

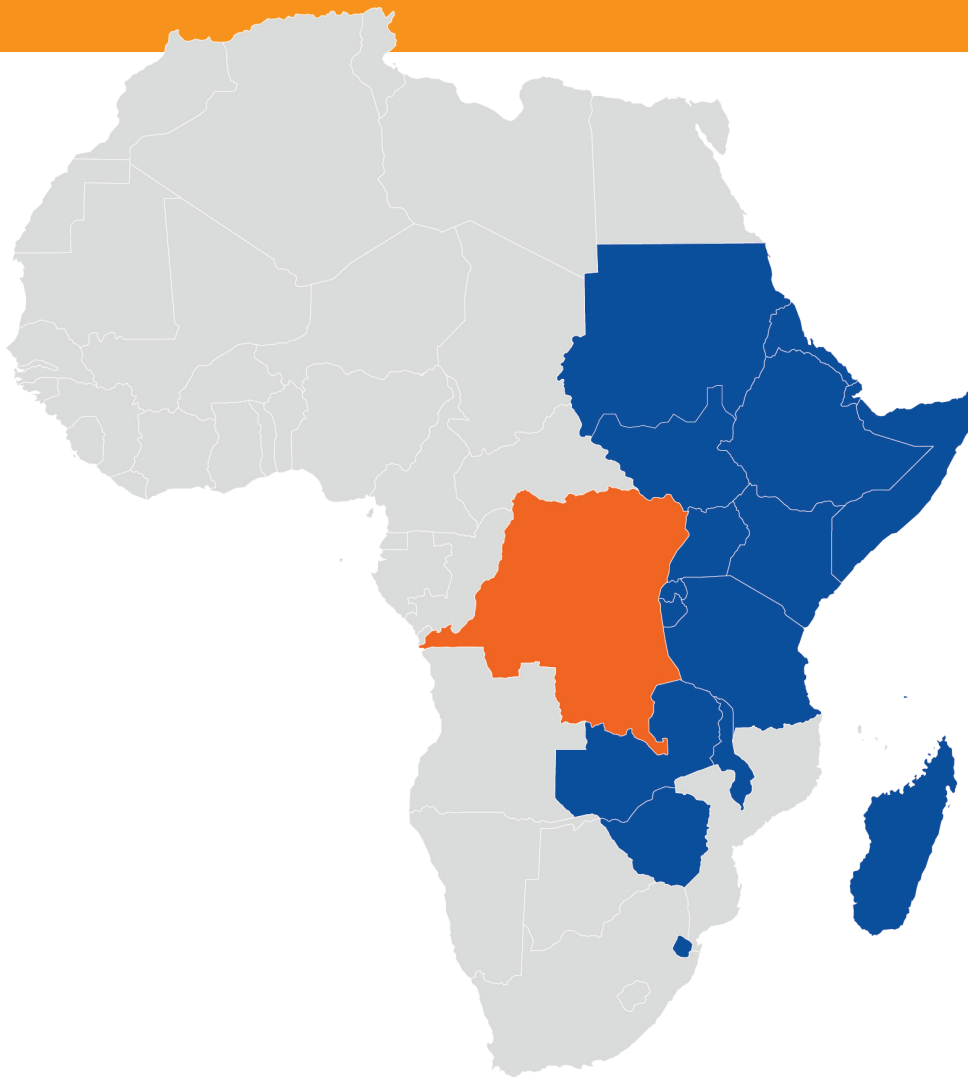


Fisheries in the ESA-IO Region: Profile and Trends

COUNTRY REVIEW

2014

DEMOCRATIC REPUBLIC OF CONGO





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This document was prepared as part of the activities of the Indian Ocean Commission (IOC) SmartFish Programme, under the FAO Fisheries management component, in the monitoring and analysis of major issues with implications for fisheries and aquaculture in the twenty countries from the Eastern Southern Africa-IOC region participating in the Programme. This has resulted in the preparation of twenty country baselines whose purpose is to serve as easy-to-read and informative references for policy decision-makers, fishery managers, development partners and stakeholders. The baselines inventory and describe for each country the trends in status of fisheries, major social and economic dynamics of relevance to the fishery sector, policy, legal and administrative frameworks, and management regimes. The present document relates to the baseline for DR Congo.

The preparation mainly involved Mr Christophe Breuil and Mr Damien Grima, FAO consultants, who made essential contribution in drafting the text and developing infographic for publication on the basis of the analysis of official and grey literature and vast field experience in the region. Much gratitude is due to all SmartFish experts who act as reviser. In particular, Ms Clotilde Bodiguel Chief Technical Adviser of IOC SmartFish activities implemented by FAO, who provided the initiative, was instrumental in the editing and Mrs Florence Wallemacq, Outreach Consultant, assisted in the formatting for publication. Lastly, the editor would like to thank National and Regional Focal Points of the IOC SmartFish Programme for providing complementary data and information.



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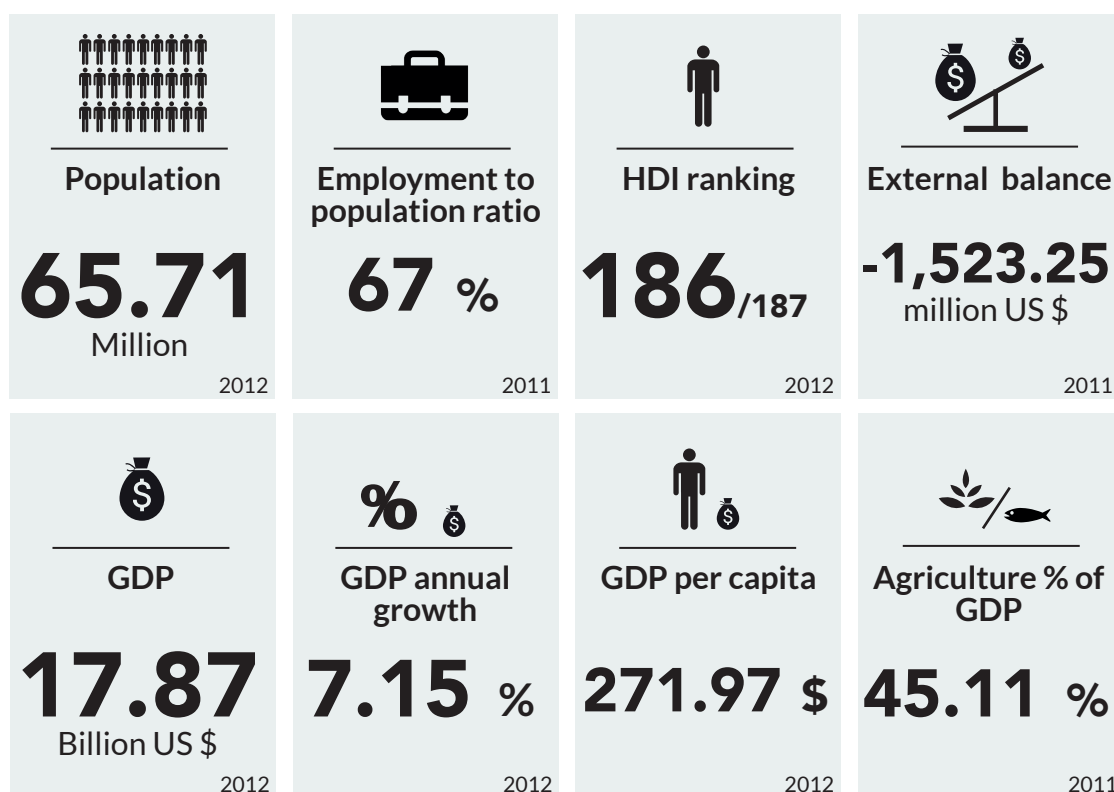


BACKGROUND INFORMATION

1 Brief on the National Economy

Key figures on Macro economic data

2014- Source World data Bank - Latest reported data



The Democratic Republic of Congo (DRC) is a very large country in central Africa with a total area of about 2,345,000 km²; its marine coastline however, is limited and is less than 40 km on the Atlantic Ocean. The country has substantial agricultural, oil and mining (including copper, cobalt, zinc and diamonds) potential. The population of DRC was estimated at 65.7 million in 2012. The population density is low at about 28 inhabitants per km² with 70% of the population living in rural areas.

The fundamental structure of the economy has changed little over the last three decades and is still based on agriculture and mining, which still account for more than the half of the GDP. In 2012, agriculture (including fisheries) contributed to approximately 45% of GDP and 70% of employment. In the same year, mining accounted for about 12% of GDP and 88% of export revenues. Manufacturing contributes little to the economy. On the other hand, the contribution of the tertiary sector, especially commerce, to economic growth has been quite substantial over recent years thanks to exchange rate stability, better roads and decongestion at the ports of Matadi and Boma (OECD et al., 2013).

In 2012, total GDP in DRC was estimated at US \$17.9 billion (World Bank). GDP growth increased slightly in 2012 to 7.2%, from 6.9% in 2011, driven by vigorous performances in mining, trade, agriculture and construction, despite the degradation of the socio-political situation in the eastern provinces (OECD et al., 2013). The GDP per capita was estimated at US \$272 in 2012, showing a slight increase of 11% compared to 2011.

National development strategies and plans recognize the private sector as an engine for growth. The private sector is however under-developed and most firms are foreign owned, with some low-productivity informal enterprises that are not very profitable (OECD et al., 2013). The business environment still faces a distinct lack of infrastructure, difficulties in accessing electricity, lack of access to long-term credit, unreliable energy supply (in particular electricity), and an unstable socio-political situation. According to the World Bank's report, 'Doing Business 2013', DRC was ranked as one of the most difficult countries in the world to do business in (and ranked 181 out of 185 economies).

Inflation in DRC has been less than 10% since 2011 as a result of tight public financial management and an easing of monetary policies (OECD et al., 2013). Inflation was close to 4% in 2012 (Mehler A., Melber H., Van Walraven K. 2014).

In 2011, the DRC's exports of goods and services reached US \$10.7 billion, whilst imports of goods reached US \$12.2 billion. The country is thus a net importer, with an estimated trade deficit of US \$1.52 billion in 2011 (World Bank). This situation can be explained by continued deficit in services and factor income balance: copper and cobalt dominate exports. Most export goods are sold to China, Zambia and the USA. Most imported goods come from South Africa, the EU, China and Zambia.

The DRC is a member of various regional organizations, including the Southern African Development Community (SADC), the Common Market for Eastern and Southern Africa (COMESA), the Economic Community of Central African States (ECCAS) and the Economic Community of the Great Lakes Region (ECGLC). The DRC is not, however, a very active member due to its economic, political and institutional instability (OECD et al., 2013).

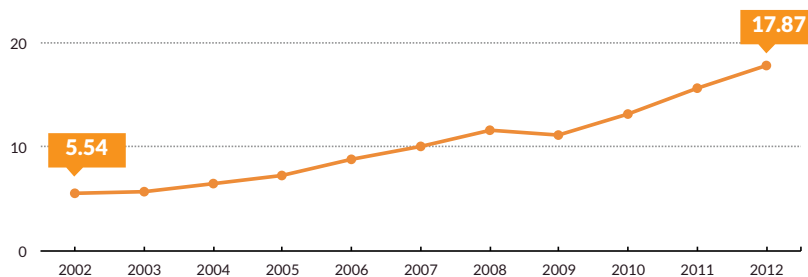
Despite the huge potential of natural resources in the DRC, poverty is still widespread throughout the country. Low wages and difficult access to the labour market (unemployment is estimated at 50% at the national level) are considered as the main causes of poverty. By the end of the 2000's, it was considered that an estimated 16 million people had 'critical' food needs, and the vast majority of the population consumed less than two thirds of the daily calories needed to maintain good health – with 71 percent of the people living on less than one dollar a day (UNDAF, 2008-2012). Despite quickening growth, lower inflation and relative monetary stability, the social situation was still worrying in 2012 (OECD et al., 2013).

DRC's Human Development Index (HDI) puts the country in the 'low human development' category.

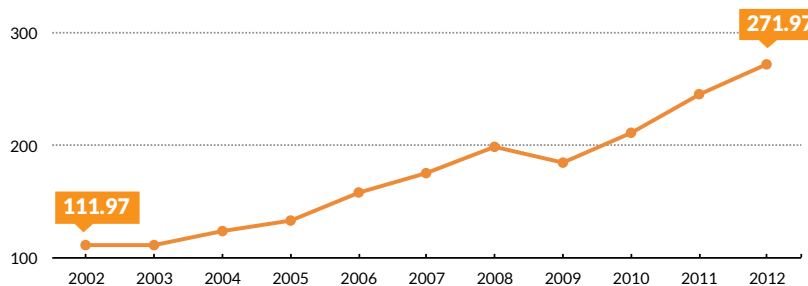
Trends

2014 - Figure 1-5 - Source World Data Bank - Last ten years

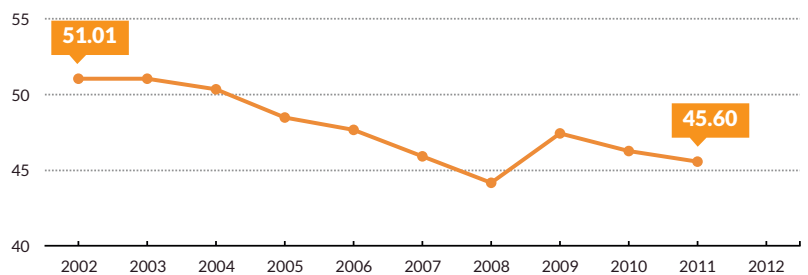
GDP (current billion US \$)



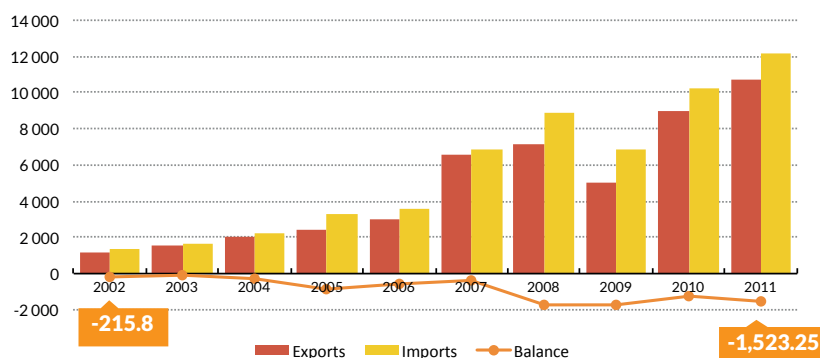
GDP per capita (current US \$)



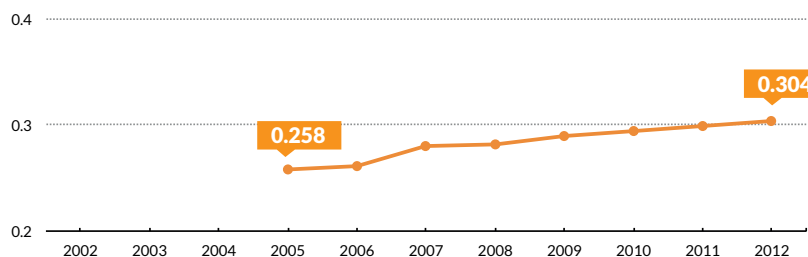
Agriculture % of GDP



Trade balance (current million US \$)



Human Development Index



With an HDI score of 0.304, the country ranked last place of 187 countries in 2012.

2. Policy and Planning Framework

2.1. General Framework

The Congolese leadership has set out an ambitious vision for the country's development. This vision is articulated in the Poverty Reduction Strategic Paper (PRSP) that was presented in July 2006 and emphasizes the need to break with past practices and to ensure a dramatic improvement of living conditions throughout the country, as a condition for sustained peace and eventual economic recovery (UNDAF 2008-2012). Priorities in the PRSP are organized around five strategic pillars as follows: (i) Promoting good governance and consolidating peace; (ii) Consolidating macroeconomic stability and economic growth; (iii) Improving access to social services and reducing vulnerability; (iv) Combatting HIV/AIDS; and (v) Promoting community dynamics.

Agriculture, including fisheries, is addressed in the second pillar of the PRSP related to the consolidation of macroeconomic stability and economic growth. In particular, it states that "agriculture has the potential to be a key driver of poverty reduction, as well as a source of well-distributed growth across provinces" and that "in the short-term, growth will be driven by the restart and extension of production, and over the medium-term, by increased productivity". Priority actions in the PRSP period include improved security in rural areas as well as the creation of a large-scale investment programme to re-open roads (in particular between provincial capitals and their hinterlands) and help reconstitute farmers' assets (UNDAF 2008-2012).

In 2012, the Government allocated US \$23 million for crops, fisheries and animal production, the upkeep of agricultural roads and to improve the lives of farmers, with an emphasis on better access to drinking water (OECD et al., 2013).

There are no specific documents related to food security in the DRC. However, a policy paper on agriculture (including fisheries) and rural development was prepared in 2009 in line with the objectives and strategies presented in the PRSP. The overall objective of this policy paper is to contribute to food security and improved living conditions of rural populations (FAO NMTPF 2011-2015).

2.2. Fisheries in Public Policies

Fisheries in public policies are considered as one of the components of the agriculture sector with significant unrealized potential. In particular, it is estimated that inland fishery resources could yield an annual production of 700,000 MT (*versus* an estimated freshwater fish production of about 220,000 MT over the last decade). The PRSP further states that the country's overall agriculture potential has never been fully realized largely due to the scope of the capital investments required to develop this potential (especially for infrastructure) and to a series of abhorrent or misguided policies (UNDAF 2008-2012).

In the PRSP, specific actions relating to fisheries development include support to fishers, modernization of fishing gear and equipment and credit facilities and in the long-term improvement of fish processing and preservation whilst ensuring sustainable and responsible exploitation of fishery resources.

Furthermore, the operational objectives of the policy paper on agriculture and rural development prepared in 2009 are *inter alia* to improve access to markets and value addition of agricultural (including fish) products, improve the performance of the agriculture sector (including fisheries), build capacities of both public and private institutions and improve the governance of the sector.



KEY INFORMATION AND FIGURES ON THE FISHERY AND AQUACULTURE SECTOR

3. Fishery Sector

There is general lack of data regarding the fishery and aquaculture sector in RD Congo and most of data available would need considerable up-date. Information and data presented below are essentially derived from the FAO Fishery Country Profile dated 2009.

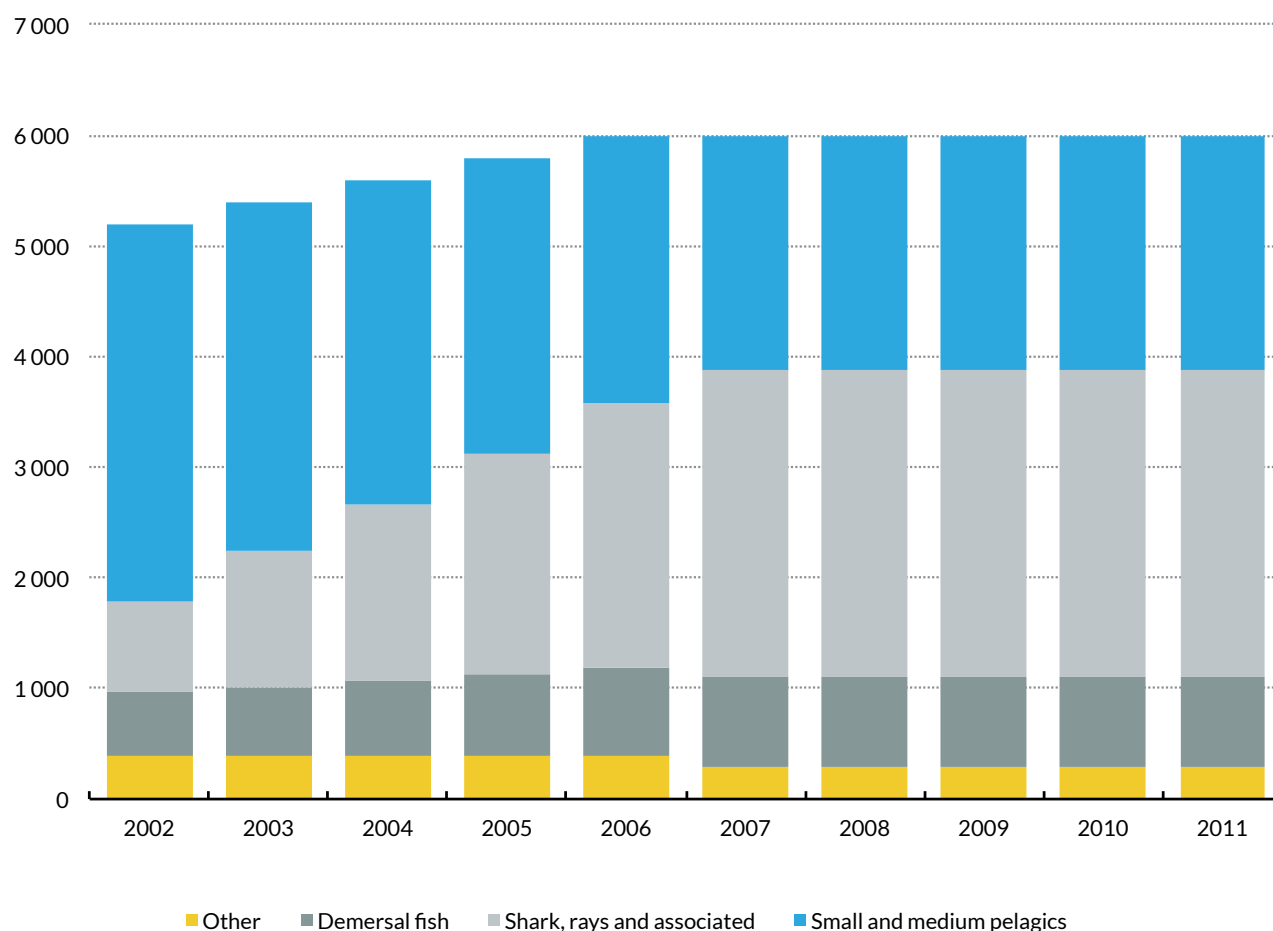
3.1. Marine Fishery Sector

The length of coastline on the Atlantic Ocean is rather limited and is estimated at 40 km. The continental shelf covers a surface area of 1,150 km². Fishing takes place only in the inshore area and involves artisanal fishing units only. According to the last frame survey of marine fisheries carried out in 1995, there were about 26,300 fishers operating with 10,650 fishing craft. The number of fishers would have significantly decreased since that time.

According to FAO FishStat data, the Congolese marine fish production has approximated 6,000 MT per annum over the last decade, with small pelagics and 'sharks, rays and associated' groups

Domestic marine fish production in the DRC (in tons)

2014 - Figure 6 - Source FAO FISHTAT J (2002-2011)



representing about two thirds of the total.

The bulk of the domestic marine fish production is sold fresh on the Kinshasa markets.

3.2. Inland Fishery Sector

The DRC is particularly well endowed with water resources thanks notably to the hydrographical system of the Congo River Basin which is composed of various riverine, flood plain and lacustrine systems, and the Rift Valley lakes in the eastern part of the country that, for the most part, are shared with Burundi, Rwanda, Tanzania, Uganda and/or Zambia. In total, the surface area of water bodies in the DRC is estimated at almost 100,000 km². An overview of the DRC's main bodies of water is given in the table below.

Overview of water bodies under DRC jurisdiction

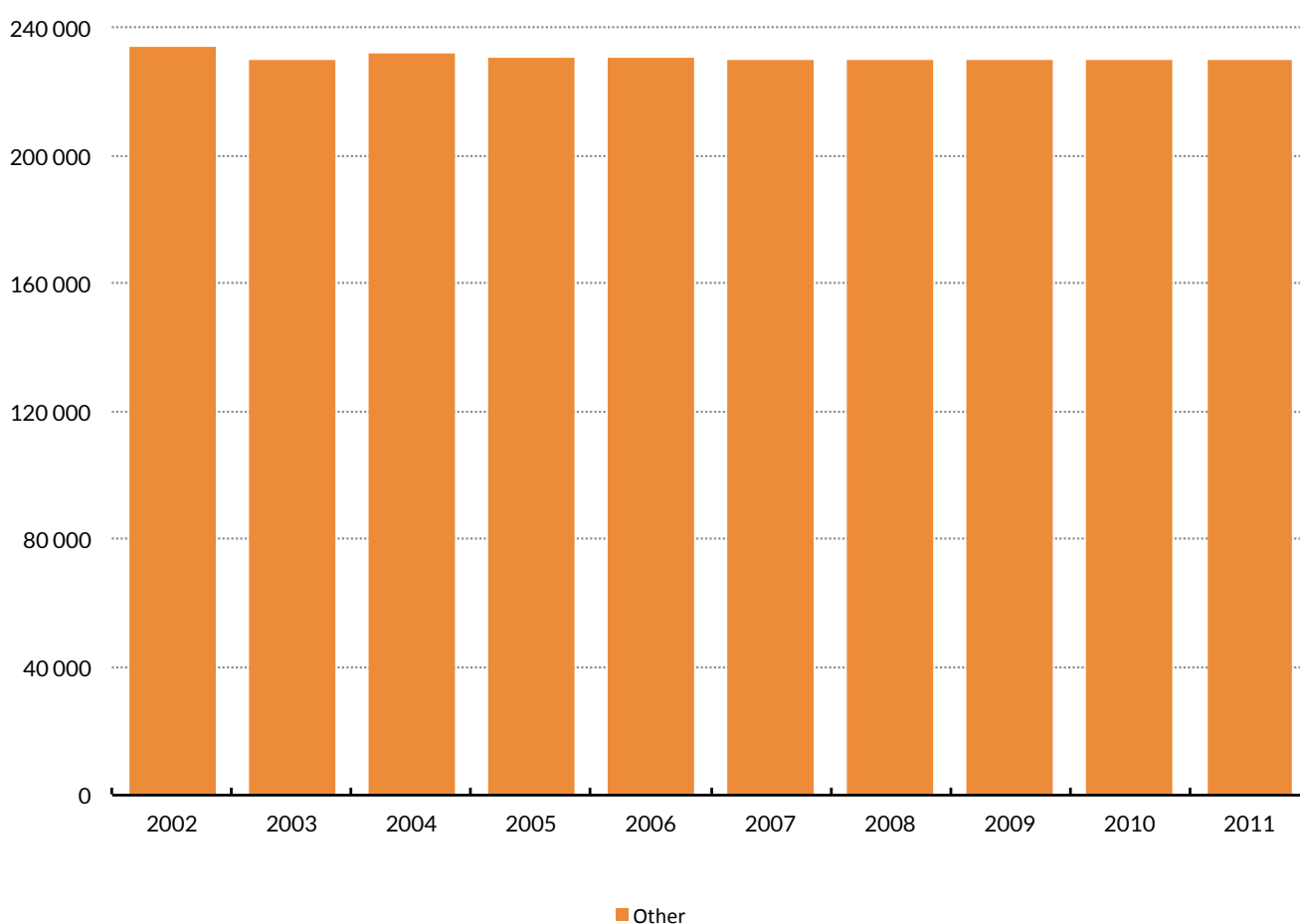
Figure 7 - Source FAO Fishery Country Profile, 2009

Name	Total surface area	Legal status	Production estimate	Main species caught	Number of fishers
	Total/DRC jurisdiction (km ²)		Total/DRC jurisdiction (MT)		
Lake Moëro Lupala	4,650 / 1,950	Shared with Zambia	~13,000 / ?	Tilapia (<i>O. serranochromis</i>), <i>Clarias</i> spp, <i>Synodontis</i> spp, <i>Barbus</i> spp, <i>Mormyridae</i>	-
Lake Tanganyika	32,600 / 14,700	Shared with Burundi, Tanzania and Zambia	160,000-200,000 / ~ 90,000	Small pelagics (<i>Limnothrissa miodon</i> , <i>Stolothrissa tanganyicae</i>), Lates (<i>L. stappersii</i> , <i>L. angustifrons</i> , <i>L. mariae</i> , and <i>L. microlepis</i>)	93,200 / 51,650
Lake Kivu	2,370 / 1,370	Shared with Rwanda	~7,500 / ? (1990's)	Small pelagics (<i>Limnothrissa miodon</i>), <i>Clarias</i> spp, tilapine species	~ 6,560 / ? (1990's)
Lake Edward	2,300 / 1,630	Shared with Uganda	? / ~11,400 (1990's)	Catfish (<i>Bagrus</i> spp, <i>Clarias</i> spp), Lungfish (<i>Protopterus aethiopicus</i> , Tilapine species	?
Lake Albert	5,270 / 2,420	Shared with Uganda	7,000-20,000 / ? (1980's)	<i>Alestes baremose</i> , <i>Hydrocynus forskahlii</i> , <i>Lates niloticus</i>	~20,000 / ? (1980's)
Congo River	25,000	-	? / ~20,000 (1980's)	?	?
Lualaba flood plains	~10,000	-	10,000 – 16,000 (1980's)	<i>Mormyrus</i> spp, <i>Hydrocynus</i> spp, <i>Alestes</i> spp, <i>Distichodus</i> spp, <i>Clarias</i> spp, <i>Synodontis</i> spp, <i>Lates niloticus</i> , tilapine species	?
Flooded forests in Central Basin of Congo	~38,000	-	?	?	?
Lake Tumba	765	-	?	?	?
Lake Mayi Ndombe	2,300	-	1,000 (1980's)	?	4,600 (1980's)
Pool Malebo	550 / 220	Shared with Congo	3,000-3,500 / ? (1980's)	?	5,000 / ? (1980's)

According to FAO FishStat data, DRC freshwater fish production has been approximately 230,000 MT per annum over the last decade. Unfortunately, it is not possible to appreciate the share of the main categories of fish as a percentage of the total production. Main group species belong to the *Allestidae*, *Morydae*, *Claridae*, *Cichlidae* and *Cyprinidae* families.

Domestic Freshwater fish production in the DRC (in tons)

2014 - Figure 8 - Source FAO FISHTAT J (2002-2011)



Most of the freshwater fish are processed by the traditional methods of smoking, salting and sun drying; fresh fish are also sold at markets close to fish landing sites. It should be noted that there are some processing units in Kalemie equipped with cool rooms, which sell high value frozen fish from Lake Tanganyika to markets located in the mining zones of Kasai.

In general, freshwater fish consumption is faced with multiple challenges including remote fishing zones and weak transportation infrastructure, which result in significant post-harvest physical and economic losses, in particular during the rainy season.

4. Aquaculture Sector

Aquaculture has a long history in the DRC where it was first introduced in the early 1950's. The topography, water resources and climate offer favourable conditions for the development of the sector almost everywhere in the country. The main species cultivated include Tilapine species and Catfish (*Clarias gariepinus*). *Tilapia rendalli* and *Oreochromis macrochir* are used for fish farming in small ponds and *Oreochromis niloticus* and *Oreochromis andersonii* in small water bodies.

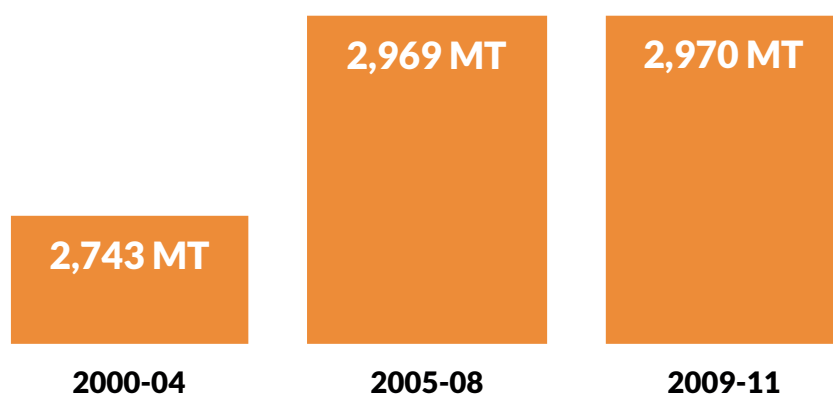
The sector mostly consists of subsistence fish farmers using extensive production systems. Public infrastructure and facilities include primary and secondary fish hatchery stations (25 in total).

The socio-political crisis that has affected the country over the last three decades has had a major negative impact on the development of the highly promising aquaculture sector. Otherwise, there should have been an overall increase in the professionalization of fish farming activities, particularly in sub-urban areas.

According to FAO FishStat data, aquaculture production in the DRC has been approximately 3,000 MT over the last decade with Tilapia accounting for 99% of the total production.

Aquaculture production in the DRC (in tons)

2014 - Figure 9 - Source FAO FISHTAT J (2002-2011)



5. Fish Import and Export

The DRC has 'traditionally' been a net importer of both freshwater and marine fish and fish products. However, official statistics mostly relate to marine fish and fish products, which give a false idea of the real international fish trade in the DRC. Informal imports of dried fish from the Rift Valley lakes, notably lakes Victoria, Turkana and Tanganyika are indeed believed to be considerable. For instance, there is a trade in fish products from Lake Tanganyika moving from Burundi into the DRC, encouraged by reportedly higher fish prices (Petit and Shipton, 2012).

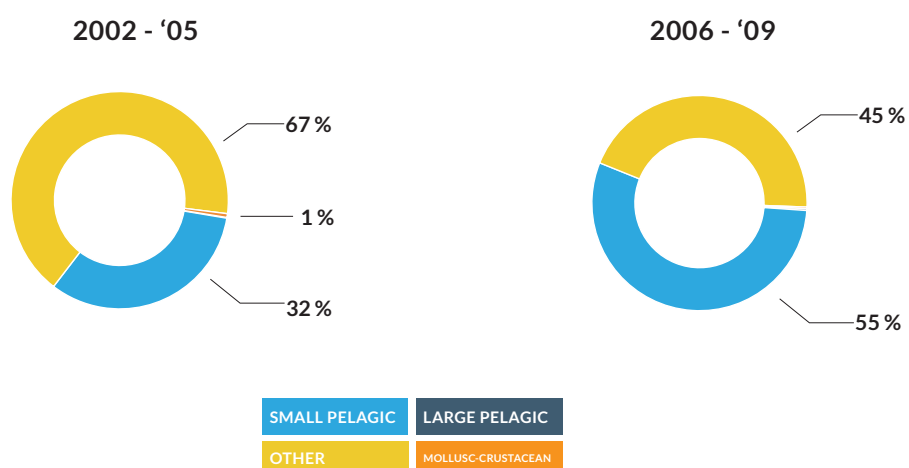
According to FAO FishStat data, in 2009 the DRC officially imported 57,800 MT of fish valued at US \$51 million, essentially composed of frozen small pelagics caught in Namibia and Mauritania.

Although the DRC imports a considerable quantity of fish and fish products to satisfy local demand (highlighting the fact that most imports from East Africa are not recorded), it is believed that a

significant quantity of fish is also exported (but not recorded) in the Great Lakes region. For instance, some Congolese fishers on Lake Tanganyika are encouraged to land fish in Burundi due to the current security situation in the region, notably high levels of piracy and extortion on the northern shores of the Lake (Petit and Shipton, 2012). Other reasons explaining the existence of significant exports include the weak infrastructure between important fish landing sites and local markets. Official data available on exports (FAO FishStat data) indicate that fish exports from the DRC are essentially composed of ornamental fish from the Great Lakes and total, on average, US \$450,000 per annum over the period 2006-2009.

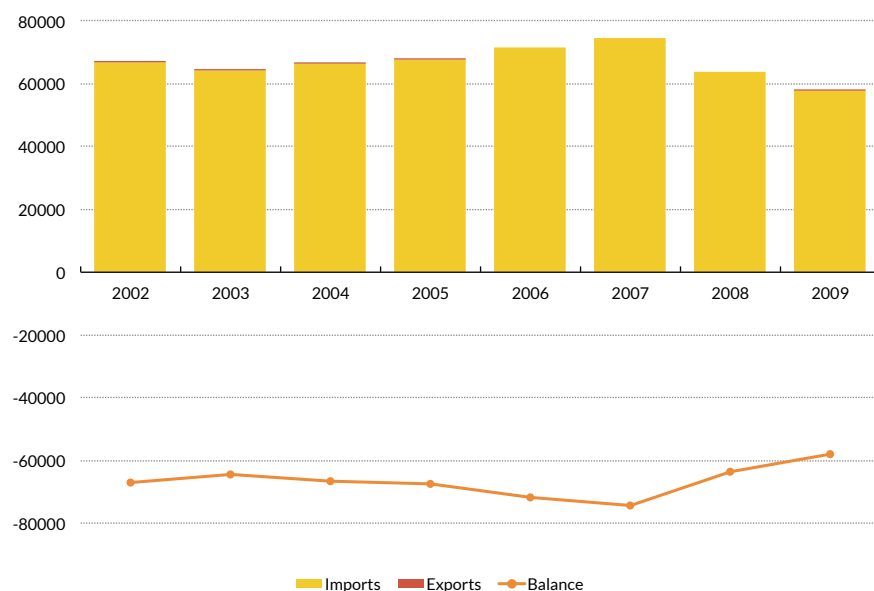
Fish Imports by category in the DRC in value (% of \$)

2014 - Figure 10 - Source FAO FISHTAT J (2002-2009) - Average period



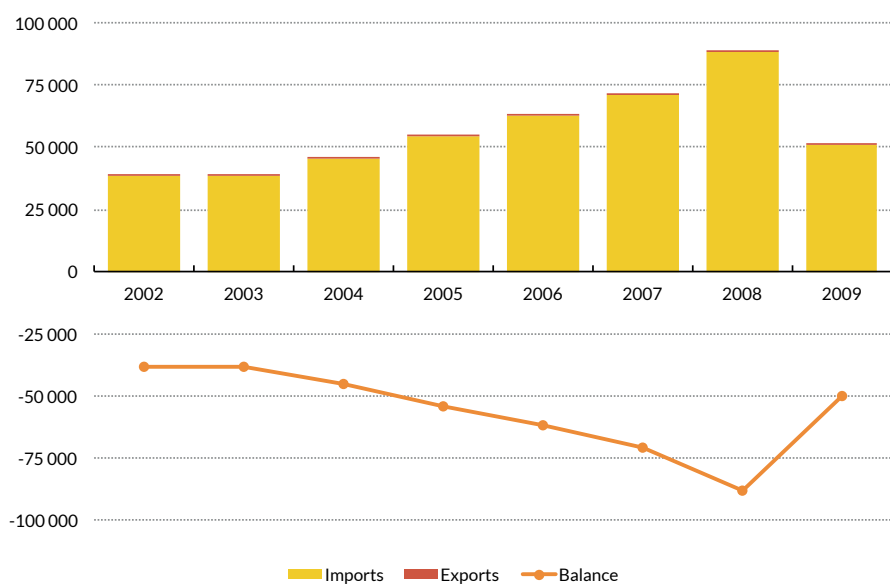
Fish trade balance in the DRC in volume (in tons)

2014 - Figure 11 - Source FAO FISHTAT J (2002-2009)



Fishtrade balance in the DRC in value (in '000 US \$)

2014 - Figure 12 - Source FAO FISHTAT J (2002-2009)



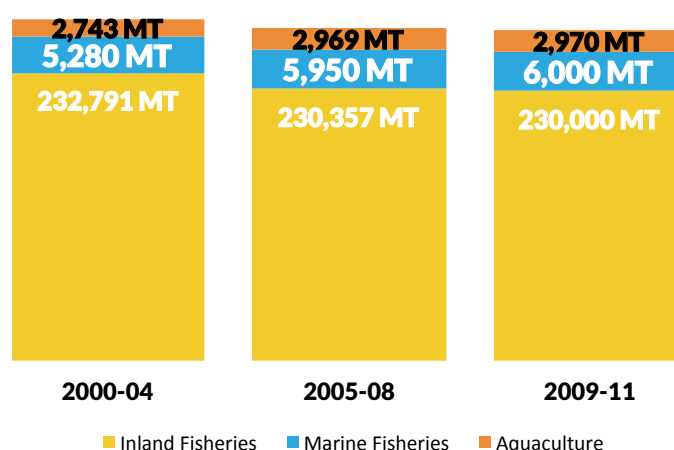
6. Contribution of the Fishery and Aquaculture Sector to the Economy

The fishery and aquaculture sector can be considered an important source of economic activity in the DRC, surpassing livestock, and accounting for **12% of agricultural GDP** in a context where the agriculture sector (including fisheries) employs nearly 80% of the total population (Kurien John, Lopez Rios Javier. 2013). On the other hand, **contribution of the sector to budget revenue** is negligible.

Total fish production in the DRC has approximated 240,000 MT per annum over the last decade, with inland fisheries contributing to roughly 96% of the total.

Total Domestic Fish production in volume in the DRC (in tons)

2014 - Figure 13 - Source FAO Fishtat J (2000 -2011)



According to FAO statistics, almost the entire Congolese fisheries production is destined for the domestic market, and supply is complemented by imports, which represent about 25% of the total supply for the domestic market. The strong component of imported fish is reflected in **foreign trade** figures. Imports of fishery products represented 6% of total food and agriculture imports in 2001, whilst in terms of total imports this share was 1%. Fishery products accounted for 1.7% of total exports of food and agriculture, but given that overall sales of fishery products are extremely low, the proportion of fish in total exports is almost zero (Kurien John, Lopez Rios Javier. 2013). Furthermore, as mentioned above, informal fish trade with neighbouring countries is substantial.

Contribution to employment is difficult to appreciate due to the lack of accurate and up-to-date data. It is estimated that the inland fishery sector provides 600,000 direct and indirect jobs when taking into consideration fishers, fish processors, fish traders and support services and supply industries such as boat building, repairs, transport, etc. (FAO, 2009-2015).

On the DRC shores of Lake Tanganyika, a recent LTA frame survey conducted in 2011 revealed that 88,460 people were directly involved in the fishery sector: 51,650 fishers, 23,150 fish processors (of which 75% were women) and 13,660 fish traders (of which 68% were women).




According to FAO estimates, **per capita fish consumption** for 2009 was estimated at 5.1 kg,

significantly lower than the African average (9.4 kg) and slightly above average for IOC-SmartFish countries. Per capita consumption showed a similar trend, and between 2007 and 2009 per capita consumption fell by 10%. According to the Fisheries and Food Security in the ESA-IO Region, Country Briefs, IOC-SmartFish 2013, the main driver of per capita consumption is population growth. Whilst production remains more or less stable, imports have registered peaks from an otherwise stable level. This trend results in supplies that have not accompanied population growth.

The current contribution of fish and fishery products to **food security** in DRC is significant. FAO estimates indicate that in 2009 fishery products contributed to 39.6% of total animal protein intake in the DRC, amongst the highest in the IOC-SmartFish region, after Comoros and Seychelles, and more than double the African average (Kurien John, Lopez Rios Javier. 2013). The total per capita protein intake from fish has shown a certain reduction since the late 90s and since 2005 has stagnated at around 1.6 gr. This is about half the African average, reflecting that the relevance of fish falls within a context of an overall low animal protein intake.

Fish consumption in the DRC (in live weight)

2014 - Figure 14 - Source FAO Fish and fishery product, world apparent consumption FAO STAT (2000 - 2009)

	 Total fish supply quantity	 Fish supply per capita	 Fish protein per capita
2008 - 09	333,000 MT	5.25 kg/y	1.55 g/day
2004 - 07	333,874 MT	5.58 kg/y	1.63 g/day
2000 - 03	321,661 MT	6.05 kg/y	1.78 g/day



POLICY, INSTITUTIONAL AND LEGAL FRAMEWORK OF RELEVANCE FOR THE FISHERY SECTOR

7. Fishery Policy and Planning

There is currently no specific or up-to-date policy or planning documents for the fishery sector in the DRC. The last document available dates back to 1986 and focuses on the increase of fish production to satisfy local demand and contribute to the country's export revenue. However, although there is no specific policy documents, local public policies, supported by projects in the fishery sector, have shifted from a top-down development-based approach to an approach focused on fisheries and environmental management in close collaboration with stakeholders (co-management) as well as on the integration of fisheries in local development strategies.

In the aquaculture sector, a draft National Strategy for Aquaculture Development in the DRC was prepared in 2007 with support from the FAO, through the organization's Technical Cooperation Programme. This strategy identifies suitable sites and systems for aquaculture throughout the country and emphasises the need to prioritise commercial aquaculture and improve the governance of the sector through the promotion of public-private partnerships. This National Strategy and related development plans have yet to be implemented.

8. Institutional Framework

Responsibility for the management of the fishery sector in the DRC falls under the Direction of Fisheries (DoF) in the Ministry of Agriculture, Fisheries and Livestock. The DoF is composed of four Divisions: the Policy Division, the Control and Surveillance Division, the Fisheries Management Division, and the Research & Development Division. In addition, there is a specialized institution responsible for operational activities, namely the National Service for the Promotion of Fisheries (SENADEP). The missions of the DoF include fisheries policy and planning, enforcement of regulations, research extension and statistics.

Responsibility for the promotion of the aquaculture sector in the DRC falls under the responsibility of the National Service for Aquaculture (SENAQUA) in the Ministry of Agriculture, Fisheries and Livestock. The SENQUA's mission includes the elaboration of policy and planning documents for the aquaculture sector and coordination of all development efforts within the sector. SENQUA has provincial delegations in each of the 11 Provinces in the country whose tasks include the management of primary and secondary fish hatchery stations.

Other public bodies involved in the fishery and aquaculture sectors include the Ministry of Environment and Forestry, the Congolese Institute for Fauna, and various research and training institutions. The latter include the Universities of Kinshasa, Kisangani and Lubumbashi, and the National Institute for Agricultural Studies and Research (INERA).

9. Legal Framework

Fisheries Legislation

The main fisheries legislation in the DRC is composed of the Decree on Exclusive Fishing Rights of 1932 and the Hunting and Fishing Act of 1937 and regulations and ordinances associated with these Acts. The 1937 Act pre-dates all major international agreements relating to fisheries and



needs to be updated in light of more recent regional and international obligations.

A description of the current legal framework was made by Petit and Shipton, IOC SmartFish, 2012, as follows:

- The 1932 Decree on Exclusive Fishing Rights allows competent authorities to grant exclusive fishing rights in a designated area. The Decree outlines the general terms and conditions governing fishing practices, alongside the rights and obligations of each contracting party;
- Ordinance No. 432/Agri. of 26 December 1947 (as amended in 1952 and 1954) provides for the deployment of Fisheries Officers to control fishing activities;
- 1981 regulations prohibit the use of electro-fishing, explosives and toxic substances throughout the country, and provide for the seizure of illegal fishing gears and any catches;
- Finally, the 1979 Ordinance (as amended in 1983) specifies permit fees, and outlines the various issuing authorities. This Ordinance provides for four categories of fishing permit: industrial, artisanal, traditional, and sport fishing.

The Government of the DRC has been engaged in the legal revision process for almost 30 years. A first draft Fisheries Bill, focusing on inland fisheries, was prepared in 1985 with the support of a regional FAO Project (GCP/INT/400/NOR). A second draft Fisheries Bill, entitled '*Projet de loi portant code des pêches et de l'aquaculture*', was prepared in 2008, however, this draft Bill has yet to be passed to the Parliament.

An IOC-SmartFish legal consultant was recently mandated to review the draft Fisheries Bill of 2008 in a more general context of promoting the harmonization of fisheries laws and policies related to Lake Tanganyika fisheries among Contracting States of the Lake Tanganyika Authority (Swan J., 2012).

Participation in Regional Fishery Bodies

The DRC is a member of several regional fishery bodies including the Lake Tanganyika Authority (LTA) and the Committee on Inland Fisheries and Aquaculture of Africa (CIFAA).

The LTA was established in December 2008 to implement the Convention on the Sustainable Management of Lake Tanganyika of 2003, and by doing so, provides the overarching management structure for the Lake system. The overall objective of the Convention is to ensure the protection and conservation of the biological diversity of the lake and its basin, and to promote the sustainable use of its natural resources. The LTA comprises a Conference of Ministers, a Management Committee and a Secretariat. To achieve the overall objective of the Convention, a Strategic Action Programme for the Protection of Biodiversity and Sustainable Management (SAP, 2000) was developed and endorsed by the four riparian countries (Petit and Shipton, 2012).

The CIFAA was established by the FAO Council in 1971 under Article VI of the FAO Regional Fishery Body. CIFAA is an advisory body with a mandate to promoting the development of inland fisheries and aquaculture in Africa.



FOCUS ON FISHERIES DYNAMICS AND MANAGEMENT ON LAKE TANGANYIKA FISHERIES (DRC JURISDICTION)

10. Status of Resources

Lake Tanganyika covers a surface area of 32,600 km², with the DRC controlling about 45% in terms of jurisdiction. The length of the lakeshore is an estimated 650 km.

Lake Tanganyika is internationally known for its endemic cichlid fish fauna that comprises a genetically diverse demersal community assemblage. The pelagic fish community primarily comprises six endemic species including small pelagics (*Limnothrissa miodon* and *Stolothrissa tanganyicae*) and their major predators, four members of the genus *Lates* (*L. stappersii*, *L. angustifrons*, *L. mariae*, and *L. microlepis*). *L. Stappersii* and *S. tanganyicae* live exclusively in the offshore zone and comprise 90% of the catches from the lake fishery (Petit and Sipton, 2012).

There are some indications of reduced catches and changes to catch composition, and in some areas fish stocks have already collapsed as stressed in the LTA Strategic Action Programme, 2000. These changes are most marked in the extreme northern and southern parts of the lake (Petit and Sipton, IOC-SmartFish 2012). In particular, research conducted in the recent past, with support from an FAO regional project on the management of Lake Tanganyika fisheries (GCP/RAF/271/FIN), revealed that pelagic stocks show signs of overexploitation in waters located between Burundi and the DRC i.e. in the Uvira and Fizi areas (FAO 2009-2015).

Factors that have led to such a situation include an increase in fishing effort resulting from open access, whether through legal or illegal means, high levels of IUU fishing and an overall degradation of the environmental quality of the lake.

However, it should be noted that as a result of poor security and two decades of conflict, fish stocks are relatively less exploited and still abundant in the more remote parts of the lake (Petit and Sipton, 2012).

11. Major Fishery Dynamics

11.1. Fishery Exploitation

Fishing activities in the DRC are carried out by artisanal fishers and semi-industrial fishers. Artisanal fishers primarily operate in the inshore area targeting juvenile *Limnothrissa miodon* and the demersal components. The semi-industrial fishers primarily operate in the offshore areas targeting the clupeid and *Lates* species groups. The description of the fisheries provided below makes reference to a recent study on Lake Tanganyika fisheries (Petit and Sipton, 2012).

Artisanal fishers use small un-motorized fishing craft propelled by sail and paddle and fisheries are multi-gear and multi-species oriented. Fishing gears mostly include gillnets, long-lines, and hook and lines. Gillnets are used all along the lake at various depths according to the species targeted (*Microlepis stomsii*, *Auchenoglanis occidentalis*, *Boulengerochromis microlepis*, *Malapterurus electricus*, *Synodontis spp* and *Bathybathes spp*). Hook and line, and long-lines target predators, notably Catfish in the inshore areas and the large *Lates mariae* in the offshore zone. Artisanal fishers also use destructive fishing methods such as beach seine and Mutimbo ring nets with small meshes.

Semi-industrial fishers use motorized catamarans with lift-nets. Two types of semi-industrial units can be distinguished: the 'classical' catamaran and the 'Apollo' unit. The Apollo nets, introduced

early in the 1990's are wider and heavier than the traditional lift-nets and require a crew of six men to haul them (versus four men in the case of the 'classical' catamaran). The Appollo nets are also cast deeper than the traditional lift-net and can access the larger Luciolates stocks, and schools of immature fish. Apollo units have proved to be highly profitable.

The last frame survey conducted in 2011 by LTA revealed that there were a total of 93,000 fishers on Lake Tanganyika, of which 51,650 were Congolese (55.4% of total), operating with 21,330 fishing vessels (all types). The last frame survey also indicated that there were 361 operational fish landing sites along the DRC shoreline.

Fishing gears currently in use in the DRC include 4,860 long-lines, 2,730 lift-nets (Catamaran and Appolo), 1,600 beach seines, 1,860 gillnets, 2,840 hook and line and 290 ring nets of which 80 are Mutimbo ring-nets. The major fishing effort is distributed unevenly throughout the country. More specifically, the lift-nets, ring nets and the long-line fishing units are concentrated in the Southern districts of Kalemie and Moba. Hook and line fishing units predominate in Fizi and Kalemie. Illegal beach seines are mostly found in Fizi and the southern district of Moba.

Furthermore, it should be noted that many fishers in the DRC have organized themselves into legal entities (e.g. fisher/processor associations) that represent their interests, and in particular improve their access to credit or funding, notably with the support of NGOs.

11.2. Fish Utilization

Trading of fish products in the DRC is severely constrained by a lack of access to the lakeshore and associated marketing and processing infrastructure. Only 15% of the fish landing sites are accessible by road, the other 85% are only accessible by boat. Areas that have road access primarily comprise the urban centres of Uvira, Baraka, Moba and Kalemie. In addition to poor logistics, services along the lake are also limited with electricity supplies confined to the cities of Uvira, Kalemie and Moba. Consequently, in most areas along the lake, fish processing is restricted to smoking, salting and sun drying, with ice/cold storage facilities only available in the urban centres of Uvira, Kalemie and Moba (Petit and Shipton, 2012).

Whilst the salting of fish is commonplace, the use of smoking ovens is restricted to Moba and Kalemie, and drying racks are only reported to be in use in Uvira and Kalemie. The lack of drying racks would suggest that significant quantities of fish are likely to be dried on the ground, resulting in poor quality products (Petit and Shipton, 2012).

Furthermore, Petit and Shipton highlight that the concentration of fishing effort in the Southern districts of Kalemie and Moba, serviced by transversal roads that do not run along the lakeshore, provide the main rationale for the movement of processed fish products by boat to the larger urban centres of Kigoma (Tanzania) and Mpulungu (Zambia) for further distribution within the region and to Bujumbura (Burundi). Smoked or dried fish is also irregularly transported between Kalemie and Lubumbashi by trucks by road: although in a very poor condition, this road is now considered safe.

12. Fisheries Management

The Convention on the Sustainable Management of Lake Tanganyika, whose implementation is supported by the LTA, provides the general framework for the management of the Lake Tanganyika fisheries. However, to date, regional cooperation remains inadequately developed mainly due to the fact that the LTA is a relatively new organization and security issues.

Furthermore, as a result of the outdated legislative framework and the serious weaknesses of fisheries and related institutions in the DRC, the management of fisheries in Congolese waters

of Lake Tanganyika is weak. Fisheries fall under an open access regime and the few technical management measures are inadequately enforced. However, review of fisheries legislation, which date back to the 1930's, initiated in 2008 is expected to bring significant improvements in the near future.

Registration and Licensing

As mentioned above, an Ordinance of 1979 (amended in 1983) focuses on fishing licensing, including specifying permit fees and the various issuing authorities. The Ordinance provides for four categories of fishing permits: industrial, artisanal, traditional, and sport fishing. State Commissioners are responsible for the issue of commercial rights with artisanal rights being issued by regional Governors. Local Commissioners are responsible for the issue of traditional and sport fishing licenses (Petit and Shipton, 2012).

- At the regional level, subsidiary regulations have been promulgated. In the Shaba region (Southern Lake Tanganyika), a 1958 regulation on net fishing identifies and controls three categories of fishing units as follows:
- Industrial fishing units - one or several boats, engine powered or not, using a seine net, one or several set nets whose total length or total combined length is more than 2,500m, or lift-nets;
- Artisanal fishing units - one or several boats, engine powered or not, using either a lift-net or set nets whose total combined length is more than 1,000m but less than 2,500m;
- Individual fishing units - a pirogue or dugout canoe using traditional fishing gear including a beach seine, set nets whose total combined length is less than 1,000m or a traditional scoop net.

Petit and Shipton highlight that authorization is required for all types of fishing operations, and these are subject to the payment of a prescribed fee. Permit conditions include a ban on fish discards, the use of drag-nets, or nets of a mesh size less than 4mm. Existing regulations also allow for the use of beach seines and specify that industrial fishing is prohibited within 5 km of the shoreline.

In 1958, a similar set of regulations was promulgated for Kivu (encompassing the northern part of Lake Tanganyika).

Fisheries Monitoring

As mentioned above, one of the missions of the Direction of Fisheries (DoF) includes fisheries statistics. It appears, however, that the DoF does not currently collect any biological, landing or trade data.

On the other hand, various data is being collected by some of the fishers associations (M. van der Knaap, FAO. Pers.Com. cited by Petit and Shipton, 2012).

Coordinated frame surveys on Lake Tanganyika fisheries are conducted on a regular basis through the LTA, which contributes significantly to the monitoring of major dynamics of the lake fisheries under the DRC's jurisdiction.

13. Fisheries Control, Surveillance and Enforcement

Compliance with the fisheries regulations is the responsibility of the DoF. The current strengths and weaknesses of the MCS system in the DRC was recently analysed by Petit and Shipton (2012). Elements provided below are derived from this analysis.

In general, monitoring and compliance activities along the Congolese shores of Lake Tanganyika are infrequent due to recurrent weaknesses of the fisheries administration as a result of the socio-political crisis that has affected the country over the last two decades and poor security, particularly in the more remote areas of the lake.

Current MCS activities are limited to land-based activities; however, such land patrols are sporadic and are restricted to the zones around the main centres of Kalemie and Uvira. In the past, marine police were able to undertake boat-based patrols, but this is no longer the case and there are no facilities for lake-based patrolling. It should be noted that the LTA is planning to procure three patrol boats for use in the DRC. There are also no facilities for aerial patrols in the DRC.

Furthermore, fisheries personnel are often under-resourced and work in isolated areas, the seizure of illegal gears is difficult and potentially dangerous. This has led local administrations to give priority to voluntary compliance through sensitizing fishing communities to the problems associated with the illegal use of gears. Generally speaking, it would also appear that piracy in DRC waters is of considerable concern, suggesting that authorities have minimal control in the region.

14. Major Issues Relating to IUU Fishing

According to Petit and Shipton, major issues relating to IUU fishing in the Congolese waters of Lake Tanganyika include the following:

- The incidence of illegal nets in the Apollo or catamarans fisheries may be close to that observed in Tanzania, which is about 25.5%;
- The incidence of illegal gillnets is estimated at 34%;
- The incidence of illegal ring nets is estimated at 10%;
- Whilst the use of beach seines has been banned on Lake Tanganyika, a significant number of beach seines have been recorded on the lake (1,778 in total), with a very high occurrence in the DRC jurisdiction, where almost 90% of the total are found (1,600 beach seines were observed during the 2011 LTA frame survey). The difficulty of controlling the use of this illegal gear is exacerbated by the fact that seining crews are generally comprised of destitute riparian fishers from different households and beach seining is their main livelihood.

It has also been reported that vessel registration and issuance of fishing licences is not functioning as it should. Fishing vessels are not being marked and checked, and the incidence of unregistered vessels in the fishery sector remains high.

It should however be stressed that there has been some success with voluntary compliance, as evidenced by the decrease in the use of the damaging Mutimbo ring nets.

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