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FOOD SAFETY IN FOOD SECURITY AND FOOD TRADE

Case Study: Kenyan Fish Exports

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Food safety and quality have become increasingly important in international fish trade. Stringent conditions imposed by major fish-importing nations in the developed world, which take in 80 percent of global fish exports, give food safety priority over price as the main determinant for market access. Nearly half of fish exports originate from developing countries, which have limited capacity to invest in the rigorous fish safety measures demanded by importing countries.

Food safety is important because fish are particularly prone to rapid pathogenic contamination. The main safety concerns are unhygienic handling during and after fish harvest, insufficient refrigeration, substandard processing, and poor packaging. In fish-producing countries, failure to apply adequate quality and safety measures leads to losses at various stages of fish marketing. Postharvest fish losses include physical loss from poor handling and preservation; economic loss when spoilage occurs or when higher costs are incurred in reprocessing fish; and nutritional loss when fish is unsafe to eat. In addition, due to poor safety measures, large quantities of fish are processed into fish meal for feed when they could have been better used for human food.

The economic costs of spoilage go beyond immediate product loss. The costs associated with fish-borne illnesses; the rejection, detention, and recalls of products in export markets; and bad publicity for the affected country, are huge. According to some estimates, the consumption of unwholesome fish and fishery products accounts for as much as 30 percent of all food-borne illnesses in the world. Nearly 10 percent (13 million metric tons) of the world's total fish production is lost as a result of spoilage. Considering the high global demand for fish and scarce natural resources, this waste alone justifies efforts to improve quality and safety in the fish trade.

THE FISH TRADE IN KENYA

Kenya has a long history of fishing. The Luo, Luhya, and Abasuba ethnic groups have been active fishermen for more than five centuries. Until 20 years ago nearly all fish caught in Kenya was consumed within the country. Kenya only started to export fish in the early 1980s, when fish processing factories were established around Lake Victoria.

The total annual production of fish in Kenya is approximately 180,000 metric tons, but is declining. About 92 percent of this fish comes from Lake Victoria, and the rest from the Indian Ocean (4 percent), inland lakes and rivers (3 percent) and aquaculture (1 percent). Nile perch, which constitutes about 50 percent of the fish caught in Kenya, is the main export, earning

about US\$50 million annually. Other commercially important species in the domestic market are the small sardine fish *dagaa* (30 percent) and tilapia (10 percent). Of the 18 fish processing and exporting firms now in Kenya, 10 specialize in Nile perch products and 7 handle marine products such as shrimp, other crustaceans, and tuna.

The table below shows that the volume of Nile perch exports from Kenya has picked up again following export bans by some EU countries in 1997–99. Fish exports, however, still earn less than horticultural crops, coffee, and tea. Because the country needs foreign exchange for its international purchases the Kenyan government is keen to promote fish exports.

Nile perch exports by market region, 1996–2001

Market region	Export volume (metric tons)					
	1996	1997	1998	1999	2000	2001
European Union	10,388	6,882	2,320	742	1,680	3,818 (21%)
Far East	1,801	2,664	2,201	2,722	4,146	4,650 (26%)
Israel	3,431	4,244	5,252	5,529	7,185	7,530 (42%)
Others	1,120	929	1,394	2,894	2,468	1,947 (11%)
Total	16,740	14,719	11,167	11,914	15,479	17,945

Source: Kenya Fisheries Department.

SAFETY CONCERNS

Concerns about the safety of fish from Kenya first arose in November 1997 when Spain and Italy both banned fish imports from Kenya, claiming the presence of *Salmonellae*. Although some member states of the EU continued to import fish from Kenya on bilateral agreements, Kenya's fish exports to the EU declined 34 percent and foreign exchange earnings from fish dropped 13 percent between 1996 and 1997. Following reports of a cholera outbreak in Kenya and neighbouring countries in January 1998, the EU again banned imports of chilled fish products from Lake Victoria, citing poor hygiene standards. This ban caused a 66 percent drop in the fish exports to the EU and a 32 percent drop in foreign exchange earnings from the previous year. A third ban in April 1999 followed a report that pesticides had been used in Lake Victoria to kill fish. This ban resulted in a further 68 percent decline in fish exports.

Before the export bans, the EU accounted for about 62 percent of all fish exported from Kenya. Among the new markets that emerged during the ban, Israel became the most prominent single importer of Kenya's fish, a position it has retained to date. Other markets emerged in the Far East, North

America, the Middle East, and other African countries. The EU is still the preferred market for fishery products from Kenya because of its relative proximity, which allows for greater profit margins. Thus, meeting safety standards in the EU is important for the industry's future.

FISH SAFETY LEGISLATION

As a condition for exporting fish to the EU, all Kenya's fish factories have instituted stringent quality control procedures like the Hazard Analysis Critical Control Point (HACCP) (described in Brief 4). New institutions have emerged to implement the additional regulations required for exporting fish. The fish industry is now governed directly by at least six sets of standards operated through several Kenyan agencies and the EU. The Fisheries Department, which is the national institution mandated to manage the fisheries sector, controls fish quality through provisions in the Kenya Fisheries Act and the Fish Quality Assurance Regulation 2000. The Kenya Bureau of Standards, which sets and supervises standards for manufactured goods, also has defined standards for fish processing and exports.

However, the most significant regulations for the fisheries sector are those of the EU, specifically EU directives 91/493/EEC and 98/83/EEC. These standards are enforced through "the competent authority" approved by the EU (in this case, the Fisheries Department) with periodic audits by EU inspectors. In summary, the EU Directive 91/493/EEC lays down the requirements for handling and marketing fishery products. The directive is based on HACCP principles, and it defines the practices governing fish production, handling, processing, packaging, and transporting of fishery products destined for the EU. It also imposes strict standards regarding construction of buildings, equipment, purification tanks, and storage tanks intended for holding fish prior to export. On-premise laboratories, strict record keeping, and accurate labelling are other requirements. EU conditions also require that fish processors and exporters organize an industry association to ensure self-monitoring on matters of fish quality. Kenya is still in the process of developing institutions to meet all of these EU conditions.

IMPACTS OF SAFETY MEASURES

The stringent regulations have important socioeconomic consequences in poor, fish-exporting countries such as Kenya. The costs to fish-processing factories of restructuring their facilities and production lines are significant. In addition fishermen have to invest in newer, cleaner boats and preservation facilities, while fish transporters must increase spending on refrigerated trucks. Private and public costs are incurred in retraining fishermen and other workers on hygienic fish-handling practices. Governments also must pay to set up laboratories to monitor fish quality and to inspect fish production systems.

To meet the EU safety requirements, Kenya has decided that fish destined for the export market will land in only 5 fish-

ing villages (out of nearly 300 at present). The designated villages will be provided with hygienic fish handling and preservation facilities. However, fishermen from elsewhere will incur higher transport costs to bring fish to the designated villages, thus reducing their net income. The proposed changes will create room for middlemen to operate between the fishing areas and the centralized collection points. This will counter present efforts to reduce the number and influence of middlemen in the fishing industry. While moving fishermen higher up in the marketing chain so that they earn more for their fish should be the right approach, the proposed changes will have the opposite effect.

The new costs in the fish production and marketing chain mean that the final product is too expensive for the domestic market; ultimately the fish must be exported in order to recover costs. Furthermore, the drive to earn foreign exchange means that all resources available to the fisheries sector are spent to meet export market conditions. Little effort goes to setting and enforcing domestic-market standards. Thus, the costs of producing high-quality fish for export largely fall to local communities, while they also bear the cost of consuming unwholesome fish.

In conclusion, Kenya faces important challenges in implementing stronger food safety measures, especially in light of its small development budget. It cannot export fish unless it incurs huge costs. The importing countries must be ready to pay higher prices to meet part of these costs. Fortunately, since Lake Victoria has a near monopoly on Nile perch, perch prices can be adjusted to cover some of the costs of the safety measures. Ultimately a partnership between Kenya's government and industry, with strong support from the EU, will ensure that safety in the fish sector is improved. Care must be taken, however, to ensure that fish quantities for export are environmentally sustainable and consistent with food security objectives. ■

For further reading see R. O. Abila and E. G. Jansen, *From Local to Global Markets: The Fish Processing and Exporting Industry on the Kenyan Part of Lake Victoria—Its Structure, Strategies and Socio-economic Impacts*, Working Paper WP8-1997 (Oslo: Centre for Development and the Environment [SUM], 1997); R. O. Abila, "Four Decades of the Nile Perch Fishery in Lake Victoria: Technological Development, Impacts and Policy Options for Sustainable Utilization," in *Water Hyacinth, Nile Perch and Pollution: Issues for Ecosystem Management in Lake Victoria*, ed. G. Howard and S. Matindi (Nairobi: IUCN-Eastern Africa Regional Program, 1998), 26-48; C. Bokea and M. Ikiara, "The Macroeconomy of the Export Fishing Industry in Lake Victoria (Kenya)," in *Socio-economics of the Lake Victoria Fisheries Reports No. 7* (Nairobi: IUCN Eastern Africa Regional Program, 2000), 5-25; and C. A. Lwenya and R. O. Abila, "The Role of Women in Artisanal Fish Processing and Trading on Lake Victoria (Kenya)," *The African Journal of Tropical Hydrobiology and Fisheries* 10 (Nos. 1 & 2, 2001).

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