Chapter 7
Case study: Mozambique

Overview

Mozambique, located on the east coast of Southern Africa, has a total population estimated at about 25.7 million in 2015 (see http://www.ine.gov.mz/). Mozambique was considered one of the fastest growing economies in the world in 2001–2010 (Benkenstein, 2013a), had an annual GDP growth in 2013 of an estimated 7.4 per cent, and is an LDC, with a GDP per capita of $610 (World Bank, 2017a). The current GDP is estimated to be close to $15.63 billion (World Bank, 2017a). Mozambique has about 2,700 km of coastline, one of the longest coastlines in Africa (Benkenstein, 2013a; Souto, 2014). Mozambique has 100,000km2 of marine waters with an exclusive economic zone of 200 nautical miles and 13,000km2 of inland waters (Transtec, 2013), and possesses abundant marine and freshwater fishery resources. The fishery sector contributes to about 3–4 per cent of GDP (Benkenstein, 2013a; Oceanic Développement, 2014) and about 850,000 families – around 20 per cent of the population – depend on fishing for part of their income, while a larger proportion relies on the fishery sector for subsistence, with the sector accounting for 50 per cent of total animal protein consumed nationally (Souto, 2014). In some instances, fish is the only accessible source of protein (Brugere and Maal, 2014). The fishery sector therefore plays "a crucial role in food security and contributes to the economies of rural areas, where the majority of Mozambicans live [68 per cent of the population (see http://www.ine.gov.mz/)] and where poverty and lack of access to resources remain significant challenges" (Benkenstein, 2013a).

Since the end of a period of civil war in 1992, the fishery sector – with a particular focus on small-scale fisheries – has been part of efforts by the Government aimed at enhancing socioeconomic development and poverty reduction objectives (Benkenstein, 2013a). The development of the fishery sector was one of the main pillars of the Government's Poverty Reduction Action Plan 2011–2014, which aimed to achieve economic growth and reduce poverty and economic vulnerability. A further objective was to increase employment through the sector and associated value chains. Some of the issues the Government aimed to address were the improvement of market access by upgrading infrastructures such as fishing ports, landing sites, fish markets, laboratories and applied research facilities, as well as training and social facilities for fisher associations (Mozambique Ministry of Sea, Inland Waters and Fisheries, 2014). About 90 per cent of total fish production – more than 200,500 tons of annual catches – is provided by marine fisheries (Benkenstein, 2013a).

Artisanal fisheries, which provide income to about 280,000 people, contribute to 90 per cent of marine captures and account for 42 per cent of total value (Oceanic Développement, 2014). Artisanal fishing is the most important sector by volume and contribution to the economy; other segments include industrial and semi-industrial fishing, of which the latter comprises mainly small trawlers involved in domestic coastal shrimp fisheries. Semi-industrial fishing accounts for 2 per cent of annual marine catches and 6 per cent of total value (Souto, 2014). Produce is either sold in local markets or exported (Oceanic Développement, 2014). Industrial fishing includes large vessels flagged in Mozambique and other countries, mostly targeting crustaceans – coastal shrimp and deep-sea shrimp – usually processed at sea and for export, mainly to Japan and Europe. This latter segment accounts for 7 per cent of annual marine capture and 52 per cent of total value (Oceanic Développement, 2014). The majority of production is by capture – 99.68 per cent of total catches. Despite the country's robust aquaculture potential and the Government's efforts to promote the sector (Benkenstein, 2013a; Souto, 2014), it remains underdeveloped, with limited contributions. Total fish production by sector in 2013 is shown in table 15.

Table 15. Mozambique: Fish production by sector, 2013

	Catch (tons)	Share of total catch (percentage)
Capture	222 101	99.68
Commercial	26 046	11.68
Artisanal	196 055	88.00
Aquaculture	721	0.32
Industrial	207	0.09
Small-scale	514	0.23
Total	222 822	100.0

Source: Mozambique Ministry of Sea, Inland Waters and Fisheries, 2014.

The European Union is the largest market for fishery products from Mozambique (United States Agency for International Development, 2010), and Portugal and Spain are its principal trading partners; Portugal absorbed 30.41 per cent of the total value of fish exports in 2014 (COMTRADE, 2017). Shrimp and prawn are the main seafood exports, representing about 90 per cent of the total value of imports from Mozambique to the European Union (Oceanic Développement, 2014; United States Agency for International Development, 2010). The world trade value of Mozambique fishery exports was estimated at about $60 million in 2014, and China has become its third major trading partner, contributing to slightly more than 11.64

per cent of the total value, about $7 million, in 2014; the share of China has been growing at an average annual rate of 66.9 per cent since 2002 (COMTRADE, 2017). The top five importers of fish from Mozambique by value are shown in table 16, and the general trend of fishery exports by value is shown in figure 7.

Table 16. Mozambique: Value of fishery trade to major partners, 2014

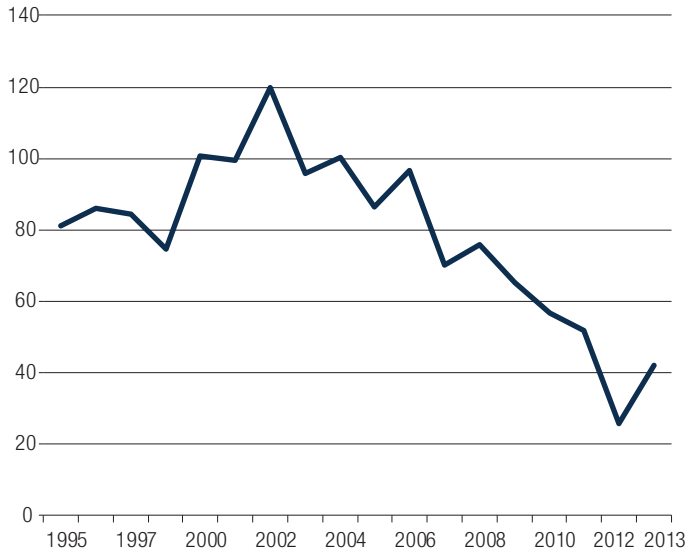
(Dollars)

Portugal	18 214 480
Spain	13 750 810
China	6 971 370
South Africa	6 180 810
Zimbabwe	5 160 440

Source: COMTRADE, 2017.

Figure 7. Mozambique: Value of fishery exports, 1995–2013

(Millions of dollars)



Source: COMTRADE, 2017.

Note: Data unavailable for 1998.

In 2004–2013, fish exports by value dropped by almost 58 per cent. This fall was associated with negative impacts from the fuel and global financial crisis that exerted adverse impacts on the fishing industry of Mozambique. The rise in oil prices, which peaked in 2008, led more than half of the country's industrial fishing vessels to cease operations. In addition, the financial crisis induced a fall in international demand for fishery products, causing a decline in the trade volumes and prices of such products, especially shrimp; in 2000–2013, exports of shrimp and prawn, which constitute the main seafood exports of Mozambique, dropped by 38.59 per cent in volume and 56.86 per cent in value. Shortage of capital for private and public investment in the sector has also been associated with the decrease in fish production in and exports from Mozambique (United States Agency for International Development, 2010; World Bank, 2017a). Fishery export flows to the three major trade partners by value and share of total exports in 2000–2014 are shown in table 17.

Table 17. Mozambique: Fishery exports to major partners, 2000–2014

Year		China	Portugal	Spain	World
2000	Value (dollars)	..	26 757 212	37 450 743	100 663 642
	Share of total exports (percentage)		26.58	37.20	
2001	Value (dollars)	..	16 930 527	26 574 886	99 616 802
	Share of total exports (percentage)		17.00	26.68	
2002	Value (dollars)	14 924	33 682 036	54 987 589	119 953 512
	Share of total exports (percentage)	0.01	28.08	45.84	
2003	Value (dollars)	8 298	16 268 626	37 298 329	95 920 316
	Share of total exports (percentage)	0.01	16.96	38.88	
2004	Value (dollars)	19 183	33 375 294	36 901 619	100 410 253
	Share of total exports (percentage)	0.02	33.24	36.75 per cent	
2005	Value (dollars)	46 797	17 258 434	31 898 143	86 503 964
	Share of total exports (percentage)	0.05	19.95	36.87	

Year		China	Portugal	Spain	World
2006	Value (dollars)	111 561	22 326 688	42 638 470	96 626 699
	Share of total exports (percentage)	0.12	23.11	44.13	
2007	Value (dollars)	351 204	16 702 227	31 680 673	70 106 997
	Share of total exports (percentage)	0.50	23.82	45.19	
2008	Value (dollars)	175 278	17 726 981	38 197 904	75 689 750
	Share of total exports (percentage)	0.23	23.42	50.47 per cent	
2009	Value (dollars)	700 205	14 378 647	26 239 662	65 440 593
	Share of total exports (percentage)	1.07	21.97	40.10	
2010	Value (dollars)	234 724	11 187 815	24 062 981	56 646 093
	Share of total exports (percentage)	0.41	19.75	42.48	
2011	Value (dollars)	1 371 000	14 856 000	17 267 000	51 807 000
	Share of total exports (percentage)	2.65	28.68	33.33	
2012	Value (dollars)	4 100 410	4 510 215	5 103 115	25 786 670
	Share of total exports (percentage)	15.90	17.49	19.79	
2013	Value (dollars)	8 907 110	9 956 088	10 409 773	42 200 315
	Share of total exports (percentage)	21.11	23.59	24.67	
2014	Value (dollars)	6 971 370	18 214 480	13 750 810	59 888 890
	Share of total exports (percentage)	11.64	30.41	22.96	

Source: COMTRADE, 2017.

Small-scale fisheries and poverty reduction

The economy of Mozambique is fast growing, mainly owing to the exploitation of coal and gas reserves and an increase in tourism and manufacturing. However, the vast majority of the population is poor and depends on a rural economy, especially agriculture and fishery. Small-scale fisheries are crucial in contributing to food security, community livelihoods, employment, exports and overall socioeconomic development. Around 334,000 people rely directly or indirectly on small-scale fisheries, 280,000 of whom are fishers who provide support to family members and serve as a network of suppliers, processors and traders. Small-scale fishing, also considered artisanal fishing, involves fishing for subsistence as well as for commercial activities, and represents 80 per cent of total fish landings, mainly targeting near-shore fish stocks such as pelagic species, demersal linefish and crustaceans such as shrimp and crab (Benkenstein, 2013b; see table 18). The gear commonly used in artisanal fisheries includes beach seines, traps, gillnets, handlines and longlines and, in some instances, mosquito nets or nets with fine mesh (Darkey and Turatsinze, 2014). Only 41 per cent of fishers use boats, of which less than 10 per cent are motorized, while the rest are collectors or use shore-based fishing gears (Benkenstein, 2013b).

Small-scale fisheries accounted for 88.3 per cent and 71.3 per cent of total fish catches and aquaculture production, respectively, in 2013. As in many LDCs, the fishery sector in Mozambique faces challenges in the development of this vulnerable sector, with important socioeconomic implications for fishing communities. Some pressures arise from within the sector. For example, in recent years, fishers have witnessed considerable reduction in catches, largely owing to population growth. With the decline in agricultural productivity, the number of people engaging in small-scale fishing has significantly increased, leading to overfishing and increased illegal fishing. Further pressure is created by the development of other sectors of the economy, such as the exploitation of coal and gas reserves, the expansion of tourism and the rise in the number of national parks, which in turn increases demand for fish and seafood and thus overfishing. Such developments have led to restrictions in fishing area access and the free movement of fishers, as well as traffic in shipping lines, with a greater risk of pollution.

Table 18. Mozambique: Artisanal fish production – total catch, 2012

(Tons)

Lobster	159
Crab	1 346
Fish, marine	10 874
Fish, inland waters	68 215
Shallow-water shrimp	3 020
Shrimp for shrimp paste	2 241
Cephalopoda	1 671
Shark	653
Other	4 557
By-catch	3 319
Total	96 055

Source: Mozambique Ministry of Sea, Inland Waters and Fisheries, 2014.

Climate change poses a threat to small-scale fisheries and, in addition to the above-mentioned pressures, supply-side constraints to the development of such fisheries include lack of access to finance and credit and to external markets, as well as inefficient processing and trading systems (Benkenstein, 2013a). Given their significance for economic growth, exports and job creation and in contributing to food security and the support of livelihoods, small-scale fisheries have been given special attention in the development policies and strategies of Mozambique.

Among the numerous national fishery management institutions, the National Institute for the Development of Small-scale Fisheries provides particular support to the small-scale sector (Benkenstein, 2013a). Its aims include alleviating poverty and enhancing the quality of life in fishing communities (Darkey and Turatsinze, 2014). Management strategies also aim to improve fishing technologies and gears, as well as rural infrastructure, including roads and sanitation, to increase the sector's efficiency, competitiveness and overall productivity (Benkenstein, 2013a). These objectives are included in several government programmes, such as the Poverty Reduction Action Plan.

Aquaculture development and opportunities

Mozambique possesses great untapped aquaculture potential, with a favourable environment, including climatic conditions – tropical temperatures allowing for year-round production – suitable land for coastal aquaculture and wild native species that can be farmed, such as giant tiger prawn (FAO, 2017b). However, the growth of the sector is constrained, mainly by infrastructure deficiencies (Omar, 2013). Increasing demand for seafood and recognition of aquaculture as a high priority activity due to its capacity to contribute to export earnings, as well as its role in the country's socioeconomic development, bring the sector to the forefront of policy discussions. These factors, combined with the need to improve the food security situation and generate jobs and income, are expected to drive the growth and expansion of the aquaculture sector in Mozambique (Blythe et al., 2014). Although the sector is still in its infancy, freshwater species such as tilapia have been cultivated in Mozambique since the 1950s with the support of the Government, which supported and promoted the construction of a large number of small dams, hatcheries and demonstration farms.

The cultivation of marine species – marine aquaculture – has recently begun. All production of tilapia is marketed locally, while high-value marine aquaculture production such as of shrimp and prawn are principally destined to external markets, including Japan, the United States, the European Union and, recently, China (FAO, 2017b; Omar, 2013). Shrimp is one of the most valuable and highly traded seafood products of Mozambique. In the 1980s, wild-caught shrimp was the second largest export earner, contributing 28.8 per cent of foreign exchange. However, mainly owing to stock depletion, its contribution to foreign exchange has recently begun to decline. The Government has been promoting the development of a commercial shrimp aquaculture industry (Blythe et al., 2014).

Commercial aquaculture began in 1988, when the Government established a 10-hectare pilot farm near Maputo, followed by the first industrial fish farm, built in 1994. Shrimp aquaculture producers are currently organized under the Association of Shrimp Producers, which consists of three incumbents, namely Aquapesca, Indian Ocean Aquaculture and Sol and Mar, representing a combined private investment of about $100 million in the fishing sector, generating around 2,000 direct jobs and a potential income of $25 million per year (Omar, 2013). In 2008, the Ministry of Sea, Inland Waters and Fisheries established the National Institute for Aquaculture Development and prepared an Aquaculture Development Strategy 2008–2017, with the objective of developing commercial and small-scale aquaculture (Blythe et al., 2014). Government actions promoting the aquaculture sector include, among others, facilitating transfers of knowledge and technology, enhancing technical capabilities through rural extension services and improving fingerling quality and availability. The National Institute for Aquaculture Development has also created a research centre for aquaculture to genetically improve some culture species (Oreochromis mossabicus and O. niloticus), and is responsible for improving access to export markets for aquaculture fish, professional training and the mobilization of funding for aquaculture projects. Although the sector is small, with a total production in 2013 of 721 tons, estimates suggest that marine and freshwater aquaculture in Mozambique have a potential of about 800,000 and 2 million tons, respectively (Mozambique Ministry of Sea, Inland Waters and Fisheries, 2013; 2014).

European Union agreements

Mozambique is a beneficiary of the Everything but Arms initiative of the European Union, and has duty-free and quota-free access to its markets for all exports, including fisheries (European Commission, 2013b). In addition, the economic partnership agreement between the European Union and the Economic Partnership Agreement Group of the Southern African Development Community offers duty-free and quota-free access to the European Union market for Botswana, Lesotho, Mozambique, Namibia and Swaziland. Mozambique is expected to benefit from the security of a bilateral agreement while also benefiting from the Everything but Arms regime. Most of the market access under the economic partnership agreement concerns agricultural and fishery products (see http://ec.europa.eu/trade/policy/countries-and-regions/regions/sadc/). Although such market access initiatives enhance the competitiveness of Mozambique in the European Union market, market access is subject to compliance with certain conditions, such as international standards (Trademark Southern Africa, 2011).

Since 1987, a renewable fishery partnership agreement has been in place between Mozambique and the European Union. The agreement approved in 2007, under Regulation No. 1446/2007, allowed European Union vessels, from France, Italy, Portugal, Spain and the United Kingdom, to fish in Mozambique waters; the protocol to this agreement covered 2012–

2015 and provided a financial contribution of €980,000 per year, of which €460,000 per year was destined to supporting Mozambique fishery policies (European Commission, 2007), and the total amount of the fees that Mozambique received for the duration of the protocol was €2.94 million. This agreement, part of the tuna network fishery agreements in the Indian Ocean, enables a maximum of 89 European Union tuna fishing vessels to operate in the fishing zone of Mozambique, under Decision No. 2012/91.

Annex II of Decision 2006/766/EC establishes the list of third countries and territories from which imports of fishery products for human consumption are permitted, and includes Mozambique. The annex to Decision 2011/163/EU indicates that the residue monitoring plan of Mozambique was approved in accordance with Directive 96/23/EC and that Mozambique is allowed to export aquaculture products to the European Union. However, in 2013, an audit by the Food and Veterinary Office of the European Commission identified some deficiencies in the official control system, and Mozambique submitted an action plan on addressing these (Oceanic Développement, 2014; see box 2). Mozambique has notified of its competent authority in accordance with Regulation No. 1005/2008 on IUU fishing, and the audit identified that Mozambique had implemented a catch certification scheme that met the standards required by the regulation (Oceanic Développement, 2014).

Tuna and shrimp fisheries

Tuna and other related species are exploited by national and foreign enterprises; domestic tuna fisheries include an artisanal fleet and one industrial longline vessel authorized to fish in the Indian Ocean Tuna Commission zone. In 2013, 45 foreign vessels were licensed to fish tuna and related species in the Mozambique fishing zone, mainly under the flag of the European Union, operating under fishery partnership agreements, as well as Japan, the Republic of Korea and Seychelles (Oceanic Développement, 2014). In 2013, total foreign catches accounted for 3,768 tons (Mozambique Ministry of Sea, Inland Waters and Fisheries, 2014).

None of the European Union authorized vessels operating under fishery partnership agreements land their catches in Mozambique. According to professional associations, vessels do not land in Mozambique ports as they do not have adequately organized and sufficiently equipped logistics and related services to be able to distribute catches to processing plants in the region or provide support operations during port calls. The principal landing ports of European Union vessels are Victoria, Seychelles; Diego Garcia, Madagascar; and Durban, South Africa (Oceanic Développement, 2014).

The Government is currently developing a national tuna industry to increase the contribution of these fishery resources to national socioeconomic development. Efforts include increasing the number of fishing vessels and improving landing sites to directly benefit Mozambique and its citizens. This strategy was developed by the Government under the Fisheries Master Plan and the Strategic Plan for Tuna Fisheries Development 2010–2019. In 2013, Mozambique submitted a fleet development plan for 2014–2028 to the Indian Ocean Tuna Commission (Oceanic Développement, 2014).

Full compliance with European Union standards related to fish exports poses enormous challenges for LDCs such as Mozambique. It is financially costly, and administratively and institutionally complex. Mozambique is unable to fully meet public standards or satisfy industry requirements and standards that are higher than public standards. As with all fish and seafood exports originating from LDCs, such exports from Mozambique are thus confined to wholesales, which generally offer prices lower than those offered by supermarkets.

In 2012, annual shrimp capture production totalled 5,878 tons, including artisanal and industrial fisheries (Mozambique Ministry of Sea, Inland Waters and Fisheries, 2014). Shrimp are processed and frozen on board and mostly exported to Japan and Europe, with an annual value of about $40 million–$50 million (Oceanic Développement, 2014). Fishing companies registered in Mozambique acquire fishing rights for coastal shrimp catches on the basis of a percentage of total allowable catches approved by ministerial decision. The percentage is determined on the basis of technical recommendations from the research institute based on analyses of fishery data and surveys to estimate biomass during a given season. Total allowable catches decreased from 5,000 tons in 2012 to 4,000 tons in 2013, and may be further reduced in future as recent assessments indicate that coastal shrimp stocks are severely depleted (Oceanic Développement, 2014).

Box 2. Mozambique: International standards compliance for European Union exports

In 2013, an audit by the Food and Veterinary Office of the European Commission evaluated whether the official controls established by the competent authority could guarantee food quality and safety standards set by the European Union, in particular whether production conditions of fishery products for export complied with the requirements in European Union legislation. The competent authority in Mozambique is the National Fish Inspection Institute, which works at a central level in Maputo and at a regional level with six provincial delegations. The audit noted that legislation and standards in Mozambique with regard to fish exports were in accordance with European Union provisions, provided that the competent authority continued to implement an official control system in order to ensure conformity with European Union requirements. In addition, the audit determined that the competent authority had an adequate structure and organization to perform official controls, including the implementation of sanitary requirements for handling, processing and distributing fishery products through licensing and inspection, health certification and laboratory analysis. The provisions and procedures used to list authorized facilities, as well as the control systems in place, were found adequate and capable of providing satisfactory guarantees of conforming to European Union requirements. Inspections of listed establishments determined that these were in accordance with European Union equivalent standards.

Some deficiencies were identified with regard to maintenance and hygiene, as well as occasional weaknesses in the implementation of individual HACCP procedures, which had not been identified or followed-up on by the competent authority. The audit noted that landing operations were conducted in accordance with European Union equivalent rules, namely that the competent authority implemented official controls on fishery product exports that adequately covered most requirements. However, the audit identified a lag in the determination of environmental contaminants that would require the competent authority to take timely and appropriate measures if required. The audit evaluated national measures to control contaminant residues to determine whether the control system could guarantee that exported aquaculture products complied with the residue levels in European Union legislation, and concluded that the residue monitoring plan was based on and in conformity with the requirements of Directive 96/23/EC. However, the established national maximum residue limits in some cases exceeded European Union limits and aquaculture products that complied with national limits but not with European Union limits might therefore not be eligible for export to the European Union. The audit also identified that although the residue monitoring plan was generally implemented as planned, the integrity of samples could not be guaranteed, as they were not officially sealed, unpacked and repacked. In general, the effectiveness of the residue monitoring plan was compromised by deficiencies in implementation largely due to weak laboratory performance and control systems, including distribution and the use of veterinary medicines. The competent authority had established a laboratory network to provide analytical support for samples collected under the programme of regular inspections and to assist food business operators with their self-check or control analyses. The laboratory in charge of the official analysis of fishery products was in the process of accreditation under the International Organization for Standardization and International Electrotechnical Commission 17025 standard. However, it had systemic weaknesses in its internal controls. The competent authority also used external laboratories accredited under this standard for some specific tests. Since the last audit in 2007, 22 notifications under the rapid alert system for food and feed had been issued for fishery products originating from Mozambique, of which 19 were due to ruptures of the cold chain, primarily in chilled or frozen shrimp, two to a high content of sulphites and one to an incorrect health certificate for frozen lobster. The audit identified that improvements had been made since the last audit in 2007. The competent authority particularly had adequate organization, standards and documented operational procedures. However, certain deficiencies in implementation did not allow the competent authority to guarantee that fishery products to the European Union market complied with and were produced in accordance with the sanitary conditions for fishery products indicated in export health certificates.

Source: European Commission, 2013c.

Assessment and lessons

Mozambique possesses vast fishery resources and a vibrant fishery sector that has great potential to expand in both domestic and foreign markets, enabling Mozambique to join a group of successful developing country exporters. Small-scale fisheries are the most important fishery segment by volume, as well as in contributions to food security, poverty alleviation and the national economy. This is critical for rural populations dependent on agriculture and fisheries. However, the potential of the sector remains untapped, mainly owing to deficient infrastructures, weak institutions and insufficient access to finance and in meeting the stringent requirements of international markets.

The aquaculture sector in particular has an unexploited potential estimated at about 800,000 tons in marine production and 2 million tons in freshwater production. Its growth and expansion are mostly limited by infrastructure deficiencies. However, the Government has been actively promoting the sector, with a particular focus on shrimp production to benefit from highly lucrative international shrimp markets.

In 2013, fish exports from Mozambique were estimated at about $75 million, and the European Union is its major trading partner. European Union trade initiatives such as Everything but Arms and the economic partnership agreement with the Economic Partnership Agreement Group of the Southern African Development Community are expected to promote trade between Mozambique and the European Union. The European Union is one of the markets with the most stringent international standards, which are costly to meet. Mozambique is currently included in the list of countries allowed to export fish products to the European Union. However, an audit by the Food and Veterinary Office identified some systemic deficiencies in the official control system and, while overall conclusions were satisfactory, Mozambique was requested to undertake a number of steps, including with regard to infrastructure and technical laboratories (European Commission, 2013c). Moreover, a fishery partnership agreement between Mozambique and the European Union allows European vessels to fish tuna in waters off Mozambique, yet foreign fleets do not land their catches in Mozambique ports due to insufficient logistics. The Government aims to develop a national tuna industry to address the challenges, and capture the benefits to the economy from tuna exports.