



Australia Awards

Australia Awards – Africa
2017 Agribusiness Short Course Award

KENYAN CAGED FISH VALUE CHAIN



AWARDEE: ROSEMARY AKINYI WANASUNIA

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Rosemary is a development practitioner with vast experience in coordination of inclusive agricultural value chains to support food security and nutrition goals, improve sector coordination and secure livelihoods through agribusiness enterprises. She has 15 years' experience working with value chain actors across many commodity chains to increase their productivity, enhance their entrepreneurial skills and facilitate market access. In 2015, she launched the Siaya Agrivalue chain incubator (SAVIC) that is currently incubating enterprises along the fish, mango and poultry value chains.

Rosemary has a BSc. in Animal Science from Egerton University; a diploma in milk production and processing from Oenkerk, in the Netherlands and a master's degree in Development Studies from the University of Melbourne, Australia.



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

Fish provide around 55% of Kenyans' protein intake. Currently, aquaculture accounts for 7% of supply and is expanding rapidly. Caged production is practiced in Lake Victoria, where wild fish stocks are dwindling, driving prices up, and hence consumption down, which is jeopardizing public nutrition and threatening the region's food security, especially with the growth in cheaper imports from China. So far, there are an estimated 3000 cages, which create lucrative secondary business opportunities in feed production, fingerling hatcheries and cage fabrication.

Rosemary had three objectives for her project. "We needed to improve the market orientation of cage fish value chains by conducting consumer research and so establishing the drivers of value creation. We would also investigate the relationships between chain actors, and their ability to gather, share and utilize information. Finally, this would enable us to make evidence-based recommendations to improve the competitiveness of chain actors by improving value creation and efficiency."

Working with her colleagues Ken Owuor, Stephen Okech and Antony Moses, the team conducted a rapid value chain analysis by interviewing 25 chain actors in Kisumu and Siaya County on the shore of Lake Victoria. The interviews involved ten consumers in a focus group discussion and two through shopper observation; two input suppliers; four producers; three wholesalers; one transporter and four retailers.

HOW CONSUMER RESEARCH LED TO CRITICAL CONTROL POINTS OF VALUE

"Understanding consumer value is the first stage in better orientating value chain activities to market requirements. We did this by conducting consumer research, and then working out what improvements were needed to deliver a product which more closely resembled what consumers wanted. For example, we found that consumers' preferred fish size was 500-800g, but the chain was predominantly supplying 250-450g."

Having identified these key product attributes, Rosemary's team had to find the critical control points of value. "Having found out what needed to change in the product, we needed to work out how the chain needed to change. We did this by walking the chain and looking for activities which affected each product attribute. For example, consumers had said that they preferred light coloured fish, but we saw that most fish raised under the cage system had a dark appearance. We asked about this and found that it was caused by both high stocking densities and the choice of breeds."

The team's consumer research had also shown that most shoppers were price-sensitive, which makes the chain's efficiency critical to delivering a product which will sell. "So we also investigated the key causes of waste, and again we found that these were spread across the chain, for example the death of fingerlings during transportation; siting of cage infrastructure, inefficient feeding regimes, lack of bulk purchasing, and post-harvest losses due to lack of investment in chilling facilities."

The key product attributes identified in the consumer research and their critical controls points are shown in Table 1.

Table 1: Critical Control Points of Value

Product Attribute	Valued Characteristics	Responsible Chain Members
Freshness	Pure red gills, firm skin, fishy scent/odor. Devoid of muddy taste	Whole of chain in speed of delivering fish to market, and chilling and grading
Size	Fleshy appearance (high ratio of flesh to bones)	Quality of fingerlings Affordable quality feed Producer practices, such as feeding regimes; cage management
Health and Hygiene	Handling of fish, water used for cleaning, display of the merchandise and environment	Whole chain, especially transporting and storing fish under chilled conditions
Price	Affordable	Whole chain efficiency
Color	Prefer light color	Genetics Producer practices, especially stocking density
Sex and shape	Consumers preferring the smaller females, who have smaller heads and are considered tastier	Hatchery, through monosex egg production Genetics
Forms of processing	Fried, smoked, sun dried and filleted	Retailer, for example wood, rather than charcoal, produces better tasting fish
Nutritional quality	Fatty acids such as omega oils and their association with brain development. Benefits to those with lifestyle diseases such as hypertension	Genetics
Origin	Production system (capture, cage and pond)	Producer production practices

VALUE CHAIN PERSPECTIVE

Rosemary's Australia Awards training had revealed how understanding relationships and information flows explained the current state of the chain, and guided how ambitious initial interventions should be. "I found that the chain actors had little appreciation of their inter-dependency in delivering fish to the market with all the key product attributes. Even when trading relationships were stable, this was mostly due to short-term factors, such as price, volume and basic quality, rather than strategic partnering. That said, there was some evidence of commitment amongst wholesalers, transporters and retailers, in terms of credit facilities, or prioritizing loyal customers over new entrants, so overall the relationships were basic rather than weak."

"In general, information was used as a source of competitive advantage over other actors. However, there were encouraging exceptions. For example, the feed company leveraged information sharing to forge stronger relationships. Through meetings and social media they offered to provide technical expertise in feeding regimes and water quality management, and to facilitate market linkages." The team also found that operational information, such as fish shortages, price adjustments and transport details, were shared effectively.

"We concluded that the chain members had yet to leverage relationships and information to the benefit of the chain as a whole. This meant there were plenty of opportunities to improve, but that initial improvements would need to be modest, especially where they involved joint working, to allow trust and commitment to build before more aspiring ones were trialled."

RECOMMENDATIONS EMERGING FROM VCA

Rosemary made a range of recommendations for individual members of the chain. “These focused on strengthening the value chain, which involves working on the relationships and communication to facilitate collective decisions and actions amongst all chain members to work together to grow, process and deliver products that meet the expectations of fish consumers. However, the improvement projects need to be realistic. I assessed the chain relationship to be at best weak, apart from retailers and wholesalers who seem to enjoy a fairly stable relationship that spans more than 2 years. The same pattern is observed with regards to quality of communication among the actors in the chain. Hence, the first interventions need to reflect this modest foundation: start small; small steps.” Accordingly, Rosemary made suggestions for both short term improvements, and for the longer term. Examples of these are set out in Table 2.

Table 2: Recommendations

Value Chain Actor	Short Term	Medium to Long Term
Input suppliers: feed and fingerlings	Run on-farm demo to pilot feed formulation Align shipment orders with customer demand to minimize wastage through dead stock	Build capacity in higher quality fingerling production (selection, sexing and management) and feed formulations. Strengthen feed company's governance to guarantee quality Expand hatcheries to avoid fingerling shortages Establish code of ethics and training to eliminate unethical behavior (such as undersupplying fingerlings) to improve relationships with producers
Producer	Build capacity on stocking, cage management and post-harvest handling	Conduct consumer education about features of cage fish, pond caught, captured and imported fish Strengthen the fish value chain platform to lobby for a fair and competitive business environment Introduce on-farm feed production to reduce costs Encourage collaboration among cage producers for market penetration and branding/differentiation
Transporter	Engage public vehicle transport association to understand their role in the chain regarding health and safety concerns	Adopt cost effective fish handling and storage containers for transportation, such as wax/foam/cooler boxes and ice blocks to improve quality and hygiene, and avoid vehicle corrosion
Wholesaler		Strengthen the existing value chain platforms to improve access to market information Invest in storage and cooling facilities Work with retailer on a pricing strategy
Retailer	Experiment with product differentiation	Strengthen the existing value chain platforms to improve access to market information Invest in storage and cooling facilities Introduce differentiated pricing strategy based on consumer-focused product attributes Lobby for investment in market infrastructure such as clean water and sanitation

The team also made some collective recommendations. “We felt everyone should engage in training in value chain management and lean principles, and if this was done together it would contribute to building relationships and mutual understanding of each other's contribution to the chain's success. Our project also had very limited resources, so the chain should invest in more robust, in-depth consumer research.”

HOW ROSEMARY BENEFITED FROM THE COURSE

AUSTRALIAN EXPERIENCE

Consumer value is recognized the key driver in value chain development and management. “The Australian experience exposed me to not only the theoretical perspective of the new thinking, but more importantly I had an opportunity to interact with Australian value chain actors from a broad range of perspectives. The principles that underpin value chain thinking were clearly evident in the operations of the agri-industries we visited. The firms are in highly competitive environments in which to create demand and to better tailor products to specific demands of different population groups. I learnt that continuous innovation that is focused on creating value for the consumer remains the key determinant for success.”

GHANAIAAN EXPERIENCE

“Ghana provided the initial insights into applying value chain principles within an African context. The group exercise using Rapid Value Chain Analysis as a diagnostic tool in appraising the performance of a fish value chain generated really useful lessons and information. While the fish value chain is still developing in Ghana, one could see the deliberate efforts to deliver value to consumers. For instance, I was intrigued by the way in which fish is handled from the source to the selling point to guarantee freshness, with fish transported under cold chain using ice blocks in traditional baskets.”

IN-COUNTRY PROJECT

The final course component involves each Awardee undertaking a mentored value chain analysis in their own country. “My project provided a platform for shared learning and skill sharpening. In particular, it challenged the assumption that one must have a lot of funding to undertake a meaningful survey. In particular, the information generated on consumer preferences has previously been largely ignored. For instance, none of the value chain actors had ever considered attributes such as sex of fish, size and color as critical value creation factors.”

“For my colleagues, the project also created an experiential excitement and an awakening to challenge the current practice. The team has gone on to propose adoption of value chain thinking and principles in soil health projects.”



Consumers at fish market



Consumers and retailers at fish market

AUSTRALIA AWARDS – AFRICA

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- build people-to-people links at the individual, institutional and country levels.

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Australia Awards – Africa: 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.