



Australia Awards



THE UNIVERSITY
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CREATE CHANGE

Australia Awards Short Course

Agribusiness 2018

Nigerian Catfish Value Chains



Participant

Olalekan Paul Akande is an experienced professional in aquaculture value chain and agribusiness economics, with more than 10 years' experience in Africa, Europe and Asia. Currently, he serves as the Director of Agribusiness and Sustainability at the Institute of Export Operations and Management, a trade and investment support institute in Nigeria. His role involves analytical work in all aspects of agriculture/aquaculture projects, including linking smallholder farmers to a sustainable market. He is passionate about inclusive business models for smallholder farmers, food security and poverty alleviation. Paul holds a Master's degree in Aquaculture and Agribusiness Economics from Wageningen University in the Netherlands, and a BSc in Aquaculture and Fisheries Management from the Federal University of Agriculture, Abeokuta, Nigeria.

Fish section at Ugheli Main Market, Ugheli North, Delta State, Nigeria



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 aciar.gov.au/publication/mn178.

Context

Aquaculture now provides over 50 per cent of global seafood, and about 20 per cent of all animal-based protein intake for approximately half of the world's population. In Nigeria, fish contribute over 40 per cent of protein, with small-scale fish-farming and artisanal fisheries making up about 80 per cent of the fisheries sector. "The major challenges faced by the sector are the erosion of effective marketing systems, with varying quality standards leading to chain actors doing their own thing, without a coordinated strategy. Fish farmers are left supplying swarms of wholesalers and retailers, who travel around and buy opportunistically with little regard for quality or long-term partnership initiative. So even though there is undersupply, there is also underinvestment due to the risk and uncertainty." From Paul's Australia Awards course in Agribusiness, he knew a value chain perspective could offer a solution for some Nigerian catfish value chains. "Some great work had been done through the Partnership Initiatives in the Niger Delta (PIND), but this mainly focused on production, so a consumer-driven perspective would create new insights and solutions."

Paul selected Port Harcourt, the capital city of Rivers State, and Warri, a city in Delta State, for his analysis, based on the scale and popularity of catfish aquaculture and consumption in those locations. Paul conducted focus group discussions with 17 consumers, supplemented with shopper observation and intercept interviews at Rumuokoro open market in Port Harcourt. Data were collected on what they valued in either fresh (live) or processed (smoked dried) catfish. Paul then walked the chain and completed semi-structured interviews with 15 chain actors from input suppliers through to retailers to understand their operations; how they contribute to creating consumer value; how they manage waste, and how they interact with other chain members.

Consumer research

Table 1 summarises Paul's consumer research, which identified the product attributes consumers are willing to pay for (Value - V) and those they expect as a minimum (Necessary - N). Paul then analysed the source of these attributes along the chain to determine 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' decisions over whether, where and how often to buy, and what price to pay.

Although the project's sample size was small, Paul's analysis illustrated the interdependence of all chain members. "Many attributes are created by different actors in the chain, such as taste which is governed at the farm level through selection of the genetics/breed of fish, the feed given to the fish and by water quality management, as well as by how processors spice and dry the fish. Poor water quality management can cause an unpleasant taste due to the absorption of odorous compounds, which will affect consumers' confidence in the consistency of the product's quality, and ultimately reduce their willingness to pay for it. This decreases the potential returns for the whole chain."



Table 1: Critical Control Points of Value

Product Attribute	Valued Characteristics	Critical Control Points of Value
Size (V)	• Small size (around 500g) and large (from 1kg)	• Genetics/breeding • Feeding • Water quality management • Procurement of fingerlings/ juveniles
Wholeness (V)	• No skin injury (for fresh/live fish)	• Harvesting • Sorting and grading • Transport and storage
Aroma (V)	• Sweet or desirable flavour	• Salting, spicing and drying method
Shelf life (V)	• Long shelf-life	• Drying time and moisture content level • Packaging and storage
Convenience (V)	• Packaging, processing and branding	• Packaging size
Taste (V)	• Catfish with natural flavour as found in most captured fish, compare to feed- or chemical-induced artificial flavour ('off-flavour') in aquaculture fish	• Water quality management • Processing/cooking (salting, spicing & seasonings)
Freshness (V)	• Alive and active	• Harvesting • Sorting and grading • Transport and storage • Retailing
Skin colour (V)	• Light brown, black look scary (for fresh/live fish)	• Genetics/breeding, • Water quality management • Transport and Storage
Level of dryness (V)	• Some consumers preferred dried fish for use as snacks with a retained moisture content level of 20%-25%, compared to those wanting to maximise shelf-life with a level of 10%-12%	• Drying time
Body consistency/firmness (V)	• No breakage or cracks for smoked dried fish	• Processing/drying method
Availability and reliability (N)	• Always there when needed	• Scheduling production by farmer • Efficient procurement system and inventory management by wholesaler, processor and retailer
Neatness of seller (N)	• Personal hygiene and appearance	• Personal hygiene at retail points
Nutritional value/health (N)	• Source of proteins, vitamins and minerals	• Genetics/breeding • Feeding • Water quality management (e.g. if feed or water contains chemical residues or heavy metals which are absorbed and retained in the fish, this affects their nutrient quality) • Transport and storage • Processing/cooking

Consumers tasting fresh Catfish "Pepper Soup" in Ugheli, Delta State, Nigeria



Our Value Chain Champion, Mr Israel Yusuf “Dr Fish” (right) discussing his farm activities

Whole of Chain Perspectives and Recommendations

Paul looked at the relationships and information flows across the chain in order to identify the foundations for greater collaboration and potential improvements. “The most commonly shared information concerns price and availability, but generally the flow is irregular due to the lack of trust, transparency and commitment and contradictions between words spoken and actions taken. As a result, withholding information is seen as a source of competitive advantage over other actors along the chain.” However, there were a few exceptions; for example, Paul learnt that one feed manufacturing company provided producers with technical expertise on best practices in fish farming, recognising the mutual benefits this brings. Equally, one processor had responded to consumer feedback by improving how he dried his fish.

Relationships were generally basic, and there was notable distrust between producers and retailers based on a perception that retailers were not equitably sharing their profits with their suppliers. “This told us that we need to follow the mantra ‘start small; small steps’, because initially the chain actors will be reluctant to try improvements which would require a lot of collaboration.”

Walking the chain also enabled Paul to examine the different causes of waste. “While generally, waste was low, we found some hotspots. When live fish have to be transported long distances in hot weather, up to 50 per cent can die, and though they can still be sold as smoked and dried, this provides a lower return than fresh fish, and so constitutes waste.”

How Paul benefited from the course

“The Australia component was a turning point in my professional development. All my knowledge of value chains was based on the business-as-usual supply chain scenario, where we focus on farmers’ productivity and expect products to find a way to the market. At The University of Queensland, I learnt the importance of the different attributes that consumers are willing to pay for, and that linking farmers to markets should be consumer-value-driven, rather than farmer-productivity-driven.”

“I also saw how trust, transparency and equity among value chain actors is the bedrock on which businesses can grow sustainably, and that benefits spread across the chain.”

“The rapid value chain analysis in Ghana provided a full-scale case study for us to test and improve the skills and knowledge we’d gained in Australia, and provided me with the confidence to carry out my own project.”

Implementing his aquaculture project offered Paul a chance to start sharing his knowledge. “Lessons from walking the chain disproved to everyone the assumption that the market can take any type of catfish, and illustrated that consumers’ preferences need to drive chain development in the future.”

Value chain actor	Improvement Programme
All actors in the chain	<ul style="list-style-type: none"> Develop and maintain product specifications based on the product attributes that consumers value Stop withholding information (especially market-related) to remove the occurrence of artificial gluts, and so grow businesses together Develop more collaboration among the various chain actors, led by a VC champion, for example by engaging in more transparent activities in order to build trust Develop new catfish products to diversify the market offerings, including “fish finger”
Fish Farmers	<ul style="list-style-type: none"> Improve aquaculture management practices through capacity building to reduce or eliminate all forms of waste arising from mortality, poor feed quality, feed wastage and water quality management Sort/grade fish at least 2 weeks before final harvest into uniform sizes to avoid skin injury, and to keep them alive and fresh As the genetic makeup of the fish affects the growth rate, carcass ratio and other characteristics of the end product, producers should ensure they use suitable breeds, and so work with the hatchery managers on their desired traits from fish seed (fingerlings of juveniles)
Wholesalers and Retailers	<ul style="list-style-type: none"> Engage the service of a specialist transporter and storage systems for live fish to curb wastage Fish marketing should be done in an hygienic and aesthetic environment Store unsold fish in good water quality to keep the fish alive and fresh
Processor	<ul style="list-style-type: none"> Investigate consumers’ preferred flavours and tastes, and then use these when spicing and seasoning during processing Dry fish to the minimum moisture content for extended shelf-life Use packaging and package sizes which both keep fish intact (no breakages) and is attractive and convenient to different consumers
Catfish Framers Association of Nigeria, Fisheries Society of Nigeria	<ul style="list-style-type: none"> Support members with capacity building in management skills and record keeping; market development; credit linkages and Value Chain Thinking’s principles and practices Facilitate a forum where value chain actors can practice collaboration to build understanding and respect for each other’s functions along the chain Bring members together to lobby for policies that would favour the catfish industry, such as easier access to credit extension services
Government	<ul style="list-style-type: none"> Support a pilot value chain project to demonstrate how a best practice value chain would transform the catfish industry Strengthen extension services to fish farmers through training on production and Value Chain Thinking Undertaken consumer-driven research by research institutions that meets the industry’s need to become more market orientated Implement policies that support all the actors in the aquaculture value chain such as policies: <ul style="list-style-type: none"> To enhance fish breeding; promote availability of pest and disease control services, and enhance traceability; To make fishery/aquaculture inputs available by promoting hatchery development, standardization of hatchery and fish breeding processes



Aerial view of United Ufuoma Fish Farmers Association (UUFA) cluster, Ekpan with 8700 fish ponds near Warri, Delta State, Nigeria

Australia Awards Short Courses

Australia Awards Short Courses are funded by the Australian Government and help to promote security and prosperity. They enable mid-career professionals and emerging leaders to tap into Australian expertise and gain valuable skills and knowledge. Australia Awards Short Course build enduring links between people and institutions both within Australia and in-country. They provide opportunities for recipients to undertake short-term study, research and professional development in support of key development and foreign affairs priorities.

Australia Awards Short Courses is 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 Short Course – Agribusiness 2018

The Agribusiness Short Course, designed by The University of Queensland's International Development unit specifically for participants from 15 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 participants 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** – Value Chain Development in African contexts; **Week 8** – Rapid Value Chain Analysis.

Participants 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, International Development and Australia Awards to monitor and provide feedback during various stages of the project.