, traders, wholesalers and retailers
<b>Freshness</b>	Not withered, nor too humid, which affects taste	Seed variety Farming practices Harvesting Post-harvest practices	Research institute, input dealers, farmers, traders, wholesalers and retailers
<b>Convenience</b>	Diversity of garlic on sale Different pack sizes	Procurement	Retailers
<b>Packaging</b>	Supermarket shoppers prefer bags smaller than 10kg.	Pack procurement Packing Weighing Labelling	Package suppliers, traders, wholesalers and retailers

## TAKING A VALUE CHAIN PERSPECTIVE

To investigate how best to implement these coordinated improvements, Matenga and his team conducted interviews with people from across the chain. They asked everyone about their experience of attitudes and behaviors of their suppliers and customers. “We could then evaluate all the relationships for levels of trust, commitment and collaboration. Generally, we concluded they were weak, largely because of the pivotal role of informal traders who kept interactions very transactional. As a result, the information flows were also weak, limiting the benefits of market information, feedback and forward planning. This resulted in low quality garlic being pushed down the chain without regard to what consumers prefer, and so prices are low, further driving opportunistic behavior. We needed to find ways to break this cycle.”

## RECOMMENDATIONS

Accordingly, Matenga's recommendations focused on how realistically to translate the consumer research results into specific improvements across the chain to align activities more closely with market requirements. "Given the current weaknesses, we needed to find small improvements to begin with, and then we can be more ambitious once relationships and information flows have improved, and chain members are more confident that their efforts will be rewarded."

"The Instituto de Investigação Agrária de Moçambique [IIAM] will be a vital partner in developing and disseminating **improved varieties and production techniques** based on consumer value rather than just yield." A new Brazilian **improved garlic variety** BRS Hozan is being produced by a small company in Southern Mozambique. Matenga's project will establish seed multiplication systems in Northern Mozambique to enable wider use of this variety. "We will set up clusters of production involving commercial farmers to make the seeds much more widely available. In the first phase, farmers will receive the seed from IIAM for multiplication in order to supply other local farmers, but eventually, we'll look to attract private seed companies to invest their resources on certified garlic-seed production."

In the longer term, IIAM will collect existing local varieties which can be tested and improved in controlled environments. This will include testing in their own research stations, and later through on-farm trials to ensure they perform in terms of adaptability, pest tolerance, yield and attributes demanded by consumers like taste, aroma, freshness and shelf-life. "This is an ambitious project, requiring expertise and investment in new infrastructure for IIAM like greenhouses, and new irrigation systems on farms."

Interventions to strengthen domestic garlic value chains will include capacity building to all chain members, from input suppliers to wholesalers and retailers. Swissconnect's project Horti-sempre, in partnership with IIAM, will provide **capacity building to farmers** in growing, harvesting and postharvest practices, such as sorting for size and color. "We will also encourage input suppliers to offer technical advice to farmers about using improved seeds and chemicals and seeds as a way to build stronger relationships with farmers."

A retailer selling domestic-garlic in Waresta Municipal Market



"We also want to establish **gravity irrigation** to add value in terms of yield, size of cloves, freshness and taste. However, gravity irrigation risks water losses and soil degradation, so we will need to ensure the most appropriate equipment is installed, and training given to farmers."

Garlic can be sold out-of-season for higher prices. However, this requires **storage** to have ventilation or air-conditioning to maintain the temperature and moisture levels to meet requirements for freshness and shelf-life. "Currently, traders have poor handling practices and don't have good warehouses, so they destroy value. These facilities need upgrading, or farmers' efforts will be wasted."

"We also need to conduct a feasibility study into **investment into cold chain facilities**. Practically, these would extend domestic garlic's shelf-life and freshness. Strategically, they would facilitate stronger relationships between value chain actors, because they would open up more market opportunities so long as the actors worked together to deliver better quality garlic."

## HOW MATENGA BENEFITED FROM THE COURSE

### AUSTRALIAN EXPERIENCE

"I learnt about the benefits of strong relationships and communication between Australian value chain actors, for example in facilitating traceability systems. We also saw how farmers are very well connected to processors, and so they have the knowledge and skills to produce what the market wants. This helped me to understand that promoting healthy relationships between actors to satisfy consumers' demands is the most important foundation in building sustainable value chains in Mozambique, where currently this does not happen."

"One of our practical exercises investigated an organic sourdough bread value chain. The bread is made in Brisbane and then distributed, including to Toowoomba where we visited a retailer. There I saw how well the retailers know their shoppers, and how they persuade them to buy organic food by emphasising how it would fulfil consumers' desire to eat healthily."

### GHANAIAN EXPERIENCE

"In Ghana, I was part of a group looking at a pineapple juice value chain. I visited farmers, a processing company and some retailers. Relationships between the processor and farmers were strong, but because inputs suppliers are not well connected to farmers, we learnt how the processor ended up supplying a significant volume of inputs to farmer."

"During the fieldwork, the retailer store manager wouldn't cooperate with us, which was frustrating, but this is the kind of situation we have to deal with in Africa. We learnt the importance of helping participants to understand that sharing information with researchers can bring benefits to them and their companies by improving their competitiveness."

### IN-COUNTRY PROJECT

"This project contributed directly to my work in Horti-Sempre, and I was really motivated to implement the expertise I had gained during the course. From a practical perspective, I learnt about the different reaction of consumers when approached to be part of the research. In Australia, it was easy to ask people questions, but in Mozambique the attitude is not the same, with many refusing to take part. I think this is partly to do with different levels of education. I certainly learnt about the importance of persistence!"



## AUSTRALIA AWARDS – AFRICA

Australia Awards – Africa is delivered under the Australian aid program managed by the Department of Foreign Affairs and Trade, are prestigious scholarships offered by the Australian Government to individuals who have the greatest potential to drive development in their country and become leaders in their chosen field. The Australia Awards contribute to the achievement of development objectives across a range of sectors and are a feature of nearly all of Australia's bilateral aid programs. The Australian Government works closely with its partners in developing countries to ensure that Australia Awards support the development priorities of each country.

They aim to:

- develop capacity and leadership skills so that individuals can contribute to development in their home country;
- build people-to-people links at the individual, institutional and country levels.

Australia Awards – Africa Short Courses are a tailored program that aims to create skills development through short-term post-graduate training courses of three months or less that are delivered in Australia and/or the country or region specific to the course.

**Australia Awards – Africa:** [www.australiaawardsafrica.org](http://www.australiaawardsafrica.org)

## AUSTRALIA AWARDS – AFRICA 2017 AGRIBUSINESS SHORT COURSE AWARD

The Agribusiness Short Course Award, designed by UQ International Development (UQID) specifically for Awardees from African countries, provided learning experiences related to Agribusiness to enhance participants' ability to engage with and influence challenges regarding sustainable economic development in their home country, profession, workplace and community. Key features included using Value Chain methodology as the context around which the curriculum is delivered. The program balanced content and experiences to maintain engagement and interest, and enabled Awardees to access value chains of major Australian agricultural industries from a South-East Queensland training base. Furthermore, the course collaborated with African partners' during the course design phase to ensure participants were supported upon their return to Africa.

The course comprised of 8 x 1 week long learning modules: Week 1 – The Value Chain in Context; Week 2 – Value Chain Innovation in Practice; Week 3 – Smallholders and Small Business; Week 4 – Public Sector Perspectives; Week 5 – Analysing and Improving the Value Chain; Week 6 – Professional Skills for Agribusinesses; Week 7 – Business Development; Week 8 – Rapid Value Chain Analysis.

Awardees developed a Reintegration Action Plan (RAP) which detailed a unique project outlining an area of change that they will be addressing when returning to their organisation. These projects are devised with the expert knowledge and learnings gained from the course and enable the Course Leader, UQID and Australia Awards to monitor and provide feedback during various stages of the project.