



GLOBEFISH

GLOBEFISH RESEARCH PROGRAMME



Seafood markets in Southern Africa

Volume 109

Seafood markets in Southern Africa: Potential of regional trade and aquaculture development

by

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(January, 2013)

The GLOBEFISH Research Programme is an activity initiated by FAO's Products, Trade and Marketing Service, Fisheries and Aquaculture Policy and Economics Division, Rome, Italy and financed jointly by:

- NMFS (National Marine Fisheries Service), Washington, DC, **USA**
- Ministerio de Agricultura, Alimentación y Medio Ambiente, Madrid, **Spain**
- Ministry of Food, Agriculture and Fisheries, Copenhagen, **Denmark**
- European Commission, Directorate General for Fisheries, Brussels, **EU**
- Norwegian Seafood Export Council, Tromsø, **Norway**
- FranceAgriMer, Montreuil-sous-Bois, Cedex, **France**
- ASMI (Alaska Seafood Marketing Institute), **USA**
- Sea Fish Industry Authority, **Great Britain**

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SEAFOOD MARKETS IN SOUTHERN AFRICA: POTENTIAL OF REGIONAL TRADE AND AQUACULTURE DEVELOPMENT.

GLOBEFISH Research Programme, Vol. 109. Rome, FAO 2013. p. 53.

The report provides an overview of the markets for fish and fishery products in the region of Southern Africa. It covers supply from local sources including both marine, inland and aquaculture production as well as the most important products imported to the region. It includes information on processing and the major export markets for the region's products.

Issues relevant for the region's trade are also dealt with, including regional trade development. The report covers recent national and regional initiatives in aquaculture as well as programmes and institutions of relevance for the fisheries sector in the region.

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LIST OF ACRONYMS

ACP	Africa Caribbean and Pacific (group of states)
COMESA	Common Market for East and Southern Africa
DRC	Democratic Republic of Congo
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
FishStat	FAO Fisheries Statistics Database
INFOSA	Intergovernmental Organisation for Marketing Information for Southern Africa
IOC	Indian Ocean Commission
NEPAD	New Economic Partnership for Africa Development
RSA	Republic of South Africa
PAF	Partnership for African Fisheries
SACU	Southern Africa Customs Union
SADC	Southern Africa Development Community
SMARTFISH	Program for Implementing a Regional Fish Trade Strategy for East, Southern Africa
SPS	Sanitary-Phytosanitary
WTO	World Trade Organisation

EXECUTIVE SUMMARY

In addition to the sector's important role in income generation, employment and food security, trading in seafood is a mainstay of most SADC's (Southern Africa Development Community) economies. With the exports of fish and shellfish expanding worldwide, SADC's global position as a seafood exporter is steadily improving.

Clearly, there is a need for SADC producers and exporters to diversify products and markets to obtain better prices and optimize export earnings, especially on international markets. But market diversification will only be achieved if producing nations can manage to increase their share of processed products through value addition tailored to market preferences. Instead of focusing only on supplying non-specific commodity products, African producers must expand industrial processing and produce tailored value-added products for consumers within the international food service and retail sectors. Indeed, a shift away from the old tradition of raw material commodity supply to the European Union (EU) processing industry is much overdue. This shift will lead to more client driven specific products and generate buyer loyalty, as well as lessen the effect of fluctuating market prices, which commodity products are so highly influenced by.

Intra-regional trade in the region is dominated by informal trade and is currently underdeveloped. This informal trade needs to be studied through data collection and analyses to determine its impact on the national economies.

The local markets, which until now have been served mainly by small-scale, community based fishing and fish farming, are most likely grossly under-estimated. There is a growing demand in the region for freshwater fish and seafood, and many markets are able and willing to pay good prices. In fact, in most instances the local SADC markets represent a better option in terms of profitability. However, the development of effective distribution systems is now needed.

Aquaculture is still in its infancy in the SADC region, but growing modestly. Good potential for aquaculture production exists in the region, due to favourable environmental conditions and unpolluted inland and coastal waters. Additionally, there are many native species suitable for aquaculture and these are being explored through research and development efforts. There is a growing number of successful aquaculture ventures in the region (both on the freshwater and marine front) that are justifying the economic viability of the sector.

Much has been said with regards to obstacles hindering intra-African trade or Africa's international trade in seafood, however very little action is seen to implement corrective measures. In general, trade barriers continue to constrain the development of intra-regional trade, although the SADC is working hard to resolve this. Most of the SADC countries have developed substantial policy reform in line with market liberalization policies and regional integration.

However, the SADC will need to vigorously promote aquaculture, enhance natural fish stocks where possible, and promote effective fisheries resource sustainability measures to meet productivity requirements. A significant part of this will include cultivating and enabling a policy and regulatory environment to facilitate such developments.

1. INTRODUCTION

The Southern Africa Development Community (SADC) currently comprises the following 15 member states: Angola, Botswana, Democratic Republic of the Congo (DRC), Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa (RSA), Swaziland, Tanzania, Zambia and Zimbabwe.

Figure 1. The Southern African Development Community (SADC) region



Fisheries in the SADC region remains one of the key economic sectors that contributes significantly to the Gross Domestic Product of Member States. Of paramount importance is its impact on food security, poverty alleviation, employment creation and region integration. As noted in these international instruments, fisheries contribute towards the realization of the aims of the SADC as enshrined in the SADC Treaty and to that of the United Nations Millennium Development Goals.

The SADC has developed a Protocol on Fisheries to guide the sector. This protocol is a comprehensive legal instrument that has taken into consideration the aspirations of the people of the SADC with regard to sustainable management of aquatic resources and their ecosystems, livelihoods of fishing communities, an ultimate goal to eradicate food security and poverty, and the need to realize the full benefits of the sector's potential in the region. This legal instrument is based on modern paradigms of precautionary

principles, an ecosystem approach and the principles of the International Code of Conduct for Responsible Fisheries and those of other International Agreements.

Trading in fish is a mainstay of most SADC economies and represents a significant source of foreign exchange earnings, in addition to the sector's important role in income generation, employment and food security. With the exports of fish and fisheries products expanding worldwide, SADC's global position as a fish exporter is steadily improving. In 2000, the SADC region exported USD 0.96 billion worth of fish products, amounting to 1.7 percent of global fish exports, which were USD 55.6 billion. By 2005, the fish exports from this region had increased to around USD 1.5 billion or 1.9 percent of the world fish export market, which then totalled about USD 78.9 billion.

However, SADC exporters of fish and fisheries products are not as competitive in the international market as they could be. Markets are limited to a few traditional markets and traditional products. Consequently, many exporters are vulnerable to market fluctuations.

Despite this, exports of inland and marine capture fish and fisheries products are important to SADC countries. Key producer states export about 80–90 percent of their fish production in various forms to the EU, USA and Asia. Regional trade, on the other hand, is very limited and estimated to be a mere 6 percent or about 150 000 tonnes annually.

The SADC region has enjoyed free trade market access to the EU, their main end-market, through membership of the Lomé Convention and its successor since 2001, the Cotonou Agreement. Now, with the pending introduction of Economic Partnership Agreements with the EU, brought on through the demands of the World Trade Organisation (WTO), the Africa Caribbean and Pacific (ACP) countries, which include the SADC region, are faced with a real threat of preference erosion. This means that competing non-ACP countries who supply the EU are getting more favourable tariff rates and market access year by year, eating into the free trade access advantage that ACP countries traditionally had in the EU.

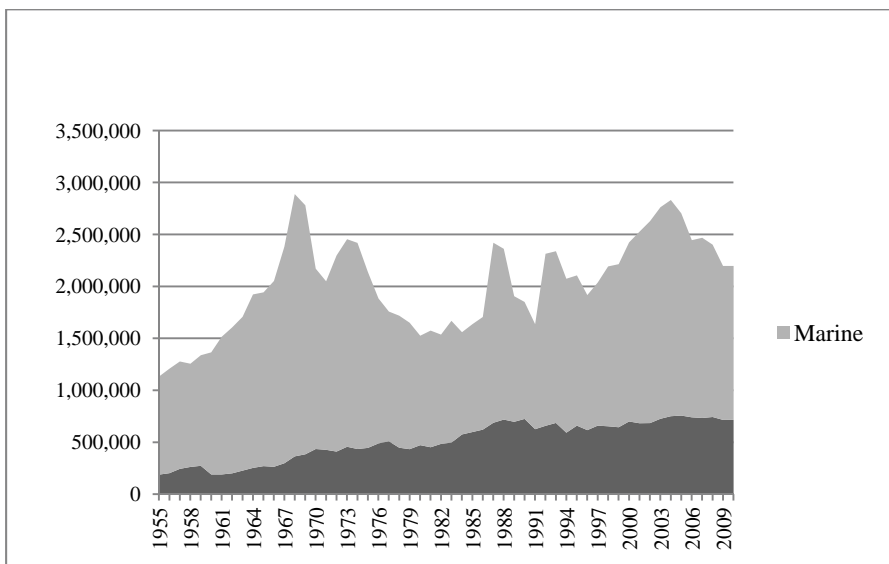
Trade with developed countries is further strained by non-tariff barriers and import tariffs on value-added fish products that are produced in ACP countries but do not fully qualify as “originating” or “wholly obtained” in ACP countries. The tariff on value-added products has thus far prevented most African countries from claiming more value for their products, which should have allowed them to increase revenue from trade.

The latest figures available from FAO demonstrate that SADC fisheries production from both capture fisheries and aquaculture was about 2.34 million tonnes in 2009. Of this production, the big coastal states of RSA, Namibia and Tanzania accounted for 1.3 million tonnes, while other important coastal players were Angola, Mozambique, Madagascar and the Seychelles, accounting together for 0.6 million tonnes.

SADC's dominating export species (by volume) are small pelagics, which constitute 60–65 percent of total SADC marine catches (including anchovy, pilchard and round herring) and mid-water fish (horse mackerel) amounting to 800 000–1 200 000 tonnes annually. Hake and Nile perch are the most important commercial species, with hake being the largest demersal resource at 200 000–300 000 tonnes/year. Prawns (especially

in Mozambique) and other crustaceans amount to approximately 150 000 tonnes/year. The graph below shows the freshwater versus marine fisheries production in the SADC.

Figure 2. SADC fish and fisheries production, marine vs inland waters (volume in tonnes)



Source: FAO FishStat, 2012.

The current seafood production of the SADC region is considered to be well below its potential output, which is estimated to be twice the present production. As the demand for fish and fisheries products in developed countries is growing and consumers in the EU and other developed markets are looking for sophisticated fish products from reliable suppliers, strong motivations exist for the SADC to increase their production, diversify their product offerings and better market their export products.

Table 1. SADC total capture fisheries production (marine and inland) by species (volume in tonnes)

Species	2004	2005	2006	2007	2008	2009
Aquatic Animals Miscellaneous	846	1 109	1 581	1 990	1 236	1 698
Aquatic Mammals	32 061	64 244	83 045	34 728	47 115	47 403
Aquatic Plants	2 181	11 896	15 354	16 336	15 694	15 658
Cephalopods	24 192	15 307	11 091	14 829	11 727	14 976
Crustaceans	38 218	38 081	34 208	42 917	27 454	23 213
Demersal Marine Fish	530 701	497 913	456 233	474 088	462 114	434 492
Freshwater and Diadromous Fish	751 436	756 936	739 793	749 756	761 650	724 996
Marine Fish nei	174 570	150 572	180 403	197 682	187 526	160 184
Molluscs Except Cephalopods	1 684	1 762	1 852	1 489	1 530	1 611
Pelagic Marine Fish	1 281 650	1 229 858	1 004 794	968 450	932 083	820 623
Other	317	300	277	270	331	330
TOTAL	2 831 794	2 703 734	2 445 586	2 467 807	2 401 345	2 197 781

Source: FAO FishStat, 2012.

Table 2. SADC total capture fisheries production (marine and inland) by country (volume in tonnes)

Country	2004	2005	2006	2007	2008	2009
Angola	240 002	202 616	225 741	306 436	305 762	272 263
Botswana	161	132	81	122	86	86
DRC	237 372	236 640	236 588	236 000	236 000	236 000
Lesotho	45	45	45	48	50	45
Madagascar	140 116	137 873	138 993	151 428	124 114	134 903
Malawi	56 463	59 595	72 787	66 500	70 019	69 325
Mauritius	9 971	9 855	8 681	8 097	6 642	7 676
Mozambique	99 589	93 995	101 899	92 270	119 645	67 801
Namibia	571 710	553 995	509 570	413 333	372 822	369 440
Seychelles	100 671	108 680	92 739	65 520	69 208	81 189
South Africa	910 845	824 285	628 392	691 350	656 426	522 944
Swaziland	70	70	70	70	70	70
Tanzania	363 067	376 396	334 846	329 011	326 084	315 429
Zambia	67 725	65 927	60 236	73 542	79 403	84 716
Zanzibar	23 488	23 210	24 418	23 580	24 514	25 394
Zimbabwe	10 500	10 420	10 500	10 500	10 500	10 500
TOTAL	2 831 795	2 703 734	2 445 586	2 467 807	2 401 345	2 197 781

Source: FAO FishStat, 2012.

Fisheries products exported from developing countries generally pass through many hands before they reach the final destination. This long value chain is profitable for middlemen traders, but reduces profit for the producing nations. Many developing nations export their products unprocessed to overseas business partners for processing and re-export. Thus, these foreign partners import unprocessed products from developing countries, add value to the product and re-export to end-consumers. In this value chain, the player who makes the most money is not the original producer of the fish, but the end seller of the value-added product. Namibia and Tanzania are the two SADC countries currently recording the highest exports of unprocessed fish products to the EU – around 30 percent and 10 percent respectively.

The table below shows a breakdown of products exported by SADC countries over a period of almost three decades.

Table 3. SADC exports of processed fish and fisheries products by product type (volume in tonnes)

Commodity	2003	2004	2005	2006	2007	2008	2009
Crustaceans and molluscs, live, fresh, chilled, etc.	45 293	46 394	42 836	39 520	38 305	39 452	36 338
Crustaceans and molluscs, prepared or preserved	300	308	9	-	-	-	-
Fish, dried, salted, or smoked	110 404	145 803	132 151	112 427	64 141	63 329	117 351
Fish, fresh, chilled or frozen	458 209	483 804	413 335	420 550	506 472	503 391	513 134
Fish, prepared or preserved	108 242	116 037	113 115	128 017	100 212	95 727	134 852
Meals	182 119	157 337	152 785	122 758	127 781	114 348	99 554
Oils	1 622	2 001	6 368	4 761	7 115	5 892	4 871

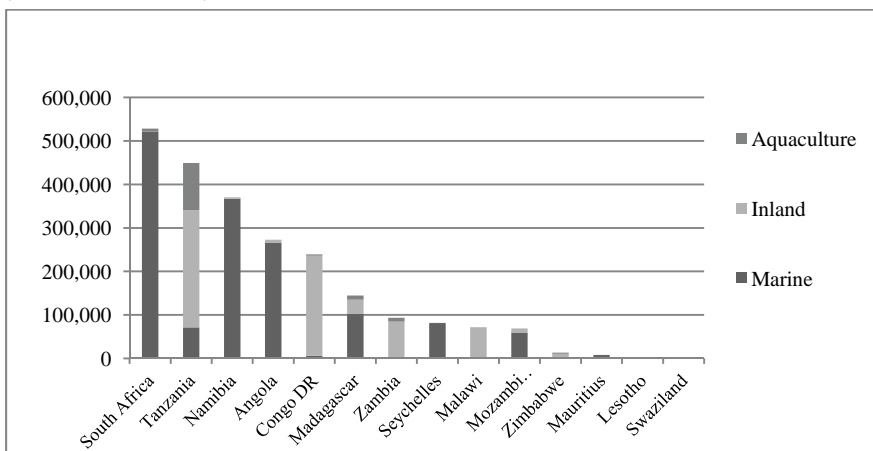
Source: FAO FishStat, 2012.

As mentioned, production of semi-processed and value-added products could greatly stimulate the development of seafood trade in Africa and maximize revenue and economic growth. However, it will be vital to carry out an analysis of cost structure and quality improvement mechanisms in order to determine the profitability of developing value-added products.

2. SUPPLY

2.1. LOCAL SUPPLY BY COUNTRY (MARINE CAPTURE, INLAND CAPTURE, AQUACULTURE)

Figure 3. SADC marine, inland and aquaculture production by country in 2009 (volume in tonnes)



Source: FAO FishStat, 2012.

Table 4. SADC marine, inland and aquaculture production by country in 2009 (volume in tonnes)

Fishstat	Marine	Inland	Aquaculture	TOTAL
South Africa	522 044	900	5 333	528 277
Tanzania	71 421	269 402	108 404	449 227
Namibia	366 640	2 800	666	370 106
Angola	266 415	5 848	210	272 473
Congo DR	6 000	230 000	2 970	238 970
Madagascar	102 075	32 828	9 696	144 599
Zambia	-	84 716	8 505	93 221
Seychelles	81 189	-	300	81 489
Malawi	-	69 325	1 620	70 945
Mozambique	58 255	9 546	560	68 361
Zimbabwe	-	10 500	2 652	13 152
Mauritius	7 676	-	437	8 113
Lesotho	-	45	108	153
Swaziland	-	70	73	143
Botswana	-	86	-	86
TOTAL	1 481 715	716 066	141 534	2 339 315

Source: FAO FishStat, 2012.

The reason for Tanzania's high aquaculture production is due to its recent rapid growth in Euchema seaweed production. Over 100 000 tonnes of Euchema seaweed is now being grown off the coast of Zanzibar.

Table 5. SADC aquaculture production by species (volume in tonnes)

Species	2004	2005	2006	2007	2008	2009
Abalones, winkles, conchs	760	830	837	787	1 041	918
Carp, barbels and other cyprinids	2 604	2 703	2 799	2 848	2 969	2 930
Crabs, sea-spiders	2	2	3	7	7	8
Freshwater crustaceans	8	10	5	7	13	12
Miscellaneous aquatic plants	2 750	2 900	2 900	2 900	1 534	1 500
Miscellaneous coastal fishes	326	368	416	155	190	345
Misc diadromous fishes	2	2	2	2	2	10
Miscellaneous freshwater fishes	287	150	156	197	108	163
Mussels	650	482	552	476	747	692
Oysters	322	354	458	459	669	727
Red seaweeds	75 914	77 743	85 445	92 696	117 077	112 402
Salmons, trouts, smelts	1 022	973	1 026	1 156	1 407	1 429
Shrimps, prawns	7 877	8 619	10 221	9 550	9 104	4 060
Tilapias and other cichlids	12 031	11 806	12 552	13 243	13 266	16 314
TOTAL	104 557	106 946	117 374	124 485	148 145	141 534

Source: FAO FishStat, 2012.

Table 6. SADC aquaculture production by species (value in USD 1 000)

Species	2004	2005	2006	2007	2008	2009
Abalones, winkles, conchs	25 114	28 288	28 584	26 871	35 507	31 311
Carp, barbells, other cyprinids	5 204	4 678	5 048	5 377	6 224	5 382
Crabs, sea-spiders	27	25	27	40	43	48
Flounders, halibuts, soles	20	9	-	-	-	-
Freshwater crustaceans	148	195	96	132	276	246
Marine fishes not identified		14	9	5	87	236
Miscellaneous aquatic plants	1 153	1 234	1 165	1 112	508	485
Miscellaneous coastal fishes	1 900	1 997	2 365	893	1 352	2 103
Misc diadromous fishes	1	1	1	1	1	27
Misc freshwater fishes	648	351	371	485	417	523
Mussels	501	413	475	409	645	597
Oysters	872	1 008	1 141	721	1 030	1 038
Red seaweeds	850	963	1 655	1 234	2 182	2 411
Salmons, trouts, smelts	3 379	3 420	3 631	4 541	5 240	5 500
Shrimps, prawns	42 968	46 105	53 717	49 258	47 335	21 166
Tilapias and other cichlids	23 827	23 562	29 340	32 852	33 518	46 427
TOTAL	106 612	112 263	127 623	123 931	134 365	117 499

Source: FAO FishStat, 2012.

RSA and Namibia are the largest fishing nations in the region and together account for over 52 percent of total SADC production. Practically all production from these two countries come from marine capture fisheries and significant volumes are exported.

Table 7. SADC total capture production (marine and inland) by species group (volume in tonnes)

Species	2004	2005	2006	2007	2008	2009
Cape hakes	327 157	302 052	268 827	266 894	258 713	243 232
Cape Hope squid	7 306	10 362	6 777	9 948	8 329	10 107
Cape horse mackerel	348 669	359 591	334 928	233 400	223 156	233 494
Chub mackerel	8 474	11 049	10 291	8 495	9 925	12 714
Cichlids nei	53 998	56 986	73 648	35 993	45 426	43 737
Cunene horse mackerel	34 863	30 000	33 563	31 659	44 395	13 826
Cyprinids nei	11 285	11 552	8 526	34 681	31 591	31 192
Dagaas	73 234	72 062	53 576	44 123	38 782	34 116
Dentex nei	17 879	18 000	22 660	22 098	26 156	33 802
Devil anglerfish	17 545	18 809	17 230	7 771	16 364	6 927
Emperors(=Scavengers) nei	13 333	11 578	6 027	9 579	9 592	9 400
Freshwater fishes nei	435 583	429 732	436 991	455 952	475 350	437 639
Kingklip	12 310	9 548	7 910	7 972	6 386	6 834
Marine fishes nei	174 570	150 572	180 403	197 682	187 526	160 184
Mouthbrooding cichlids	8,000	7 000	8 000	8 103	4 570	9 835
Narrow-barred Spanish mackerel	5 836	6 257	6 993	6 253	6 586	6 586
Natantian decapods nei	11 196	9 335	9 388	16 604	6 683	7 330
Nile perch	98 500	124 278	95 500	95 160	94 197	101 073
Penaeus shrimps nei	13 189	14 875	10 560	9 540	8 523	6 732
Sardinellas nei	76 202	63 856	56 312	81 231	82 247	90 856
Sea catfishes nei	4 374	4 004	4 381	6 247	14 683	11 866
Sharks, rays, skates, etc. nei	8 752	9 732	8 759	12 296	10 828	8 483
Silver scabbardfish	6 463	8 732	8 507	6 673	4 480	4 263
Skipjack tuna	39 874	55 628	57 236	40 399	38 517	48 711
Snoek	17 383	15 981	8 461	10 993	10 911	12 166
Southern African anchovy	192 305	283 446	135 463	252 997	266 105	174 493
Southern African pilchard	402 435	274 043	219 642	176 782	114 057	108 049
Southern meagre(=Mulloway)	5 399	4 921	5 375	13 395	27 264	17 894
Threadfins, tasselfishes nei	3 517	3 250	4 225	5 272	7 903	6 024
Tilapias nei	58 856	42 370	55 124	53 686	47 738	52 104
Torpedo-shaped catfishes	10 960	10 836	7 513	6 303	5 920	5 799
West African croakers nei	18 289	17 000	19 280	15 268	21 887	19 141
West African ilisha	.	.	.	15 217	17 616	8 930
Whitehead's round herring	51 925	29 438	47 586	52 634	65 501	40 632
Yellowfin tuna	62 207	54 953	41 871	28 953	28 982	33 376
Other	154 968	144 774	144 523	156 542	101 921	107 170
TOTAL	2 831 795	2 703 734	2 445 586	2 467 807	2 401 345	2 197 781

Source: FAO FishStat, 2012.

2.2. MARINE RESOURCES IN THE SADC REGION BY SPECIES

In the SADC region, half of all monitored stock, which mostly comprises valuable fish, are now fully exploited, and another quarter are overexploited, depleted or slowly recovering. However, the trends in production vary greatly from species to species. Overall, demersal fish such as kingklip, orange roughy, bream, snappers and grouper are fully exploited, while the small pelagic species show potential for further usage.

These trends demonstrate the need for effective conservation management to be implemented, ensuring that communities are engaged throughout the process, rather than utilizing only a top-down management approach.

Hake: The most valuable species in the region is slowly recovering; however annual landings in recent years have been dominated by small size fish. It is estimated that there was a good recruitment of mature fish to the commercial fishery during 2005, which indicates a recovery and healthier harvests in the future.

Pilchard: Stocks were seriously reduced due to negative environmental circumstances between 1993 and 1995 (the so-called 'Benguela-Niño') and the negative effects of overfishing from the 1950s to 1980s. During this period as much as 200 000–300 000 tonnes of pilchard were fished by foreign fleets on an annual basis. The peak was reached with 1.4 million tonnes in 1986. However, recovery is noticeable in recent years in RSA and Angolan waters. Environmental and biological factors are limiting stocks in Namibian waters.

Tuna: Stocks of the most important species are over-exploited. Bluefin tuna is fully exploited; southern albacore, yellowfin and bigeye are also at the verge of full exploitation. The only tuna species that shows potential for further utilization in both the Atlantic and Indian Ocean is skipjack.

Horse Mackerel: This is a low-value species with a biomass amounting to around 1 million tonnes. The stock is generally in a healthy state and has good potential as a highly nutritious, low-value species for local consumption.

Anchovy: A short-lived species, anchovy currently occurs only sporadically in the region. Various factors (water temperature, environmental conditions, etc.) are considered to have an impact on the stock size. In RSA and Namibia, anchovy is targeted for fishmeal and fish oil production.

Shrimp: Deep water shrimp are not yet fully exploited because of limited technology and fishing gear by artisanal fishers to catch this species in offshore waters. Shallow water species such as the white and tiger prawns are fully exploited by artisanal and industrial fleets.

Lobsters: Stocks are heavily fished and catches are declining in Namibia and RSA.

Table 8. SADC marine capture fisheries production by country (volume in tonnes)

Country	2004	2005	2006	2007	2008	2009	Rank 2009
Angola	230 002	192 616	215 241	297 436	298 262	266 415	3
Congo, Dem. Rep.	5 600	5 800	6 000	6 000	6 000	6 000	10
Madagascar	108 616	105 223	106 243	118 798	91 484	102 075	4
Mauritius	9 971	9 855	8 681	8 097	6 642	7 676	9
Mozambique	71 829	71 004	75 882	68 189	91 259	58 255	6
Namibia	569 210	551 195	506 770	410 533	370 022	366 640	2
Seychelles	100 671	108 680	92 739	65 520	69 208	81 189	5
South Africa	909 945	823 385	627 492	690 450	655 526	522 044	1
Tanzania	51 026	55 830	42 327	44 665	44 394	46 027	7
Zanzibar	23 488	23210	24 418	23 580	24 514	25 394	8
TOTAL	2 080 359	1 946 798	1 705 793	1 733 268	1 657 311	1 481 715	

Sources: FAO FishStat, 2012.

There is a basic difference between the fisheries resources of the east and west coasts of the SADC region. Due to the upwelling system of the Benguela current, the productivity on the west coast is richer, with strong inter-annual variations. Due to this fact, the west coast fishery is predominantly industrial, and accounts for 90 percent of the total catch from the SADC region. In contrast, the environmental conditions on the east coast are more stable, characterised by greater species diversity and placing higher social importance on artisanal fisheries.

2.2.1. South-West/West region

The main resources available in the south-west part of the region are small pelagics (anchovy, pilchard, and round herring), caught by purse-seiners. Mid-water fishes (horse mackerel) are caught by trawlers, primarily in the western region. Total landings of these fish amount to 800 000–1 200 000 tonnes annually. The fish feed on plankton and their annual abundance is closely related to environmental factors occurring in the Benguela current. Pilchard has been suffering from heavy overexploitation in the past but stocks are now recovering in some parts of the region.

Demersal species are dominated by hake, which is commercially the most important species fished in Namibia and RSA by trawlers and long liners. The landings range between 200 000–300 000 tonnes/year.

The deep water fishery is a recent development and targets orange roughy, alfonsino and toothfish. Orange roughy is a very slow growing species and catches have not been promising in recent years.

Lobster is fished in RSA, Namibia and Angola.

2.2.2. South-East/East region

Tuna, as well as shrimp and prawns, are the most valuable resources on the east coast.

Shrimp and prawns (especially in Mozambique and Madagascar), and other crustacean landings, add up to approximately 150 000 tonnes/year. White and tiger shrimps are fully exploited, while deep-water shrimp still have some potential.

Tuna and other large pelagic species are caught primarily by European purse seiners and Asian long liners. The annual production is about 150 000 tonnes. Bluefin tuna is considered to be heavily overexploited. Southern albacore, yellowfin and bigeye tuna stocks are close to their sustainable limits. Skipjack tuna might still have some exploitation potential.

Demersal fish harvested by trawlers and bottom long liners are species such as breams, groupers, and snappers. They are primarily fully exploited.

The deep-water demersal fisheries of the southern Indian Ocean are new, although a relatively small development. These fisheries include a Mauritian operator and a Namibian company working with South African interests. Commercially exploited species include orange roughy, oreo dory, alfonsino, boarfish, bluenose and cardinalfish.

2.2.3. Shared fish stocks

Most of the species in SADC waters are shared between countries. In the south-west region, species are mostly shared between Angola, Namibia and RSA. Due to environmental factors and their influences on small pelagic fishes in this region, the total SADC catches fluctuate considerably. Most significant is the availability of pilchard, which seems to have moved away from Namibian waters in recent years and is caught in larger quantities in RSA.

The shared species on the east coast include crustaceans and tropical tunas.

2.3. INLAND WATER RESOURCES

Fish stocks in inland waters, on the other hand, are more difficult to monitor, and very few SADC countries can afford to collect data as the resources are mostly utilized by a large number of artisanal and small-scale fishers, primarily in an open access situation. The state of these fisheries is likely to be seriously over-exploited. Nile perch, the most valuable freshwater stock in Lake Victoria, is dwindling and catches are declining. Conversely, small pelagics (dagaa and kapenta) are abundant and underutilized and as such could have good potential as a nutritious fish for direct consumption. In some areas where stocks have declined, efforts are being made to enhance fish stocks by restocking the lakes.

The most utilized and valuable species within SADC's inland fisheries include Nile perch, tilapia and dagaa from Lake Victoria in the east, and kapenta and other small pelagic species in the central SADC region. Other species of commercial importance include tilapia, catfish, carp and others. The inland fisheries are characterised by complex inter-species interactions and adaptation to a changing environment, including migration of some species. Some species are seasonal, available only during the rainy season. The main lakes are in the east, including Lake Victoria, Lake Tanganyika, Lake Malawi and Lake Kariba.

Within the SADC there are also various large rivers including the Zambezi and Congo River, and various basins and dams that support artisanal and small-scale fishers who depend on fish for their livelihoods.

In the case of Tanzania, Nile perch has become a key export species, popular internationally. Many of the other species caught in inland waters are consumed locally, supporting the nutritional needs of large local populations. For example, the DRC in recent years has recorded a production of 215 000 tonnes of inland fish annually for local consumption, and in 2005 only 2 tonnes of fisheries products were exported. Zambia currently produces over 70 000 tonnes of inland fish annually; again, the bulk of this is consumed on the domestic market.

Table 9. SADC inland capture fisheries production by country (volume in tonnes)

Country	2004	2005	2006	2007	2008	2009	Rank 2009
Angola	10 000	10 000	10 500	9 000	7 500	5 848	8
Botswana	161	132	81	122	86	86	11
DRC	231 772	230 840	230 588	230 000	230 000	230 000	2
Lesotho	45	45	45	48	50	45	13
Madagascar	31 500	32 650	32 750	32 630	32 630	32 828	5
Malawi	56 463	59 595	72 787	66 500	70 019	69 325	4
Mauritius	-	-	-	-	-	-	14
Mozambique	27 760	22 991	26 017	24 081	28 386	9 546	7
Namibia	2 500	2 800	2 800	2 800	2 800	2 800	9
Seychelles	-	-	-	-	-	-	14
South Africa	900	900	900	900	900	900	10
Swaziland	70	70	70	70	70	70	12
Tanzania	312 040	320 566	292 519	284 346	281 690	269 402	1
Zambia	67 725	65 927	60 236	73 542	79 403	84 716	3
Zimbabwe	10 500	10 420	10 500	10 500	10 500	10 500	6
TOTAL	751 436	756 936	739 793	734 539	744 034	716 066	

Source: FAO FishStat, 2012.

3. PROCESSING

In the SADC region, fish processing plants have been developed in almost all countries, and this processing adds value to the region's fisheries. Canning is particularly important for the tuna fisheries (Seychelles, Mauritius, and Madagascar) as well as the sardines and pilchard fisheries (Namibia, RSA). Tuna is usually frozen on board, while pilchard is stored on board in refrigerated seawater tanks, before being processed on shore in canning plants.

Ground fish like hake is filleted and frozen in Namibia and RSA into various value-added product forms. Fresh/iced fish (round or fillets) is shipped mainly to the European markets.

Horse mackerel is frozen whole on board and a certain percentage of the horse mackerel catch is reduced to fishmeal. The frozen product is stored until the total storage capacity of the vessel is reached and then it is transhipped to reefer vessels targeting other African markets or landed for distribution locally or to nearby regional markets.

Fishmeal and fish oil is produced primarily from by-catch fish, and from small pelagic processing waste, in Namibia and RSA.

Prawns are preferably frozen on board, or processed onshore, but on land processing capacities are currently insufficient. Industrial prawn processing plants are mostly found in Mozambique.

Nile perch, on the other hand, is filleted and frozen ashore in Tanzania. Labour intensive sun-drying of freshwater small pelagics (kapenta or dagaa) is practiced in Tanzania, Mozambique, Zambia and Zimbabwe and these species are traded mainly within the region.

The traditional processing methods of smoking and drying (tilapia and catfish for instance) still dominate in many parts of the region, and much of the fish available in regional markets are smoked and dried fish, produced by traditional technology (e.g. mud smoking ovens). Though these traditional technologies are currently vital to providing fish products to local diets, the methods can be subjected to poor hygienic conditions and high-post harvest losses, demonstrating that improved infrastructure and training will be needed to provide increased fish products in the long-term. Processing infrastructure such as solar driers, mills and chorkor smokers could provide low-cost and efficient processing methods that would be realistic for use in these settings. Coupled with proper training, use of these processing methods could result in safer products and a reduction in post-harvest losses.

4. EXPORTS

Within the SADC region, Namibia is both the largest exporter of seafood products by volume and value.

Hake and horse mackerel originating from Namibia and RSA dominate the export market with hake being primarily exported to Europe, particularly Spain. With the recent international economic downturn, however, Namibian hake exporters are looking for other markets as well. The bulk of horse mackerel is exported mainly to the DRC and other African countries.

Tanzania is the biggest exporter of freshwater fish products, mainly the Nile Perch from Lake Victoria.

In 2009, Mauritius was the third largest exporter of seafood in the region by volume (92 388 tonnes) and value (USD 288 million). Tuna prepared or preserved amounted to 55 920 tonnes from the canned tuna factories. This is followed closely by Seychelles with a value of USD 210 million, again with canned tuna being the main product.

Other exporting countries with significant export volumes or values include Madagascar and Mozambique, with both exporting high-value shrimp mainly to the EU markets.

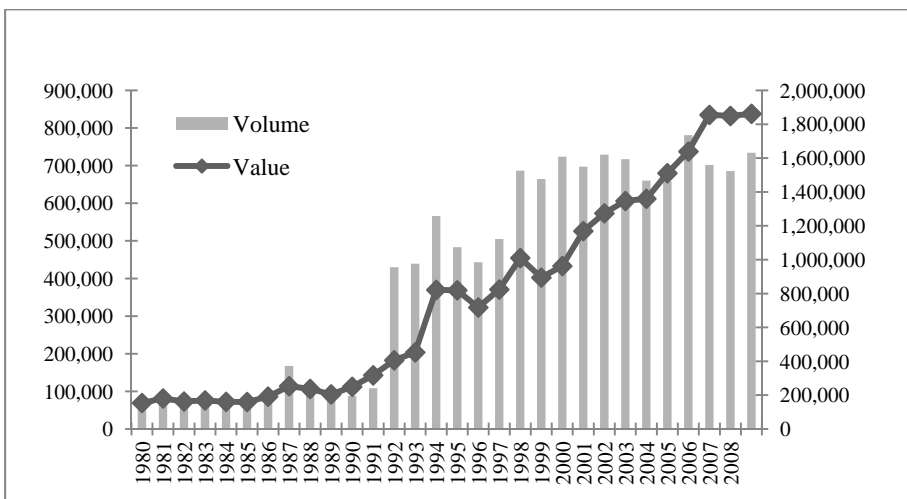
On the aquaculture front, Zimbabwe has begun recording significant exports of tilapia products from its sole producer, Lake Harvest Aquaculture, which produces tilapia products for sale to regional and European markets.

We see from the export figures below that there was a jump in export volumes in 1992, when Namibia's exports started to be recorded. Prior to 1992, Namibian exports, which were mainly to RSA, were not registered as exports, as parts of Namibia (Walvis Bay) were under South African jurisdiction.

After 1994, South African exports also started to increase as the trade boycott imposed by the western world was lifted when Nelson Mandela became President in 1994.

According to FAO statistics, SADC's exports of seafood have been around 600 000 to 700 000 tonnes per year over the past seven years. However, the value of this trade has increased in recent years, and in 2009 was about USD 1.9 billion.

Figure 4. SADC exports of fish and fisheries products by volume (in tonnes) and value (in USD)



Source: FAO FishStat, 2012.

Table 10. Total volume of fish and fisheries product exports by SADC country (volume in tonnes)

Country	2004	2005	2006	2007	2008	2009	Rank 2009
Angola	7 859	7 531	6 837	5 430	2 017	2 065	8
Botswana	87	112	281	342	38	125	11
Congo, Dem. Rep.	6	1	<0.5	<0.5	<0.5	87	12
Lesotho	3	-	-	-	26	-	15
Madagascar	28 664	24 428	33 619	30 158	22 802	20 024	6
Malawi	28	168	585	32	34	15	14
Mauritius	33 412	36 770	52 852	52 248	49 731	92 388	3
Mozambique	13 442	14 998	16 570	12 480	11 566	9 896	7
Namibia	328 099	284 671	431 177	351 383	373 572	360 362	1
Seychelles	40 004	50 423	46 961	40 869	15 808	47 600	5
South Africa	142 601	177 045	142 551	144 072	134 649	147 099	2
Swaziland	2 455	1 478	910	95	97	24	13
Tanzania, United Rep. of	61 495	58 794	47 367	62 836	71 883	52 885	4
Zambia	1 002	1 295	265	277	1 817	772	10
Zimbabwe	768	563	805	1 441	1 487	966	9
TOTAL	659 925	658 277	780 780	701 663	685 527	734 308	

Source: FAO FishStat, 2012.

Table 11. Total value of fish and fisheries product exports by SADC country (value in USD 1 000)

Country	2004	2005	2006	2007	2008	2009	Rank 2009
Angola	11 945	16 840	16 972	15 789	9 372	9 114	8
Bots wana	64	220	363	96	31	284	12
DRC	446	419	393	402	391	595	11
Lesotho	9	-	-	-	64	-	15
Madagascar	73 499	132 840	162 275	186 358	160 537	116 874	6
Malawi	78	357	1,554	259	294	198	13
Mauritius	84 202	109 424	160 250	196 799	214 987	287 591	3
Mozambique	100 469	85 036	96 698	70 190	76 913	66 626	7
Namibia	361 817	376 924	458 543	502 720	576 978	575 027	1
Seychelles	180 167	191 901	199 423	197 763	97 155	210 200	4
South Africa	419 420	444 585	406 069	512 968	521 013	443 281	2
Swaziland	5 981	2 187	399	64	203	178	14
Tanzania	117 569	144 646	131 057	168 640	188 218	148 408	5
Zambia	1 862	3 523	362	399	1 295	1 160	10
Zimbabwe	2 480	1 819	4 673	3 021	1 453	2 157	9
TOTAL	1 360 008	1 510 721	1 639 031	1 855 468	1 848 904	1 861 693	

Source: FAO FishStat, 2012.

5. REGIONAL SUPPLY FROM AFRICA TO THE REGION

Intra-Africa trade of fish and fishery products is still considered limited and somewhat poorly developed, although significant quantities of fish enter many countries (especially the DRC) from neighbouring countries of East Africa. To help increase food security, intra-regional trade should be encouraged and expanded. In recent years, some positive signs have developed as tilapia products are now traded on a larger scale. Additionally, red tuna meat and processed products based on tuna bi-catch, such as canned pilchard/sardines and fish meal, are also traded intra-regionally.

Many African countries face a number of economic and trade related issues, including poorly developed infrastructure such as roads, ports, air transport links, etc. Most of the countries are dependent on imports for a number of items, not least equipment to develop a broader fisheries production and trade. Lack of access to capital for investments and operations is a serious limiting factor with regard to such development, and keeps the countries as raw materials based trade dependent economies.

In addition to being imported into international markets, high-value products such as shrimp, lobsters and tuna are imported within the SADC region, mostly into higher value markets such as RSA supermarkets and restaurant chains.

Small pelagic fish such as pilchard/sardines are sometimes imported from Morocco for factory capacity utilisation during times of production decline of the species in Namibia and RSA.

Kapenta, dagaa or mukene, mainly from East Africa, Tanzania, Zambia and Mozambique, are distributed widely to the regional markets in Southern Africa, with DRC being the main destination.

Other processed products such as fish meal and fish oil produced in Namibia and RSA are exported to many African countries where they are utilised for livestock feeds.

6. INTERNATIONAL SUPPLY BY KEY COMMODITIES

In the SADC, there seem to be a growing trend of fish and fisheries products originating from international markets. This is mainly due to the increasing demand in the region and the fact that these countries now have better economies, which are willing to pay more competitive prices than before.

SADC fish imports demonstrate three key priorities: i) importing to add value through further processing and then re-exporting; ii) importing high-value species to meet the needs of a more wealthy section of the population, whether locals or tourists; iii) importing low-cost species to feed those who are poorer.

6.1. TILAPIA IMPORTS FROM CHINA

Imports of frozen whole tilapia from Asia into the region have been the main supply source for some time and are growing in countries such as Angola, DRC, Tanzania and Zambia. This is due to an overwhelming demand of tilapia products in the region, exacerbated by a large and growing Chinese population in these countries, for development reasons. These products sell at prices of around USD 1.25/kg or well below the local production cost. An advantage for local aquaculture is that local producers are in a better position to make product adaptations to the local consumers' taste. For instance, in Zambia, fresh on ice tilapia from Zimbabwe is preferred over the frozen imported products, mostly due to the size of the fish and the taste.

6.2. CANNED PRODUCTS FROM THAILAND

Many supermarkets in the SADC region are increasingly stocking canned pilchard, sardines and tuna from Thailand, which is considered reasonably priced by some retailers. For instance, in Zimbabwe, the price for a kilo of canned tuna from Thailand oscillates at around 2 USD, whereas products from RSA could be up to twice as much.

6.3. OTHER PRODUCTS

Small volumes of high-value products imported from Europe such as salmon and other white fish products are often seen in RSA supermarkets, targeting a growing niche market there. Frozen shrimp from Asia can also be found.

In Mauritius, there are fish factories that import fish such as snoek from as far away as New Zealand and Australia for further processing, and then export the product to EU and RSA markets.

Aquaculture producers in the SADC import high quality and well tested brood stocks or fingerlings from producer countries. For instance, oysters grown in Namibia are imported from the USA and France, tilapia grown in Mozambique originate from Malaysia, and shrimp farmed in Mozambique and Madagascar come from Asia.

7. DEMAND

Fish has long been thought of as an excellent source of animal protein, but has more recently begun to be recognized as a good food-based source of micronutrients as well. It is vital to build demand along with infrastructure capacity to help better integrate fish into local diets. Fish consumption can improve amount and diversity of foods consumed to ultimately reduce micronutrient deficiencies and food insecurity.

Angola: About 70 percent of the total marine landings (200 000 tonnes in year 2000) are distributed in fresh or frozen form on the domestic markets. Only 20 percent undergoes further transformation, mainly in salting and drying plants situated in the southern provinces (Luanda, Namibe, Benguela and Kwanza sul). Some 41 000 tonnes (25 percent) are deep frozen, mainly in Luanda; 6 000 tonnes are dried or salted (Benguela, Luanda and Namibe) and less than 1 000 tonnes are canned in the Namibe province. Smaller quantities are transformed into fish meal in the Namibe province. Women are responsible for most activities related to fish processing and sales.

Fish is part of the traditional diet in Angola and consumption reached 15.8 kg per capita in 2009. Landings from the artisanal fishery are usually sold on the beach to the small number of traders (mainly women) who transport it to the markets or processing plants. There are a number of larger markets near the cities and towns where fish is also sold to the population. The main local markets for fish products in Angola are located in Luanda, Benguela and Namibe provinces. Most of the fish are sold fresh, dried or salted.

Botswana: Fish is a less significant part of the traditional diet in Botswana, where the per capita consumption was 2.9 kg in 2009. However, there is currently a high demand for fish in all the fishing areas in Botswana. This is best illustrated by the high imports of seafood into Botswana compared to the low fish catches produced annually. The main areas that need to be developed in the fishery sector in Botswana are a buyer and market for the fishery. While government has encouraged the emergence of middle-men buyers in the fishery through the provision of grants to entrepreneurs, these have not fully solved the issue. Additionally, because of the dispersed nature of the fishery among the different fishing villages in the Okavango Delta, there is no centralized market, which makes it difficult for commercial fishers to sell their catch.

Democratic Republic of the Congo: Fish is a very popular food item in the majority of areas and demand is extremely high. Inland fisheries play an important role for rural communities and provide approximately 25 to 50 per cent of the country's protein requirements. Fish is also an important source of micronutrients. However, although fishing provides benefits to the indigent populations living near water, the living conditions and welfare of fishing communities are precarious. Regardless of the fact that fishing is a major source of income and employment, fishing communities seem to be the poorest rural communities.

The non-existence of infrastructure (roads, cold chain for food preservation) or their extremely dilapidated state imposes serious limitations on market distribution.

The majority of marine fish is sold in the markets of Kinshasa in the form of fresh or frozen product. The products of inland fishing are marketed in the form of sun dried or

salt dried and smoked, except for the markets in the immediate vicinity of fish landing points.

Transport by way of lakes and river plays a critical part in the distribution of fish and marketing in all the eastern area of the Rift Valley and in the Congo River Basin. Additionally, air transport is used to supply the mining zones at Kasai with processed products from Kaliémie, as well as Kinshasa with fresh fish from the Ecuador River.

Possibilities for distribution and marketing of fish have not yet been realized due to the inaccessibility and the non-existence of road infrastructure. For a number of years, market demand has never been met in the DRC. In several regions of the country, the population depended on imports as a major source of fish supply. Annual consumption of fish per capita was estimated by FAO as 5.5 kg in 2007. Due to the high rate of population growth in the coming years and subsequent growing local demand, the supply of fish and fishery products will need to increase in a significant way. Alternately, increased aquaculture production could provide a new source of supply of fish to meet domestic demand in the country.

Commercial sectors of the DRC import large quantities of fish, mainly dried tilapia and dagaa in bulk from Lake Victoria. The largest quantity of dried fish from around Lake Turkana (East Africa), Lake Tanganyika (Burundi, DRC, Tanzania and Zambia), and other important African lakes end up in the DRC, although precise figures on imports are missing due to the informal border trade. However, it is estimated that approximately USD 70–80 million are exchanged annually between the DRC and the countries of the region.

There are also imports of frozen fish such as horse mackerel from Mauritania and Namibia, with Namibia exporting approximately 70 percent of its annual horse mackerel production to the DRC.

Although the DRC imports massive quantities of fish products from the countries of the region, large quantities of fish are also exported out of the country to regional markets, due to the lack of appropriate road infrastructure which interferes with the distribution in the country.

Madagascar: The demand for fish and fisheries products in Madagascar exceeds 130 000 tonnes annually; however this fluctuates depending on the purchasing power of the population and the availability of the products on the market. Recently, mining and tourism development have increased the demand in quantity and quality for fish and fishery products.

Fish consumption is a major source of protein for the coastal population and stood at 6.8 kg per capita in 2009.

Fish is utilized in many forms. These are the main products found at most local markets:

- Fresh products for human consumption;
- Dried, salted and smoked products;
- Frozen products for export and local consumption;
- Transformed products for export; and
- Animal feed.

Due to high shrimp prices, domestic demand for shrimp is very low. Local consumers usually purchase the small and medium-sized dried shrimp originating from the artisanal fisheries sector as they are cheaper. The high quality, large-sized industrial shrimp landings are mainly for the export market, although a significant quantity is sold to local restaurants, supermarket chains and hotels.

Fish and fishery products play an important role in regards to food security and malnutrition in Madagascar and are a vital source of animal protein and micronutrients for the coastal population. It has been estimated that fish and fish products contribute about 20 percent of animal protein to the diets of the total population.

Mauritius: Fish is an important source of protein and micronutrients in the local diet, with the per capita consumption of fish at 22 kg per capita in 2009 (representing one quarter of animal protein intake).

All of the artisanal fisheries catch and 90 percent of the banks fisheries catch is consumed domestically. The fish from the artisanal fishery is consumed fresh, as delivery from the 61 landing sites to sales points inland is rapid. About 100 tonnes of chilled fish is landed by the semi-industrial chilled-fish fishery and is retailed from chilling cabinets or iced. The catch from the banks fishery is stored in cold stores (-18 °C) ashore for distribution to retail outlets in urban areas and villages equipped with frozen storage facilities. Salted fish is produced in St Brandon for shipment to Mauritius. Sun-dried octopus and salted fish products formerly produced in Rodrigues have over the years declined to negligible levels.

Local production does not suffice to cover market needs, so imports make up the difference, much of this for the large tourist population.

Mozambique: Mozambique's average fish consumption per capita was estimated at 6.9 kg in 2009. However it is much higher among coastal communities and estimated at 13.8–16.6 kg. Demand for fish products in the country is significantly higher than the domestic industry can supply. It is expected that demand for seafood will grow substantially over the next 25 years, and consequently there is a need to increase supply.

Fish is much appreciated as food by all sectors of the Mozambique population and constitutes a major part of the animal protein intake as well as contributes to micronutrient intake. It is estimated that about 3.5 percent of the animal protein intake of the population is derived from fish and fish products. The demand for fish is relatively high in the coastal area and is expected to grow, to match population growth (2.6 percent annually).

Poor road networks have been singled out as obstacles to development and movement of goods, including fish to the needy. However, developing the road network is a priority and is constantly improving.

There are over 700 artisanal landing sites along the coast of Mozambique, each varying in size. A lively trade at the landing sites is also conducted, and often there are small processing operations depending on traditional methods associated with the sites. The most common processing methods are drying (sun-drying), smoking, and salting.

Despite Mozambique being a fish producing country, fish distribution in the country is very limited. The national distribution system for fish – especially fresh fish – is not well developed. Most of the fish harvested by artisanal fishers are for their own households' subsistence or are distributed close to the landing sites. With the exception of shrimp, very little of the artisanal catch is for the export market.

Fish at landing sites are sold by the fishers to wholesalers; usually women who buy small quantities that are transported to local fish markets and sold as fresh. Some also buy for processing (drying, salting, smoking). Processed fish, such as dried, or salted and dried, are usually packed in sacks and transported by bicycle or pick-up truck to local fish markets in villages and in the larger towns and cities.

The local fish markets are concentrated in the more densely populated regions. If there are many traders selling the same product, the price is usually reduced and buyers and sellers can always bargain on the price. In general, fish trade in Mozambique is very slow during the rainy season, as people prefer to eat vegetables rather than fish.

Nevertheless, the country still depends on fish imports, mainly of horse mackerel to suppress the deficit and it is estimated that 25–30 000 tonnes are annually imported from the regional markets for distribution in the domestic markets. Horse mackerel is imported at 0 percent import duties.

The government can meet the demand for fish product in the domestic market if trade barriers and distortion are eliminated. Instead, fish products utilized by artisanal and small-scale fisheries need to move more freely at border crossings into Mozambique.

Namibia: The domestic market for marine fish products is extremely limited due to the small size of the population (2 million). It is estimated that only 10 percent of Namibian fish is consumed in the local market.

The main fish species dominant in the domestic markets are horse mackerel, dentex fish, small size hake (baby hake), angelfish, snoek, jacopiva, alfonsino and walvis red. Horse mackerel is particularly popular because it is cheaper compared to other fish products and easily available. Inland fish, on the other hand, are marketed closer to the area of production and in very limited quantities.

Despite the abundance of marine fisheries resources of the country, fish consumption in Namibia was estimated at 12.9 kg per capita in 2009 and has not been part of the traditional diet. However, the Namibia Fish Consumption Promotion Trust has been established by the Ministry of Fisheries and Marine Resources with the objective of increasing domestic fish consumption.

Since its inception in 1992, the campaign has proven fruitful with the demand for fish rising for both frozen and chilled products in the Namibian traditional markets and expected to increase further. In the past, only low-value fish such as horse mackerel and dentex fish were supplied to the local markets. However, this has changed and the local market is demanding higher value fish products such as value-added hake, previously earmarked only for export markets.

Seychelles: Fishing has traditionally played an important part in the life of Seychellois people and is an invaluable source of animal protein and micronutrients; indeed its per capita rate of consumption was 57.4 kg in 2009. Most of the catch is consumed fresh, and is sold in the district markets; the most important in Victoria, the capital.

High quality species such as grouper and snapper (*Serranidae* and *Lutjanidae*) are usually sold to the main export and fish processing companies to be sold to the hotels or exported fresh on ice to EU. Only in times of glut are fish frozen, to be subsequently distributed, mostly for the lower end of the market.

There are two registered fishmongers that use freezer containers to store fish to be sold, mostly for the hotel trade and certain public institutions.

There are limited fish processing activities, such as smoking of marlin and sailfish, mostly for the hotel market. Some vessels fishing in the southern groups of islands undertake longer trips and seasonally salt fish for sale in the main islands.

Improvement in returns in the fishing sector requires more efficient post-harvest handling and quality control, thus maximizing export value. More investment by the private sector in fish processing facilities that meet internationally accepted standards of hygiene and quality control would also lead to an increased utilization rate and improved earnings. This would have a direct positive effect on the purchasing power of fishers and contribute to improving the national employment situation.

Republic of South Africa: Annual fish consumption in RSA was estimated at 7.5 kg per capita in 2009, which is relatively low. Fish does not play a major role in food security, however the country does have a large rural community base and the government is currently exploring fish as an alternative sources of protein for these areas. Though at present it is only used for fishmeal, anchovy is considered to have potential for direct human consumption. In general, South Africans consume mainly meat; 30 percent of their food budget is spent on meat, compared to 4 percent on fish. However, local demand is high and the country generally absorbs as much as can be supplied. The small pelagic fishery production, which is the largest by volume, forms the bulk of the fish production consumed locally. Pilchard in cans is a popular protein source and fishmeal production is utilized in the agricultural sector (and exported in good years).

RSA's coastal communities have traditionally had diets high in fish and have depended on resources such as west coast rock lobster, snoek, abalone, mussels, oysters, etc. Artisanal and subsistence fishers are located mostly in rural areas, including the Transkei and Kwazulu-Natal coastlines.

The South African fishery sector is characterized by its substantial level of international trade, resulting in a significant net contribution to foreign exchange (primarily hake exports to Spain). The demersal trawl sector for hake is the most valuable South African fishery, contributing approximately 50 percent of the value of fishery production. Within its aquaculture industry, RSA is characterized by a well-developed commercial marine subsector which has been making a contribution to the national economy and a predominately subsistence freshwater sector. However, this contribution to Africa and world aquaculture production remains relatively low, representing 0.1 percent and 0.01 percent respectively. Over a third of RSA's reported production is seaweeds while the remainder comprises trout, abalone, molluscs, oysters, tilapia and catfish. Regionally, the supply of South African horse mackerel to West African countries and Mozambique is in demand and contributes to food security there.

Swaziland: In 1997, the annual per capita consumption of fish in Swaziland was 11.6 kg and decreased considerably to 2.4 kg in 2009. It is doubtful whether any increases in local fish production can be generated from resource improvement of reservoirs and small water bodies. In the foreseeable future, it is most likely that there will be a reliance on imported fish and fish products.

Swaziland serves as the market destination for fish and fisheries products from neighbouring countries. Apart from tinned fish products widely distributed in the country, most of the fresh or frozen fish products end up in the urban areas where there are better refrigeration facilities.

Imported fish come into the country already processed and/or ready to cook. Fish imports include fresh and chilled and/or frozen fish, fish fillets and other fish products, including those salted, dried and smoked, as well as fishmeal. All fish and fishery products except fish meal are imported for human consumption. Fishmeal is exclusively used in animal feeds as a major protein supplier.

As indicated by the figures on fish imports, the concept that Swazis are not fish eaters has long diminished. There has been a major shift in the consumption pattern with regards to fish consumption in the country. Fish and fisheries products are increasingly being consumed locally.

Tanzania: Fish demand is still high in Tanzania in relation to the growing population, for which the available fisheries resources are not sufficient. In response to this situation, the government is encouraging aquaculture as a strategy to improve food security and at the same time to ensure sustainability of the capture fishery.

Fish contribute about 27 percent of the animal protein consumed in the country and are an important source of micronutrients. The annual per capita fish consumption was 5.7 kg in 2009. In Tanzania, fish is mainly consumed fresh or processed (smoked, sun-dried, and salted-sun dried). Kilns are used to smoke fish.

Nile perch, mostly from Lake Victoria, is the only fresh water fish used for filleting. However, the government has now allowed processing of specific marine fish species. Most fish fillets and other processed fishery products are exported.

There is no low-value fish (also known as “trash fish”) used purely for fishmeal and animal feed production. However, fishmeal is produced from the remains of Nile perch filleting including frames; and low quality sardines, especially those from Lake Victoria.

Zambia: Though the per capita fish consumption remains relatively low at 6 kg in 2009, fish is an important food item in the Zambian diet, accounting for up to 55 percent of the national dietary animal protein and contributes to micronutrient intake.

The 2009 estimates for annual fish production from capture fisheries is 84 716 tonnes, with an estimated 8 505 produced through aquaculture. The national demand for fish is conservatively estimated at 120 000 tonnes per year, and this gap between supply and demand is foreseen to increase further with population growth. The country has the potential to produce more fish on a sustainable basis with the development of aquaculture and rational management of capture fisheries.

The importance of fish in household food expenditure shows that with increasing levels of poverty, the proportion of fish in household food expenditure also increases. Rural households account for 47 percent of fish consumption, followed by urban poor households (30 percent). However, in terms of agricultural and non-agricultural households, the latter demonstrate more than 50 percent of household expenditures for fish. Urban dwellers generally consume more fish than people in rural areas. Moreover, within the urban areas, the low-income stratum spends a greater proportion of household expenditure on fish because fish provide the cheapest source of animal protein. Everyone, irrespective of socio-economic status, enjoys fish in Zambia; there is therefore a strong recognition by government that aquaculture can and should play an important role in terms of food security, nutrition and income generation.

The unsatisfied demand for fish in the local market has restricted the amounts of fish that can be exported. The major import and export flows are mainly of the fresh water sardines and kapenta, whereas smoked and fresh sleek lates (*Lates stappersii*) and smoked catfish (*Clarias* species) are heavily traded in the region. Greater participation of fisheries in foreign exchange earnings is only found in the ornamental fish trade. However, data to ascertain the extent of contribution to national earnings is scanty as only rough estimates exist of the monetary value of the present fish trade.

Almost all fish produced in the country is intended for human consumption. Fish is processed and distributed in various forms: fresh, salted, smoke-dried, sun-dried, frozen and filleted. Rarely are any fish processed into fishmeal for the production of animal feed.

Zimbabwe: Fish demand exceeds supply in Zimbabwe. Due to increasing costs of other protein sources, demand for kapenta in urban and rural areas has increased. In 2004 an estimated 12 000 tonnes of fish was harvested from Lake Kariba. Annual fish production from all other capture fisheries is estimated to be about 870 tonnes. An estimated 20 tonnes of other fish was also harvested from fish farms throughout the country and approximately 2 400 tonnes from aquaculture in Lake Kariba. With the estimated population at 12.9 million, the annual per capita fish consumption level was only 1.1 kg in 2009, well below the SADC average of 6.7 kg.

Tilapia purchases are made only by the relatively wealthy minority, as tilapia is out of reach for the sector of the population with the greatest need. Most of the fish is sold in urban areas whereas 70 percent of the population reside in rural areas. Thus, for the majority of the population, its impact on household food security is minimal. On Lake Kariba, significant impact is only on communities that live along the shoreline who have fish as an important part of their daily diet, thereby curbing protein and micronutrient deficiencies. Otherwise, high costs of fish production continually push the price of fish beyond the reach of many.

The artisanal fishers supply the local market. They sell their fish at landing sites to small-scale traders who after sun drying transport the fish to farms, towns and rural areas for marketing. Commercial operators supply fresh fish to retail shops in urban centres. Dried kapenta is sold locally in jute bags weighing 30 kg to traders and retail supermarkets where it is re-packaged into smaller units. Tilapia, produced from Lake Harvest aquaculture farm on Lake Kariba, is export orientated but also sold locally as frozen whole fish or fillets. Factory by-products are sold from a factory gate shop. Trout from the Eastern Highlands is exported or sold locally as frozen trout, trout fillets, smoked trout and trout pates.

7.1. NATIONAL AND REGIONAL TRENDS IN CONSUMPTION

The total population of the SADC region is approximately 200 million. This region is a net exporter of fish products and in 2004, had a yearly export surplus of about USD 683 million. The main exporters in this region are Namibia and RSA. RSA is also the largest importer of fish in the southern part of Africa.

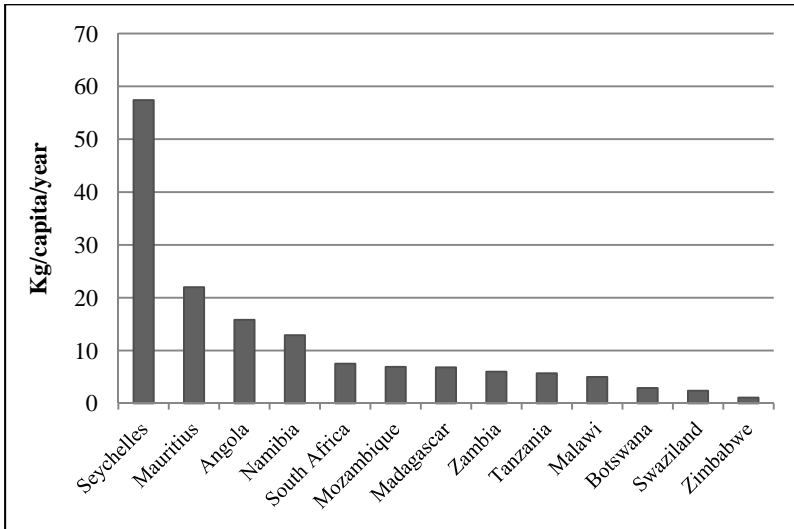
On average, the consumption of fish in the SADC region is about 12 kg per capita per year, while the world fish consumption is currently 16.5 kg per capital per year. However, there are wide variations from country to country. Generally speaking, fish consumption is higher in coastal states than in land-locked countries in the region, but there are exceptions.

The Seychelles, being an island nation, has by far the highest consumption of fish of all the SADC countries. In 2009, consumption in this country amounted to 57.4 kg per capita. In earlier years, the Seychelles had registered even higher consumption; in the peak year of 1981, consumption reached 75.6 kg.

Mauritius, also an island nation, is the second largest per capita consumer of fish in the SADC. In 2009, consumption was 22 kg per capita.

Namibia, which is the second largest fishing nation in the region, with an annual landed catch of over 400 000 tonnes, has a reasonably high consumption, but not as high as could be expected. The reason for this is that Namibians have a tradition of being cattle farmers and meat eaters. The most populated part of Namibia is in the north of the country where fish consumption is low. Consumption has increased since Independence in 1990, and in 2009 was estimated at 12.9 kg per capita.

Figure 5. Fish consumption in the SADC region by country in 2009 (kg/per capita/year)



Source: FAOSTAT, 2012.

In the largest fishing nation in the region, RSA, fish consumption is remarkably low at only 7.5 kg per capita in 2009. While RSA is a coastal nation, it also has very large inland areas, and this may in part explain why consumption is so low.

Angola, which is a major fishing nation, has shown a dramatic decline in fish consumption during the period from the mid-1980s until a few years ago. This development may be attributed to the war in the country. In 1985, consumption in Angola peaked at 29 kg per person per year, while in 1998 it had dropped to under 10 kg. Since the turn of the century, Angolan fish consumption has increased again, and in 2009 stood at 15.8 kg per capita.

Of the other coastal nations, we notice that Mozambique has very low fish consumption. In 2009 it was just 6.9 kg per person per year but in previous years it was not even half that. While fisheries are an important activity in Mozambique, most of the catch is exported to Europe, and Mozambicans have never been significant fish-eaters.

In general, the land-locked countries have a low consumption of fish, for obvious reasons. However, there is an important fishery on several of the large lakes in the region. This may help explain why a country such as Zambia had a consumption of 6 kg per person, and Malawi 5 kg, both in 2009.

Table 12. Fish consumption over time in the SADC region by country (kg/per capita/year)

Country	1961	1971	1981	1991	2001	2009
Angola	7.2	11.1	13.3	12	15.2	15.8
Botswana	0.7	1.5	3.7	7.7	3.6	2.9
Congo DR	10.1	9.8	7.1	7.1	No data	No data
Malawi	3.9	12.6	7.4	6.7	3.6	5
Mauritius	10.9	10.3	18.7	19.3	19.5	22
Mozambique	4	5	3.4	2.4	1.6	6.9
Namibia	9.4	8.1	10	10.2	12.9	12.9
Seychelles	47.6	56.6	75.6	68	57.8	57.4
South Africa	5.5	7.9	10.4	8.9	7	7.5
Swaziland	0	0	0.1	0.1	4.3	2.4
Tanzania	6.5	12.5	12	12.3	7.9	5.7
Zambia	8.5	14.9	7.4	8.7	6.6	6
Zimbabwe	1.5	1.7	2.7	2.1	1.4	1.1
Africa average	4.5	6.6	8.7	7.7	8.2	9.5
World average	9	11	11.9	13.1	16.1	18.5

Source: FAOSTAT, 2012.

Zimbabwe used to be an important meat producing and exporting country, and this may explain why most Zimbabwean households spend ten times more of their monthly budget on meat than on fish.

In Lesotho, most of the seafood is imported from RSA. As Lesotho is in customs union with RSA, their imports are not recorded but estimated at 5 000 tonnes per year. The fish consumption level in Lesotho is less than 1 kg/per capita.

Tanzania did not produce a great deal of fish until the Nile perch fishery on Lake Victoria blossomed about ten years ago. The country is a major exporter of fish, but its exports consist mainly of Nile perch. Recently, Tanzania banned exports of fish, apart from Nile perch, to ensure fish protein security. Though it still is ranked fourth in total exports by volume in the SADC region, other fish species such as tilapia, kapenta etc., are reserved exclusively for local consumption. In 2009, the consumption per capita in Tanzania was 5.7 kg.

8. REGIONAL MARKETS – TRENDS

8.1. INTRA-REGIONAL TRADE

At the SADC level, despite a large production and common historical bonds, intra-regional trade in fish and fisheries products is estimated to be a mere 150 000 tonnes annually. Trade within SADC countries is mainly dominated by pelagic species: marine species include pilchard (canned) and horse mackerel (frozen), while freshwater species mainly comprise small pelagics (kapenta and dagaa), which are primarily dried as a means of storage.

RSA dominates trade in the region. The country exports more to the region than it imports from the region.

Intra-regional trade is dominated by informal trade and is currently underdeveloped. Informal trade needs to be studied through data collection and analyses to determine its impact on the national economies.

The lack of knowledge about fish preparation, and traditional preferences for meat, are hindering market penetration. In addition, barriers to intra-regional fish trade are represented by inadequate infrastructure for large trade volumes (transport facilities, cold storage and distribution) and import taxes. Furthermore, foreign currency exchange is lacking in some countries, and export credit facilities are poorly developed.

On the freshwater fish trade front, a variety of traditional fish based products are today traded in small volume non-dutiable parcels across regional borders. Most of this trade consists of fairly simple products with little value added, based on Nile perch, tilapia, dagaa and catfish. This trade is mostly informal in that the volumes and values are not registered with the customs services. No trade documents are prepared or assessed. Putting an end to informal trade in fish products would contribute towards controlling the illegal fisheries from landing under-sized fish and thus protect the stocks from over-fishing. In addition, other benefits would accrue, including:

- Helping to develop the regional integration process;
- Increasing customs revenues;
- Facilitating more accurate data collection on trade flows; and
- Monitoring compliance with technical standards on food safety and sanitary conditions.

However, regulating informal trade could also slow down trade flows because of the cumbersome and lengthy border procedures that are part of formalised trade. This could pose a particular problem for perishable fish products. Following this, slowing down trade could significantly impact the availability of fish in some countries such as the DRC, Mozambique and Swaziland, which largely depend on regional fish trade for local consumption.

It is also important to bear in mind that informal trade provides important income and employment sources for many families, and in particular women, who play a vital role in this economic activity. Thus, measures to formalise trade will need to ensure that the associated livelihoods are not undermined, but rather improved. Measures should

consider including components to speed up transaction procedures, reduce hassle and trade costs at the borders, and provide educational outreach about new rules and regulations to help prevent negative impacts on livelihoods.

At the same time, a number of initiatives have been taken at the international level to facilitate regional and international trade, including Trade Facilitation and Aid for Trade in the WTO. Aid for Trade is a concept which essentially covers a monitoring and accountability device with the aim to help developing countries, in particular least-developed countries, to build up their trade-related skills and infrastructure that is indispensable to fully benefit from the WTO trading rules. In the same vein, the Trade Facilitation negotiations aim to enhance technical assistance and capacity building in trade and to improve effective cooperation between customs and other appropriate authorities on trade facilitation and customs compliance issues.

8.2. OPTIONS FOR INTRA-SADC AND SOUTH-SOUTH TRADE

Increasing growth in individual countries' per capita fish consumption is a positive development, brought about by increased urbanisation, the development of appropriate transportation and better refrigerating facilities, as well as economies moving from subsistence to money economies. A middle class emerging with better purchasing power and the continuing rise of red meat prices lead many to diversify their diet towards fish protein. Given Africa's high population growth rates, indicators foretell a certain expansion of intra-SADC trade in fish and fisheries products.

Developed countries still consider Africa as a valuable offset for particularly low-value fish species. The USA, for example, increasingly exports its seafood to African countries. This trend should encourage seafood producing countries in Africa to expand production of their own lower-value seafood species, for potential trade with neighbouring African countries and to help increase the SADC's food sovereignty.

8.3. REGIONAL MARKET REQUIREMENTS

African countries produce and export mostly raw materials rather than processed goods, and therefore have a limited scope for import activities among each other. They export primary commodities to developed countries and import finished products at great cost from outside the continent.

Fish exports from Africa to major world markets are also considered to be more profitable at the moment, which makes trading with fellow African countries a lesser priority.

In additional hindrance is that the market in Africa is not reliably stable. A lack of liquidity has constrained development for many, so that despite the dismantling of various trade barriers, commerce between African countries has not shown any significant increase in recent years.

Some African countries are concerned that lowering or eliminating tariffs on trade with their regional partners will deprive them of an important source of government revenue.

Table 13. Total volume of fish and fisheries product imports by SADC country (volume in tonnes)

Country	2004	2005	2006	2007	2008	2009	Rank 2009
Angola	20 090	14 451	25 055	28 730	35 167	28 372	5
Bots wana	5 870	4 913	4 842	11 375	13 836	4 419	11
Congo, Dem. Rep.	66 379	67 526	71 686	74 467	63 712	57 832	4
Lesotho	1 599	746	724	747	893	800	15
Madagascar	19 430	15 842	30 357	24 024	15 483	15 346	8
Malawi	1 047	598	2 023	1 947	3 740	2 666	13
Mauritius	82 521	106 135	153 602	131 917	153 131	150 043	1
Mozambique	14 973	22 012	17 783	14 952	19 643	18 752	7
Namibia	24 193	19 232	14 717	21 152	24 560	24 811	6
Seychelles	82 552	88 003	92 457	116 360	36 367	64 309	3
South Africa	53 743	56 176	64 854	91 490	109 799	122 236	2
Swaziland	7 543	5 033	2 925	2 121	1 319	1 074	14
Tanzania	421	572	2 950	6 877	6 878	6 259	9
Zambia	7 851	8 738	6 148	6 967	7 473	5 572	10
Zimbabwe	3 740	1 844	5 412	3 152	4 124	4 337	12
TOTAL	391 952	411 821	495 535	536 278	496 125	506 828	

Source: FAO FishStat, 2012.

Table 14. Total value of fish and fisheries product imports by SADC country (value in USD 1 000)

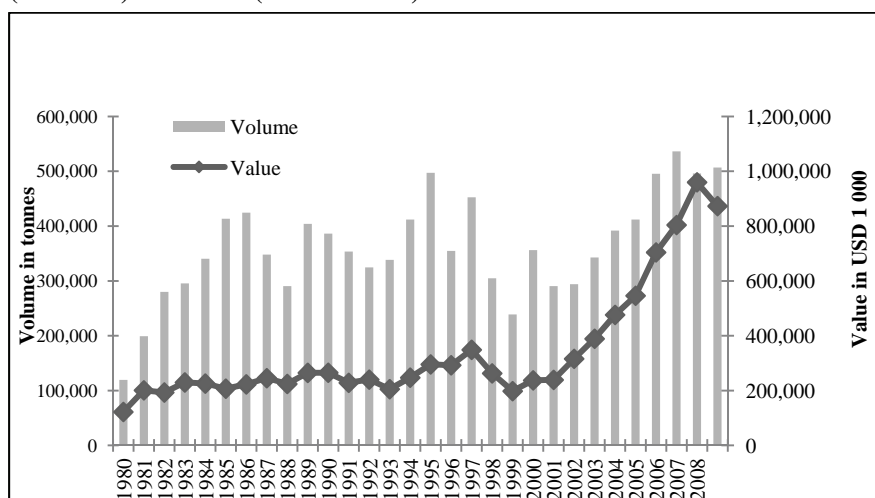
Country	2004	2005	2006	2007	2008	2009	Rank 2009
Angola	32 225	33 185	61 547	70 342	114 503	97 303	3
Bots wana	8 520	8 036	7 062	10 208	12 711	9 369	9
Congo, Dem. Rep.	45 437	54 778	62 475	71 040	88 769	51 007	5
Lesotho	3 441	1 989	1 972	1 986	3 055	2 107	15
Madagascar	14 190	18 791	33 727	58 881	28 093	19 079	8
Malawi	1 017	480	1 384	1 208	1 765	2 738	14
Mauritius	117 233	146 111	214 748	229 956	306 052	240 627	2
Mozambique	28 918	33 561	31 781	26 693	38 898	39 820	6
Namibia	19 685	22 063	20 204	35 351	39 425	39 208	7
Seychelles	75 821	78 510	95 755	81 959	63 584	87 455	4
South Africa	104 911	126 648	152 952	194 927	241 331	263 168	1
Swaziland	15 325	11 472	6 668	5 358	3 954	2 902	13
Tanzania	615	545	1 077	2 321	3 959	4 005	12
Zambia	5 561	7 234	7 598	10 411	8 935	8 369	10
Zimbabwe	3 378	2 658	5 165	3 486	4 776	5 968	11
TOTAL	476 277	546 061	704 115	804 127	959 810	873 125	

Source: FAO FishStat, 2012.

Of the top five importing countries in 2009 based on value, RSA was the biggest importer (USD 263 million), with values having steadily increased from 2004. South African imports are diverse, showing that imports are primarily for local consumption, including some high-value products to cater to the high income population as well as the tourism sector. In 2007, a high tonnage of pilchard was imported (11 170 tonnes compared to 1 600 tonnes the previous year), demonstrating the sudden drop in availability of local pilchard, which are mostly sold canned to the lower income population.

With a large tourist population and strong local middle class, Mauritius was the second biggest importer (USD 241 million), importing a diverse variety of fish and fisheries products to cater to the local and tourist population. Largely as a result of the government’s policy to develop a processing industry based on imports of raw materials for exports, Mauritius (as well as the Seychelles), imported tuna for further processing to then re-export. Angola was the third largest importer (USD 97 million), pointing to the growing wealth of Angolans. Seychelles ranked fourth in terms of import value (USD 87 million), with most of these imports being tuna, again mostly for processing and re-export. The high import values there are largely a result of the growing tourism industry and that fish is a national dish.

Figure 6. SADC regional imports of fish and fisheries products by volume (in tonnes) and value (in USD 1 000)

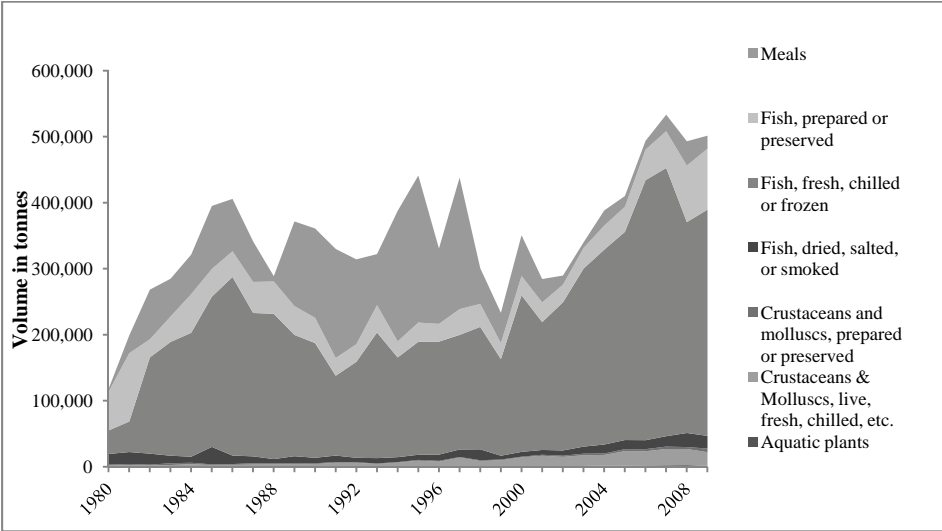


Source: FAO FishStat, 2012.

The DRC is the fifth largest importer by value (USD 51 million) and relies heavily on imports to feed their large population (over 62 million people in 2007), particularly for the lower income group. Products are dominated by dried fish, frozen fish, and sardines, which are likely canned. As dried fish and canned products can be stored without need for refrigeration, this is an especially beneficial format in countries without adequate storage capabilities such as the DRC. It is also known that large quantities of frozen horse mackerel are exported to the DRC from Namibia. This is then processed into dried and smoked product by local traders for re-sale.

In the SADC region, there has been an exponential growth in seafood imports in the last few years, both in terms of volume and value. Given SADC and other African countries rapidly increasing populations, one can expect domestic fish production to come under more pressure, with consequently greater imports. As a result of better education, there is also a growing middle class mostly in urban areas, which is likely to push seafood imports up further, including more high-value species. The growth in more seafood imports will thus result in increased intra-regional fish trade.

Figure 7. SADC import volumes of processed products by major product groups (volume in tonnes)



Source: FAO FishStat, 2012.

9. INTERNATIONAL MARKETS FOR PRODUCTS FROM SOUTHERN AFRICA

Table 15. Key export destinations and export species for each SADC exporting country

Country	Key export destinations	Key export species/products
Angola	Only 5 percent exported to foreign markets in Spain, France, Japan, Korea, Hong Kong	Exports include deep-water shrimp, cuttlefish and high-value whitefish such as sea breams, groupers, snappers, and hake, and tuna.
Botswana	Not available	In 2007, 306 tonnes of fish meal and 30 tonnes of livers/roes/milt were exported.
DRC	Informal fish trade with neighbouring countries	Tilapia, Nile perch and dagaa (in dried and smoked form) are primarily sold informally across borders due to bad in country road infrastructure.
Lesotho	Not available	-
Madagascar	Europe, Japan, USA, Réunion, Mauritius, India, SE Asia, China	Shrimp: Japan, Europe, USA, Réunion and Mauritius Reef Fish: Réunion Crab: Réunion and Mauritius Lobster: France Shellfish: Italy, France, Germany, India Sea cucumber: Singapore, Hong Kong SAR Shark fins: Singapore, China
Malawi	Informal fish trade with neighbouring countries as well as Europe, USA and Japan	Exports are dominated by aquarium (ornamental) fish to Europe, USA and Japan.
Mauritius	EU and Spain	Exports are concentrated on tuna, with tuna loins going to Spain and tuna in the form of a canned product going to the entire EU.
Mozambique	Africa: DRC, Malawi, Tanzania, RSA, Zambia and Zimbabwe Asia: Hong-Kong and Japan Europe: Italy, Portugal, Spain, and United Kingdom	High-value shallow-water prawns are the principal export product currently being exported to the EU (mainly Spain) and Japan. Deep-sea prawns are exported to Italy and RSA. Traditional/artisanal processed fish (salt-dried and smoked) are informally exported to neighbouring countries.

Country	Key export destinations	Key export species/products
Namibia	EU, USA, Australia, the Far East as well as African markets	<p>For hake, the majority is sent to Spain, where it either enters the Spanish market or is distributed further to other markets on the European continent, including Portugal, France, Italy, Holland and Germany. Non-European markets for hake include Australia, Malaysia and USA.</p> <p>Monkfish and sole are exported mainly through Spain and Italy, to France, Germany, Monaco, Netherlands and Portugal. Orange roughy and alfonso are sent to the USA, which accounts for about 95 percent of exports of these species while 5 percent go to China, Spain and France.</p> <p>Horse mackerel is mainly distributed in the African markets, with about 70 percent going to DRC, and the balance to RSA, Mozambique and other SADC countries.</p> <p>Pilchard in the form of a canned product is exported to RSA mainly via the Lucky Star brand, and to the UK through Glenryck UK.</p> <p>Tuna and large pelagics are shipped to Japan and Spain and a limited quantity of smaller fish goes to the USA.</p> <p>Deep sea red crab goes entirely to Japan.</p> <p>Rock lobster goes to Japan and USA. Cultured oysters are exported to RSA and South-East Asia, especially Singapore, Hong Kong and China, while cultured abalone is exported to Japan and China.</p> <p>Fish meal and fish oil is exported to China.</p>

Country	Key export destinations	Key export species/products
Seychelles	France, Germany, Japan, Mauritius, Reunion and the United Kingdom	<p>For the industrial purse seine tuna fishery, the majority of the catch is transhipped to refrigerated vessels destined for Europe, Mauritius, Puerto Rico and Thailand, the rest delivered to canning factory in the Seychelles for processing. High quality species such as snapper (<i>Lutjanidae</i>) and grouper (<i>Serranidae</i>) are usually sold to the main export and fish processing companies to later be sold to the hotels or exported fresh on ice to Reunion and Europe.</p> <p>In terms of aquaculture, giant black tiger prawn (<i>Penaeus monodon</i>), pearl oysters and giant clams are reared and exported.</p> <p>There is a limited shark fishery, with vessels targeting sharks mostly for their fins, and exports are usually to the Far East for a premium price. An important sea cucumber fishery has developed, with the final salted product exported to the Far East as well.</p>
Republic of South Africa	Spain, Italy, Rest of EU, Asia, USA, Oceana and Africa, mainly comprising DRC, Zimbabwe, Zambia, Mozambique and Mauritius	<p>Deep-water cape hake (<i>Merluccius paradoxus</i>), shallow-water cape hake (<i>Merluccius capensis</i>), cape horse mackerel (<i>Trachuruscapensis</i>), Southern African pilchard (<i>Sardinops ocellatus</i>), Southern Africa anchovy (<i>Engraulis capensis</i>), rock lobster, abalone, various kinds of squid (<i>Loligo</i> and <i>reynaudi</i> species), tuna, shark and swordfish long lining are all developing sectors in RSA fished by foreign flag operators in joint ventures with the South African rights holders and are important species for exports.</p>
Swaziland	Not available	Fish Meal/fish oil is exported to other African states.
Tanzania	Europe, Australia, USA, Hong Kong, Singapore, Japan, the Middle East, China. Africa: DRC, Kenya, Central African Republic, Sudan, Nigeria, Rwanda, Burundi, Zambia and RSA	<p>In 2005, 1 597 tonnes of fish were exported for direct human consumption.</p> <p>Nile perch (<i>Lates niloticus</i>), forms the bulk of exports from Lake Victoria. Main export destinations for filets are Europe, Australia, USA, Asia (Hong Kong, Singapore, Japan) and the Middle East. Sun-dried Nile perch maws are exported to Asian markets, in particular Hong Kong, China and Japan. Nile perch skin is exported to UK.</p>

Country	Key export destinations	Key export species/products
		<p>Other exports include tilapia and the sardines, locally known as “dagaa” from Lake Tanganyika (<i>Stolothrissa tanganyicae</i>), as well as pelagic sardines (<i>Rastrineobola argentea</i>). Small pelagic such as dagaa/mukene (<i>R. Argentea</i>) are exported to DRC, Kenya, Central African Republic, Sudan, Nigeria, Rwanda, Burundi, Zambia and RSA. DRC is by far the most important export destination for dagaa.</p> <p>Shellfish (mainly shrimp, lobster and crab) and cephalopods (squid and octopus) are the main exports from the marine sub-sector. Shrimp exports are developing positively to Japan and Europe.</p> <p>Seaweeds (<i>Eucheuma</i> and <i>Kappaphycus</i> species) also contribute to the fishery exports from Tanzania and are exported to Sweden and the USA.</p>
Zambia	Regional exports of low-value fish for human consumption	Fresh water sardines (<i>Limnothrissa</i> spp.), kapenta (<i>Stolothrissa</i> spp.) and other smoked products are exported to regional markets such as Botswana, DRC, RSA and Zimbabwe.
Zimbabwe	Northern Europe, Spain and the Southern African Region	Live fish for ornamental purposes are exported to Belgium, Canada, Denmark, UK, Germany, Russia, Sweden and the USA. Nile tilapia (<i>Oreochromis niloticus</i>) produced from the Lake Harvest aquaculture farm on Lake Kariba is exported as fresh whole round to neighboring SADC countries. Until 2009, fresh/frozen fillets of tilapia were being exported to the EU, mainly to supermarket chains across northern Europe and Spain. Now, fresh fillets are being exported weekly to UK supermarkets.

Source: FAO Fisheries country profiles.

10. THE ROLE AND PRACTICES OF INFORMAL TRADE IN SOUTHERN AFRICA

Informal trade, primarily products from artisanal fishing, is common across borders between African countries. Due to the size of many of the inland lakes in Africa, the quantities of fish involved are likely to be large, but because of the very nature of the trade, no records are available.

In the case of Tanzania, the popular fish dagaa is carried across borders in small quantities of 20–40 kg to avoid taxation. In fact, depots close to the borders have even been established.

There are reports that the resource rich Lake Victoria fishery has led to a booming illegal business between Tanzania, Uganda and Kenya. Large quantities of unprocessed fish, especially Nile perch and tilapia, are the subject of illegal trade.

This trade is not only detrimental to the state of the resources (it is reported that Nile perch of 2 cm are being marketed), but is also detrimental to the legal export trade. Part of the illegally traded fish finds its way onto export markets like the EU, and this competes directly with legally traded fish. Legal operators, who have to comply with increasingly strict EU regulations and pay taxes to their national governments, are facing a competitive disadvantage compared to these illegal traders. African countries need to develop the capability to control and discourage the illegal cross-border trade in fish and fish products.

Angola is reported as having large proportions of dried and smoked fish exported to neighbouring countries in the region especially the DRC, Zambia and Namibia. Again, the quantities are unknown for obvious reasons.

Zimbabwe has the capacity to boost production by utilizing the 10 000 dams constructed for water storage for fish farming. Local communities currently capture existing fish stocks in these dams and the capture fishery is threatened by these increasing illegal fishing activities. Additionally, poachers encroach in areas set aside as breeding grounds and introduce error margins in yield estimates. Thus the bulk of fish being caught is unaccounted for, thereby seriously affecting management decisions.

11. TRADE BARRIERS AND REGIONAL TRADE

Much has been said with regards to obstacles hindering intra-African trade or Africa's international trade in fish and fisheries products, however very little action is seen to implement corrective measures. The main obstacles identified may be classed in four categories, namely:

- Political commitment or lack of it;
- Post-harvest losses and the need to improve norms and standards;
- Specialisation and outsourcing; and
- Investment and competitive business climate, infrastructure (at all levels including road networks), regulatory framework, and simplifying trade logistics and financial systems.

Political commitment at the highest level is a prerequisite if any progress is to be achieved. Namibia is an excellent case where politics rightly influenced the sustainable management of the fisheries.

Some of the countries in the SADC region record high post-harvest losses; in some cases, up to 40 percent. If this were reduced through better conservation and preservation methods and value addition, more fish would be available on the market ensuring food security and better income to stakeholders.

In the same context, specialisation and outsourcing could enhance intra-African trade with South East Asian countries being a good example to follow. However, to promote intra-African or international trade certain conditions are necessary. There is an urgent need to improve the investment climate and create a conducive and competitive business climate to attract direct foreign investment or even local investment. The following recommendations can be made to achieve this climate:

- Improve infrastructure such as road networks to facilitate transportation and reduce costs;
- Build cold storage and ice plants to provide a longer shelf life for products and improve conservation and preservation techniques;
- Simplify logistics and reduce import and export documents to a minimum;
- Address the issue of corruption;
- Set up proper data collection and analysis; and
- Revisit financial and regulatory systems to enhance trade both at the continental and international level.

In addition to the above, lack of trained capacity and access to information on markets and fish prices seems to be common to all SADC countries and must be addressed urgently.

12. AQUACULTURE DEVELOPMENTS

Aquaculture is still in its infancy in the SADC region, but growing modestly. The current production includes mainly seaweed, tilapia, catfish, shrimp, oyster and other molluscs. Total registered aquaculture production in the SADC has averaged around 40 000 tonnes annually for the last five years.

In 2010, FAO estimated the total aquaculture production in the SADC region at only 45 000 tonnes, representing only 0.05 percent of the total world production. The major producer is by far Zambia (10 921 tonnes) followed by Madagascar (10 886 tonnes) and Tanzania (7 334 tonnes). In 2011, production in Zimbabwe peaked at 7 100 tonnes according to official information available.

Table 16. Aquaculture production in the SADC region by country (volume in tonnes)

Country	2004	2005	2006	2007	2008	2009	2010	Rank 2010
Angola	92	126	156	190	190	210	210	14
Botswana	-	-	-	-	-	10	20	15
DRC	2 965	2 965	2 970	2 970	2 970	2 970	2 970	5
Lesotho	2	1	2	131	91	107.6	300	12
Madagascar	9 603	10 296	16 533	14 943	14 486	9 696	10 886	2
Malawi	733	812	1 500	1 500	1 700	1 620	1 500	8
Mauritius	350	400	443	175	246	4 37.4	567	10
Mozambique	538	1 278	1 063	907	762	560	1 564	7
Namibia	192	192	273 .5	360 .5	605 .6	665 .6	675	9
Seychelles	1 175	772	704	368	289	300	300	11
South Africa	5 954	5 895	6 037	5 669	5 421	5 333	5 160	4
Swaziland	-	-	-	-	-	73	209	13
Tanzania	3 013	3 012	3 272	4 045	5 217	5 722	7 334	3
Zambia	5 125	5 125	5 210	5 876	5 640	8 505	10 921	1
Zimbabwe	2 955	2 452	2 450	2 500	2 602	2 652	2 100	6
TOTAL	32 697	33 326	40 614	39 635	40 220	38 862	44 716	

Source: FAO FishStat, 2012 (with complementary data from INFOSA).

Major freshwater species being cultured in the region include tilapia, catfish, trout, carp and freshwater prawns. There is also a record of Nile crocodiles being reared on large scale in RSA, Zambia and Zimbabwe.

Of the marine species, shrimp are produced on large scale in Madagascar, Mozambique and Tanzania, whereas oysters and abalone predominate in RSA and Namibia. Red drum are being farmed successfully in Mauritius. There are trials of other marine finfish such as yellowtail, eels, dusky cob and cobia in RSA and Mozambique. Significant seaweed production volumes are recorded in Tanzania and its coastal island, Zanzibar. Sea cucumbers are also being tried in Mozambique, Mauritius and Madagascar.

Good potential for aquaculture production exists in the region, due to favourable environmental conditions and unpolluted inland and coastal waters. In addition, there are many native species suitable for aquaculture and these are being tried through research and development efforts.

Interest and investments in SADC aquaculture can broadly be divided into two categories: community based aquaculture which is promoted by international organizations, aid agencies and governments as part of their efforts to alleviate poverty, create livelihoods and improve the food supply situation; and commercial aquaculture, which is mainly privately financed and export oriented.

A number of community based aquaculture projects have been started in SADC countries such as Malawi, Namibia, Mozambique, Zambia and Zimbabwe. These projects are of a small-scale nature and have been financed by aid agencies and national governments.

The expansion of small-scale aquaculture is gathering momentum in areas where there is physical potential (land, water, temperature etc), where there is a perceived need for fish for food or income, and, importantly, where extension services promote aquaculture. It has occurred primarily through utilising increased surface area under water as more and more farmers adopt fish farming as a complementary farming activity. Levels of productivity remain relatively low, in line with production levels of other small-holder crops.

Commercial investments in aquaculture are increasing and have been registered in almost all countries according to a survey done by INFOSA (Intergovernmental Organisation for Marketing Information for Southern Africa). Generally, these projects are developed on a larger scale and their production is mainly export oriented. Often, there is foreign capital involved, in some cases in joint venture with local investors.

Some SADC aquaculture projects have been successful in exporting to world markets, such as tilapia farming in Zimbabwe, shrimp farming in Mozambique and Madagascar, oyster farming in Namibia, abalone farming in RSA and red drum farming in Mauritius.

The local markets, which until now have been served mainly by small-scale, community based fish farming, are probably grossly under-estimated. There is a growing demand in the region for freshwater fish and seafood, and many markets are willing and able to pay good prices. In fact, for many operations, the local, African markets represent a better option in terms of profitability. What is needed, though, is the development of distribution systems, and to some extent cold chains. This is evident in Zambia where almost all farmed fish is consumed locally.

Some of the driving factors for accelerated aquaculture production in the SADC region include:

- Good natural or bio-physical conditions for both freshwater and marine aquaculture;
- Improved agro-based economies in many countries of the region who are now taking agricultural diversification opportunities;
- Enhanced fish supply for food security and attractive investment opportunities as demonstrated by some successful farms in the region, including local enterprise development and enhanced export earnings from industrial scale aquaculture;
- Competitive fish prices everywhere in the region, thereby making aquaculture an attractive business proposition;
- Improved skills and technologies in some countries, research and development efforts and understanding of aquaculture techniques and practises on a larger scale; and
- Other associated socio-economic benefits (job creation, food security, livelihoods, etc.).

13. FISH TRADE CHALLENGES FACED BY SOUTHERN AFRICAN COUNTRIES

When trying to promote trade in fisheries products and improve competitiveness, the following challenges affect the region:

- The need to upgrade infrastructure such as fishing vessels, cold storage facilities, and processing plants, particularly when it comes to investing in value addition;
- The need to improve country infrastructure such as roads to enhance trade corridors within and between countries;
- Post harvest losses are high in artisanal fisheries, or where infrastructure is poor;
- Promoting trade in a way that also promotes food security for the poor and long-term sustainability of stocks;
- The need for export credit facilities;
- Access to finance, particularly for artisanal fishers, smaller fishing companies, and aquaculture ventures;
- Assistance in forming win/win joint ventures;
- High taxes and import duties;
- The need for capacity building, and retaining skilled staff after they have been trained;
- Unreliability of data;
- Difficulty in obtaining useful marketing information and making the right end buyer links;
- Access to markets, including issues such as: WTO requirements; rules of origin; sanitary and phyto-sanitary (SPS) requirements; technical barriers to trade requirements; tariffs and quotas; non-tariff barriers; dumping charges; product names; packaging and labelling requirements; eco-labelling; and compliance with European Union regulations;
- Illegal fishing;
- Informal trade;
- Regional integration and harmonisation of policies and human and institutional infrastructure including training in a way that promotes –intra-regional trade; and
- Improving monitoring and accountability.

14. INTERVENTIONS AND SUPPORT FROM VARIOUS ORGANISATIONS

14.1. ACP FISH 2 – STRENGTHENING FISHERY PRODUCTS HEALTH CONDITIONS IN ACP COUNTRIES

This project is funded by EuropeAid with contributions from UK and The Netherlands. The 2002–2010 budget was Euro 48 million. This large scale project covered all ACP regions including also ESA-IO (Eastern and Southern Africa-Indian Ocean) countries. The main purpose was to build and improve the trade capacity of the participating countries within fish products by enhancing compliance with the WTO SPS agreements. The immediate objective was to assure compliance with the valid EU food health and safety regulations, both for public section control and inspection authorities and also for the private sector operators in fisheries, aquaculture and processing/storage.

14.2. SMARTFISH PROGRAMME

The Implementation of a Regional Fish Trade Strategy for the East-Southern Africa and Indian Ocean Region (IRFS or SMARTFISH Programme) was launched in February 2011 with the aim of contributing to an increased level of social, economic and environmental development and deeper regional integration in the ESA-IO region through the sustainable exploitation of fisheries resources. The programme is financed by the European Union under the 10th European Development Fund within a total financial contribution of Euro 21 million. The programme is implemented by the Indian Ocean Commission in collaboration with the Common Market for East and Southern Africa, the East Africa Community and the Inter-Governmental Authority on Development. Other regional institutions involved include the Southern African Development Community and regional fisheries management organizations, such as the Indian Ocean Tuna Commission, the Southwest Indian Ocean Fisheries Commission, the Lake Victoria Fisheries Organization, and the Lake Tanganyika Authority. The first phase of the programme will be implemented over a period of 31 months (March 2011–September 2013). Beneficiary countries in the SADC region include; Tanzania, Malawi, Zambia, DRC, Mauritius, Madagascar, Seychelles, Swaziland, Zambia and Zimbabwe.

The overall objective of the programme is to contribute to an increased level of social, economic and environmental development and deeper regional integration in the ESA-IO region through the sustainable exploitation of fisheries resources. The expected results and outcome of the programme fall into the following five categories: fisheries governance; fisheries management; monitoring, control and surveillance; regional fish trade and food security.

This assignment falls under the Result 4 (regional fish trade component) of the project. The development of a regional trade strategy is the thrust of the programme. This will be implemented through national and regional level trade and marketing approaches and national and regional consensus to support strategy development.

14.3. NEPAD (NEW ECONOMIC PARTNERSHIP FOR AFRICA DEVELOPMENT) PROGRAMMES

NEPAD/AU Partnership for African Fisheries - PAF is the Partnership for African Fisheries. PAF works to improve the sustainability of Africa's fisheries and improve the returns provided by this sector. PAF will support and help implement earlier African fisheries instruments targeting reform.

The Programme in Support of the Implementation of the FAO Fisheries and Aquaculture Strategy in Africa (GCP/RAF/463/MUL) is an extra budgetary multi-donor programme which aims to support the development and implementation of a Comprehensive African Fisheries Reform Strategy promoted by the NEPAD Action Plan for the Development of African Fisheries and Aquaculture and by the recent Conference of African Ministers of Fisheries and Aquacultures recommendations.

This is to be achieved by promoting and supporting:

- Enhanced multi level governance and regional economic integration;
- Enhanced responsible fisheries and aquaculture management; and
- Enhanced capacity of fishing and aquaculture communities to reduce their vulnerability to natural disasters and climate change.

14.4. INFOSA

INFOSA as a unit of INFOPÊCHE was established to contribute to the wider development goals of the region and Member States, as defined *inter alia* in the Millennium Development Goals, the SADC Protocol on Fisheries and the NEPAD Action Plan for the Development of African Fisheries and Aquaculture.

To this end, the project defines the underlying goal to be “reducing poverty and enhance food security”, a goal that will only be achieved through various and integrated means, that requires consideration of principal economic drivers such as improved fisheries management, investment facilitation as well as concern focused directly on the livelihoods of vulnerable communities themselves.

In order to realise this goal, INFOSA provided technical advisory services and capacity building initiatives. To achieve this, the organization was built up on two main functionality areas: (1) Marketing Information; and (2) Post Harvest/Quality Assurance. In 2007, a third component, Aquaculture Development was added following strong demand for capacity building in this new area by the SADC member states.

14.5. TECHNICAL COOPERATION PROGRAMME FACILITY, IMPLEMENTATION OF SOUTH AFRICAN NATIONAL AQUACULTURE STRATEGIC FRAMEWORK: PUBLIC UNDERSTANDING OF AQUACULTURE

In collaboration with FAO, RSA’s Department of Agriculture, Forestry and Fisheries (DAFF), will implement a Technical Cooperation Programme Facility to identify gaps in the country’s National Aquaculture Strategic Framework. The project will have a specific focus on development of freshwater aquaculture, in which there is considerable need. Local demand for freshwater aquaculture products will be assessed to determine

the level of investment needed and public understanding of aquaculture will be explored to determine an aquaculture awareness programme with a detailed five year implantation plan. The nine-month project will ultimately be the springboard for the piloting of profitable small-and medium-scale freshwater fish farming in RSA, and will provide key tools to guide the development of the country's entire sub-sector.

14.6. INTERNATIONAL GUIDELINES FOR SECURING SUSTAINABLE SMALL-SCALE FISHERIES

The 29th Session of the FAO Committee on Fisheries held in February 2011 recommended that an international instrument on small-scale fisheries be developed. This is based on a number of global and regional conferences and consultative meetings exploring how to better bring together responsible fisheries and social development in coastal and inland fishing communities. The guidelines will have particular relevance to the SADC region as small-scale fisheries play a vital role in poverty alleviation and food security there.

The Guidelines will be voluntary, focus on the needs of developing countries, and relevant to small-scale fisheries in marine and inland waters covering fishing as well as related post-harvest and upstream activities. They are being developed through a consultative process involving governments, regional organisations, civil society organisations, and small-scale fishers, fish workers and their communities. In October 2010, a 3-day African Regional Workshop took place in Maputo, Mozambique. The workshop was attended by 60 participants representing 16 African governments and 13 national, regional and international organisations and agencies, including civil society organizations (CSOs) and non-governmental organizations (NGOs).

The workshop recommended that a small-scale fisheries international instrument and assistance programme should:

- Be informed by human rights principles and existing instruments relevant to good governance and sustainable development;
- Include the ecosystem approach to fisheries as a guiding principle for resource management and development; and
- Incorporate disaster risk management and climate change adaptation as an integral part.

A Zero Draft of the Guidelines was published in May 2012.

14.7. OTHER

There are several other organisations with ongoing projects/programs in an effort to improve fisheries, fish trade and aquaculture development in the region and these include Worldfish Centre, International Fund for Agricultural Development, World Bank and Common Fund for Commodities - initiatives in Angola and Mozambique, Africa Development Bank, Aquaculture Network for Africa, Aquaculture Association of Southern Africa, etc.

14.8. REGIONAL ORGANIZATIONS AND ECONOMIC COMMUNITIES

The smooth flow of regional trade within the SADC is aggravated by different trade agreements between member countries and their Regional Economic Communities, such as the Common Market for Eastern and Southern Africa (COMESA), Southern Africa Custom Union (SACU), East Africa Co-operation (EAC), Indian Ocean Commission (IOC), Indian Ocean Rim (IOR) and Common Monetary Area (CMA).

Table 17. Membership of regional organisations in the SADC region by country

Country	SACU	CMA	SADC	COMESA	EAC
Angola			X	X	
Botswana	X		X		
DRC			X	X	
Lesotho	X	X	X		
Madagascar			X		
Malawi			X	X	
Mauritius			X	X	
Mozambique			X		
Namibia	X	X	X		
Seychelles			X	X	
Republic of Republic of South Africa	X	X	X		
Swaziland	X	X	X	X	
Tanzania			X		X
Zambia			X	X	
Zimbabwe			X	X	

In general, trade barriers continue to constrain the development of intra-regional trade, although the SADC is working hard to resolve this. Most of the SADC countries have developed substantial policy reform in line with market liberalization policies and regional integration. However, the fact that SADC countries are members of other trading blocs has meant that their trade policies overlap each other and hamper full realization of the SADC Trade Protocol.

15. CONCLUSION

The real potential of the fisheries and aquaculture sector in the SADC region is yet to be thoroughly assessed. In many countries, fisheries are a key food security resource, particularly in terms of protein content and the micronutrients people receive from eating fish. However, a fast growing population and in many cases open access fisheries in inland fisheries (sometimes due simply to limited policing resources), is putting these resources under severe pressure.

Aquaculture is finally establishing itself in the region, although modestly. The environment in the SADC region is generally well suited to aquaculture, but with rapidly increasing populations resulting in reduced per capita consumption of fish, African countries will need to vigorously promote aquaculture, enhance natural fish stocks where possible, and promote effective fisheries resource sustainability measures to meet productivity requirements.

This means an enabling policy and regulatory environment to facilitate development. Policy makers need to be kept properly informed, and there is need for effective policy analysis. Consequently research directed at meeting information needs, developing appropriate technology, promoting required skills and regulatory controls, and mobilising economic resources is needed. It is essential that the private sector be engaged as they are the engine of economic growth and development, and their financial and operational investment is crucial.

Regional co-operation/integration should enhance closer relationships between stakeholders of the region and donors. Political will and strong leadership is essential if any progress is to be achieved. Strategies and development plans need to be owned by the stakeholders involved to achieve the goals set. Cooperation on strategic trade development needs to be fostered at the country, regional, and global level.

Within the SADC region, there is a great divergence in economic development in the fisheries sector. Those countries such as RSA, Mauritius and Namibia tend to be more developed, with greater disposable income to trade in higher value products. Until now, most of the high-value products have tended to be exported overseas to those who can pay more for them. The recent international economic crisis, however, has slowed down international trade, and pointed to the opportunity for more intra-Africa regional trade. It has also signaled the need to explore diversification of markets, so as not to have sole dependence in one income stream.

There is growing wealth in the SADC region in particular, which is promoting greater regional trade in higher value products. The growing population in other African countries is also creating demand, certainly for volumes of lower value fish products, which domestic markets can no longer meet the requirements for. There is additional demand for high-value products to cater to the richer segments of the population.

To date, high-value marine fisheries exports have primarily been exported internationally, while inland fisheries products (with the prime exception of Nile perch), are exported to countries within Africa. African fish products exported internationally have tended to be sent as a relatively unprocessed commodity. Further processing occurs in Europe, thus benefitting the Europeans in terms of jobs and greater profit.

Only recently has more emphasis been placed on value addition and producing “value-added” fish products within the SADC region. Value addition also creates a whole new service sector in terms of employment and skills development, strengthening the economic base of the country.

Research and analysis of value chains are necessary from a country development perspective. In the international fisheries sector, a FAO study indicates that the majority of benefits generated throughout the value chain are captured by the retail/wholesale/secondary processing sector of the industry. This applies to both products originating from fisheries in developing and developed countries.

Countries in the SADC region need to develop strategies to capture more of the benefits of the retail/wholesale/secondary processing sector in particular. The encouragement of “cluster” developments, where different industry support sectors with common interests come together, could create an environment where all sectors benefit in a greater way due to improving efficiencies by working closer together.

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