



COMMITTEE FOR INLAND FISHERIES AND AQUACULTURE OF AFRICA

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STATUS OF INLAND FISHERIES AND AQUACULTURE IN AFRICA

Executive Summary

This information document presents available data from a few studies on fisheries and aquaculture. FAO is the center of excellence with respect to information on capture fisheries and aquaculture. In the document a number of comparisons are made with global fisheries and aquaculture. For many African inland fisheries data appeared scarce or non-existent, whereas relatively reliable information exists for aquaculture. The presentation of the available information points out the importance of inland fisheries and aquaculture and the growing role they play in supplying the continent with food fish. The fisheries and aquaculture sectors face several challenges that need to be addressed for the benefit of fishermen, fish farmers, processors, traders and other professionals. The major challenges include overfishing of commercial valuable fish species, large post-harvest losses, impacts of climate change, poor collaboration among fisheries and aquaculture stakeholders, and slow aquaculture development due to poor quality feed and fingerlings as well as the limited numbers of investors.

I. Capture fisheries production

1. As a result of the increased pressure on the globally available fisheries stocks, and the growing human population it has become clear that the marine fisheries have reached their upper limit, despite fisheries management plans, the combat against Illegal, Unregulated and Unreported fishing and other regulatory measures. In order to meet the increasing demand of fisheries products, inland fisheries and aquaculture need to be further developed and managed.
2. The state of inland fishery resources remains one of the most problematic regular global assessments to make due to the scarcity of reliable information and a lack of dedicated resources. A key element for such an assessment is catch data. Of 218 countries and territories with inland water capture fishery production, 96 report their catches to FAO (ranging from 1 tonne to 2.3 million tonnes), and FAO estimates the production for a further 53. An additional 69 countries have production between 0 and 0.5 tonnes per year. Wherever more in-depth analyses have been conducted, e.g. through home consumption surveys, censuses or targeted frame surveys, the indication is that inland capture production is typically underestimated¹. As a result the total annual production for the African continent is difficult to calculate. However, for certain water bodies data exist, like for instance the Great Lakes, large reservoirs and some rivers.

II. African Great Lakes

3. Lake Victoria - Lake Victoria employs three million people in fisheries-related activities and is known for producing annual catches of around 1 million tons, contributing USD 600 million annually to the East African Community² and contributes to food security and poverty reduction to 20 million people around the lake. For many years the Nile perch has been the target of the fishing, processing and export industry. Since 2000 the fishing fleet developed rapidly and overcapacity became the result. Also the number of fish processing plants grew fast, but since the peak in 2010 approximately 60% of the factories closed doors due to insufficient supply of raw material for processing. Due to scarcity of the product the price of the fish at the landing site increased, so that fishing operations remained profitable. The reduction in abundance of the Nile perch coincided with an upsurge of a small pelagic fish species³. Stock assessments through hydro-acoustic surveys show a **relative** fish abundance of approximately two million tonnes, which remained relatively stable since the late 1990s, despite the shift in species composition. The increase in the production of the small pelagics contributes largely to food security, livestock and poultry feed, as well as fish feed manufacturing. Nevertheless the revenues from export of the Nile perch decreased for the three riparian countries.
4. Lake Tanganyika - Lake Tanganyika's fish production in the 1990s was estimated between 160,000 and 200,000 tonnes of pelagic species, both small pelagic planktivorous fish species and pelagic predators. The region knew a period of civil strife (particularly in Burundi and the Democratic Republic of Congo) during which the fishing activities in the northern part of the lake practically came to a standstill. Upon conclusion of the crisis fishing activities expanded all over the lake and in a period of 15 years the total numbers of fishermen and canoes doubled. The previously flourishing industrial fishery with steel purse seiners was outcompeted by the emerging artisanal fisheries by which the former discontinued operations altogether. Due to the increase in fishing intensity the catch rates dropped considerably and as a result the annual production in 2012 was estimated between 110,000 and 120,000 tonnes. Due to the rapid increase in the number of fisheries operators, many resort to illegal and destructive gears like beach seines and monofilament gillnets.

¹ SOFIA, 2016

² Njiru, M., J. Kazungu, C. C. Ngugi, J. Gichuki and L. Muhoozi (2008). "An overview of the current status of Lake Victoria fishery: Opportunities, challenges and management strategies." *Lakes & Reservoirs: Research and Management* **13**(1): 1-12

³ The small pelagic is *Rastrineobola argentea*, in Tanzania known as dagaa, in Uganda as mukene and in Kenya as omena.

5. Lake Malawi/Nyassa/Niasa - This lake shared by Tanzania, Malawi and Mozambique has experienced heavy fisheries exploitation, particularly by the demersal trawl fishery. The group of tilapia species, generally referred to as Chambo, has been under considerable fisheries pressure for some time, leading to heavy exploitation of other cichlid species, too. Apart from the trawl fishery (especially in the southern part of the lake) also the artisanal fishery hit the cichlid resources hard. Similar to the situation in Lake Victoria, the heavily targeted species are gradually replaced by a small pelagic fish species⁴. Malawi produced between 2000 and 2015 an average of 90,000 tonnes of fish annually⁵.
6. Lake Chad - The fishery, representing a value between USD 80 and 220 million annually, has been strongly reduced due to civil unrest in the region. The fisheries in the four riparian countries have been seriously affected and the majority (if not all) fishing communities have been abandoned due to the insecure situation. A thriving fish processing and distribution industry existed previously, which transported fisheries products to various remote destinations. Due to the fluctuating intensity of the rainy seasons, the lake level has been subjected to oscillations, which subsequently had their impacts on the fisheries production. The continuing security situation (as per May 2017) has not yet allowed fishermen to return to their villages to rebuild their dwellings and the fishing fleet. As a result the riparian population is denied fish proteins at a large scale.
7. Lake Turkana - Kenya and Ethiopia share Lake Turkana where the limited accessibility is not conducive to heavy exploitation of the resources. Nile perch and tilapia are the main fish species targeted. Ethiopian fishermen prefer selling their catches to Kenyan traders than to market them in Ethiopian cities and towns. On the Ethiopian side an estimated 4000 tonnes would be produced annually. As Lake Turkana is a desert lake and plans exist for further damming of the Omo River (discharging into the lake on the Ethiopian side), the future of this lake and its fisheries has become uncertain.
8. Lake Albert - Lake Albert is shared by DR Congo and Uganda. At the time that the Ugandan Nile perch production diminished, catches from Lake Albert were used to supply the Lake Victoria-based processing factories for export purposes. The high pressure could not be sustained and catch rates reduced considerably.
9. Lake Kivu - In the basin of Lake Tanganyika another lake can be found: Lake Kivu, which is discharging through the Rusizi River into Lake Tanganyika. A typical group of cichlid species may be found in this lake as well as the introduced *Stolothrissa* and *Limnothrissa* species from Lake Tanganyika. This introduction appeared very successful and led to a vibrant fishery for the pelagic species using light attraction during dark nights.
10. Artificial lakes and reservoirs - Lakes Volta, Kainji, Cahora Bassa, Nasser, Kariba, Lagdo and others are all being exploited by fisheries and in some of them cage culture has been developed (Lakes Volta and Kariba in particular). The majority of these artificial lakes have tilapia and catfish resources, whereas other typically riverine species found their niches also.

⁴ *Engraulicypris sardella*, locally called usipa

⁵ Government of Malawi, National Fisheries and Aquaculture Policy

11. Rivers - Major rivers like the Congo, Nile, Niger, Benue, Zambezi, Gambia, Senegal, Volta, Okavango, Kagera, Gambella and others are exploited near urban centres. In remote parts of the rivers there is room for expansion for fisheries and aquaculture.
12. Wetlands - Africa's wetland ecosystems are estimated to cover more than 131 million hectares. They deliver a wide range of ecosystem services that contribute to human well-being such as nutrition, water supply and purification, climate and flood regulation, coastal protection, fishing and aquaculture, feeding and nesting sites, recreational opportunities and increasingly, tourism⁶.
13. Drylands - FAO commissioned a study in 2015 on fisheries in the African drylands. Generally, dryland water bodies are unstable and strongly pulsed ecosystems owing to intermittent and largely unpredictable precipitation. Such systems are characterized by very productive and highly resilient, small opportunistic fish species with "boom and bust" fluctuation adapted to strong environmental disturbances, and are therefore difficult to overfish. As a result of high productivity, they can sustain very high yields in years of good rains, but being largely short-lived they also respond rapidly to environmental changes in hydrological regimes, which means that alternating periods of low productivity are inevitable. The overall conclusion of the study was that the potential for increasing fish production in dryland areas is significant, that the resources are highly resilient and productive, but that the general and increased unpredictability of the necessary rainfalls to sustain surface water bodies imposes uncertainties in annual production levels, and that must be counteracted by an adaptive and diversified livelihood strategy⁷.
14. The importance of inland fisheries and aquaculture is apparent from their respective contributions to the Gross Domestic Product. According to De Graaf and Garibaldi (2014), the total contribution of fisheries and aquaculture to the GDP of all the countries on the African continent is of the order of 1.26%, which is the equivalent of US\$ 24.03 billion. Inland fisheries contributes 0.33% and aquaculture 0.15% to the total (US\$ 6.275 and 2.776 billion respectively).

III. Aquaculture production

15. De Graaf and Garibaldi (2014), based on their obtained data, presented the following table, indicating a set of interesting data on annual fish production from aquaculture in a number of selected countries in 2012. Since then fish production increased further, e.g. Egypt produced more than 1.1 million tonnes in 2015; Nigeria's production, not listed in the table, exceeded 330,000 tonnes in 2015.

⁶ <http://africa.wetlands.org/Africanwetlands>

⁷ FAO. 2016. *Fisheries in the drylands of sub-Saharan Africa – "Fish come with the rains". Building resilience for fisheries-dependent livelihoods to enhance food security and nutrition in the drylands*, by Jeppe Kolding, Paul van Zwieten, Felix Martin and Florence Poulain. FAO Fisheries and Aquaculture Circular No. 1118. Rome, Italy.

16. Development of commercial aquaculture

17. In a number of countries commercial aquaculture is taking off rapidly. Egypt, Nigeria, Malawi, Zambia and Zimbabwe have already well-developed commercial fish farms and also Uganda and Kenya are concentrating on increased aquaculture production, particularly in cages in Lake Victoria. Experimental cage culture has started on Lake Tanganyika as well, where an endemic tilapia species (*Oreochromis tanganicae*) is successfully reared instead of the Nile tilapia (*O. niloticus*). In Nigeria the focus is on catfish (*Clarias gariepinus*), which is propagated using artificially induced spawning, although tilapia rearing in cages has taken off, too.

18. Employment generation in aquaculture value chains

19. Many African governments have put (youth) employment high on the development agenda. Aquaculture is one of the sectors that obtains special attention and as such numerous interventions have been undertaken to stimulate decent employment generation. Small-scale aquaculture development face a number of challenges, like e.g. access to land; availability of quality fingerlings and quality fish feed; additional income generating activities during the (first) production cycle when no income is generated; etc. Large-scale development activities faced similar challenges, including access to credit facilities and fish feed quality assurance. Some large-scale cage-farming operations were jeopardized by water hyacinth mats, pushed against the cages by the wind. **See annex 1.**

IV. Fishers and farmers

20. FAO (2014) presented in *The State of World Aquaculture and Fisheries 2014* that there were about 12.3 million fishers, fish processors and fish farmers in Africa in 2012. The total number includes marine fisheries, inland fisheries as well as aquaculture. A breakdown by subsector is presented in the following table by De Graaf and Garibaldi (2014) in **annexe 2.**

V. The status of the fishery resources

21. It is presently impossible to present a complete picture on the status of the inland fisheries resources in Africa, due to the lack of sufficient and appropriate data, in many instances. For certain individual water bodies data may be available, like in the cases of Lakes Volta, Kainji, Tana, Turkana, Kyoga and the three African Great Lakes (Victoria, Tanganyika and Malawi/Niassa/Nyasa). Resource assessments in (transboundary and shared) rivers are difficult to achieve, due to the multiplicity of fishing gears and methods, although attempts have been made for the River Niger in Mali and Niger.

VI. Fish Utilization and processing

22. Due to the lack of nearby markets and the remoteness of production areas, fish has to be processed at the place of landing or production. Fish processing occurs all over the continent, in different forms with several methods: drying, smoking, fermenting, or combinations. Also fish may be marketed alive, chilled or frozen. Fish drying often occurs on the ground where the product is exposed to soil, bacteria, vermin, birds and other threats. Simple drying racks above the ground improve the product enormously, reducing considerably the post-harvest losses. Smoking of fish has undergone a development of different smoking kilns and smoking houses, every time demanding more investment. Eventually the FTT fish smoking kiln has been developed, producing impeccable fish products that are sound and safe for human consumption (and exportable to quality demanding markets). The FTT kiln is very efficient in the

consumption of fuelwood for smoking purposes. Moreover, the amount of smoke is reduced and affects the processors' health much less than the traditional and other kilns.

23. Post-harvest losses cause enormous commercial losses. In DR Congo, on its part of Lake Tanganyika alone, losses are estimated at 20,000 tonnes (fresh weight). Applying the rate of USD 1.00 per kg would result in an economic loss of USD 20 million, apart from the impact on food security. In the Malawian part of Lake Malawi/Nyassa/Niasa the post-harvest losses are estimated to be of the order of 40%, which have the similar effects as on Lake Tanganyika. Other fisheries on the continent suffer from post-harvest losses, too, but figures are not readily available.
24. With the development of poultry and fish rearing, large quantities of (cheap) fish products find their way to animal feed production. In East Africa the use of the small pelagic for animal feed production has entered into competition with the product for human consumption. As a result quality fish processing has become an incentive to satisfy the growing demand for food security (e.g. in Burundi small pelagics are not allowed to be dried on the soil any longer; processing has to be carried out on drying racks above the ground).

VII. Fish trade and commodities

25. Traditional trade routes exist within the African continent for processed inland fisheries products. From Lake Chad large quantities used to be transported to the South, until the humanitarian crisis started in the Lake Chad Basin. The route still exists, which attracted fisheries products from other areas, although to a lesser extent. Large quantities of fisheries and aquaculture products find their way from the Lake Victoria region to the Democratic Republic of Congo and South Sudan. From Lakes Tanganyika and Mweru and the Bangweulu Swamps fish are transported (frozen and fresh) to South Africa. Fisheries products from The Gambia and Cameroon are transported to Ghana and Mali to supply local markets.
26. Frozen fisheries products (mainly freshwater fish, but also marine fish) reach Africa from a number of Asian countries and are sold cheaply at local markets in Cote d'Ivoire, Niger, DR Congo, Kenya and Zambia, and probably other countries as well. The import of cheap tilapia is not very conducive to investing in and developing of commercial-scale aquaculture. The price of these imported products is low and is of the order of 20 to 30% of the costs of cultured fish. Around water bodies where tilapia resources have been overexploited the cheap fish form an important part of the diet of the riparian population. Quality assurance tests of the products have not been carried out so far.
27. In the near future the trade of fish may experience a shift. According to a model presented by De Graaf and Garibaldi (2014) the amounts of fish imported and exported will change considerably, mainly to supply the African fish consumers, who continue to grow in numbers. The model predicts a continent-wide reduction in fish exports by 2025 as compared with the situation in the period 2013-2015, whereas the imports will increase considerably to continue to supply the population at the same level as in 2013-2015. This will have strong impacts on national trade and economics. Some predictions are presented in the table in **annex 3**.

VIII. Fish Consumption

28. The human population growth on the continent may have slightly slowed down in recent decades, but a net increase can still be observed. In order to maintain the same level of access to fish protein the fish production may have to grow also. The table in **annex 4** provides information on the total and per capita food fish supply by continent.

29. With the maximum of capture fisheries attained, the increase in food fish supply will have to originate from aquaculture. **Annex 5** displays the increasing role of aquaculture versus capture fisheries is presented. In the near future, the dependency on aquaculture will continue to increase.

IX. Governance and policy

30. Many water bodies like lakes and rivers are transboundary, which is a factor that leads to complications for harmonization of policies, legislations, management, cross-border fishing operations, licensing, royalties, data collection systems, etc. Lake and river basins often involve more countries than those bordering the lakes or rivers. Lake Chad is an example of that, i.e. four countries border the lake, although its basin involves nine countries. Lake Kivu and its basin form part of the Lake Tanganyika basin, involving three and five countries respectively. The Nile Basin is even more complex, with all the nations along its course. The case of Tanzania is a special one, the country shares three African Great Lakes with neighboring countries and as such it is a complex issue to negotiate with the riparian states the level of collaboration and harmonization.
31. The necessity to manage the fisheries of shared water bodies is paramount, as may be obvious from the Lake Victoria situation where an ecological revolution took place and an invasive predator (the Nile perch) formed the basis for a lucrative export fishery. Overexploitation of the newly obtained resources caused species shifts in the fishery (slow-growing large predators were replaced by small fast-growing plankton feeders), which had certain socio-economic consequences at practically all levels from fishing, processing to trading and consumption.
32. Specific action plans have been put together for a number of fisheries, like the regional action plans for the management of fishing capacity on Lake Victoria and Lake Tanganyika. Implementation of such action plans require financial resources, which the riparian countries cannot always make available.
33. Fisheries information for resource management is scarce in many countries and as a result it is difficult to apply quota systems or other information-based management systems. However, management of the fisheries is possible by regulating access to the fisheries resources (licenses) and the use of certain fishing gears. Consequently certain destructive fishing gears may have to be banned, e.g. beach seines that destroy tilapia breeding pits; monofilament gillnets, small-meshed nets, fish poisons, etc.
34. Many fishing communities apply some form of management through fishermen's organizations, cooperatives, beach committees, village committees, etc. Interesting examples are the Beach Management Committees in Kenya, Uganda and Tanzania; the Village Conservation and Development Committees in Zambia; the Fishermen and Fish Traders Federations in Burundi and the numerous forms of fishermen's committees in many other countries. All these initiatives contribute to co-management of the fisheries, environment, etc.
35. In general the roles of regional fisheries or basin management organizations should be strengthened, like for instance the Lake Victoria Fisheries Organization; Lake Victoria Basin Commission; Lake Tanganyika Authority; Lake Kivu Basin and River Rusizi Authority; Lake Chad Basin Commission; Kagera River Authority; Senegal River Management Organization; Gambia River Management Organization; Lake Volta Management Organization; etc. These regional authorities, organizations and commissions may play a larger role in fisheries and

aquaculture management; socio-economic development; environmental protection; etc. Many of these organizations are hampered in their activities due to lack of financial and human resources. Lake Malawi/Nyassa/Niasa and its basin is the only great lake that has no regional management organization in place as yet.

X. Sustainable Development Goals

36. Upon conclusion of the era of the Millennium Development Goals (MDGs), the UN-system produced, in collaboration with numerous governments and many different related organizations, prepared the Sustainable Development Goals (SDGs). Out of the 17 SDGs there is number 14 dealing with all life below the water, the marine water. A quick screening of the SDG document resulted in exactly one occurrence of the word “inland”, one of “aquaculture” and four of “freshwater” (and then three times in the context of its scarcity). This shows that the inland fisheries and aquaculture have somehow been overlooked, despite their enormous potential for fish production, fish export, generating value chains and (youth) employment.

XI. Fisheries and aquaculture in relation to Climate Change

37. Temperature measurements on Lake Tanganyika over a one-century period show increases over time at different rates at different depths. Changes in wind patterns would have caused variations in upwelling intensity and frequency. These factors would have caused a reduction in primary production (plankton) as well as secondary production (fish). Climate experts blamed the reduction in fish production on Lake Tanganyika (by 30%) to climate change, assuming that the fishing intensity remained the same as in the period that the production had been estimated (1990s). However, the fishing capacity on the lake practically doubled since then, which led to much higher exploitation rates than before, leading to a reduced total annual production. In other words, it is not uniquely one or the other causing reduced catches, but rather a combination of increased fishing effort and climate change.
38. Temperature increments may cause plankton to grow faster, as well as certain fish species (like tilapia), although other fish species may be negatively affected when the temperature increases and become vulnerable to all kinds of infections (introduced trout resources in mountainous areas).
39. Varying rainfall patterns may have an impact on pond culture (either flooding or drought) and may affect the access to underground water resources used for aquaculture practices. Changing wind patterns may have an effect on the stratification of larger and deeper lakes, reducing mixing of water layers and as such reducing the availability of dissolved nutrients. Storms and increased wave heights can affect negatively the safety of fish cage farms.
40. Numerous projects are underway to increase the resilience of fishing communities in order to reduce their vulnerability to the effects of climate change, both in fisheries and aquaculture.

XII. Way forward for African inland fisheries and aquaculture

41. The inland fisheries sector in Africa requires additional management initiatives and/or advisory services to assure sustainable exploitation rates of lakes, reservoirs, rivers and other water bodies. Involvement of the resource users is of paramount importance in order to share responsibilities for the relevant water bodies. For the development of aquaculture activities in Africa the access to quality fingerlings and quality feed should be improved and strengthened as well as the access to finance and land. Decent youth employment requires to be generated to

avoid youth from leaving rural areas. The application of the Code of Conduct for Responsible Fisheries, the Ecosystem Approach to Fisheries and Aquaculture and the Voluntary Guidelines is obvious, to guarantee the sustainable use of the available natural resources.

42. In order to maintain the same level of fish protein supply per capita per year, for a growing human population in Africa certain measures may have to be taken to increase the fish production commensurately (in no particular order):

- Strengthened regional river and lake basin management organizations;
- Strengthened fisheries management will contribute to the sustainable exploitation of available fisheries resources;
- Fight against IUU as part of co-management (through community surveillance and where possible Vessel Monitoring Systems using truck-tracking devices);
- Regional collaboration (management of shared stocks) in the domain of national and regional licenses;
- Reduction post-harvest losses through measures to improve processing and storage and to establish cold and value chains;
- Aquaculture development by establishing fish feed manufacturing units and fish hatcheries in strategic places (particularly to arrive at mono sex tilapia and improved floating feed);
- Improved access to land and water for the construction of fish ponds and cages respectively.

ANNEX 1

Table 14. Aquaculture's production, Gross Production Value, Gross Value Added and contribution to GDP in sampled countries

Country	Annual production* (tonnes)	Average production rate (kg/ha/year)	Gross Production Value (US\$ million)	Gross Value Added (US\$ million)	Contribution to GDP (%)
Benin	251	10,904	1	0.2	0.00
Burkina Faso	401	5,588	1	0.3	0.00
Burundi	-	-	-	-	-
Congo, Dem Rep of the	2,274	4,469	17	7.0	0.06
Congo, Republic of	68	571	0	0.1	0.00
Côte d'Ivoire	1,310	6,771	4	3.5	0.02
Djibouti	-	-	-	-	-
Egypt	986,820	5,875	1,985	1,954.3	0.85
Ethiopia	16	1,951	0	0.0	0.00
Gambia	71	8,143	0	0.1	0.01
Guinea	120	1,000	1	0.2	0.00
Kenya	19,535	8,040	50	15.1	0.04
Madagascar	8,805	2,661	78	41.5	0.42
Malawi	3,124	1,893	11	10.4	0.17
Mali	16	5,739	0	0.0	0.00
Mauritius	568	23,383	3	1.9	0.02
Mozambique	603	5,297	1	1.3	0.01
Rwanda	797	3,001	3	1.0	0.02
Sao Tome and Principe	-	-	-	-	-
Senegal	68	1,465	0	0.1	0.00
Tanzania	9,207	15,043	29	12.5	0.05
Togo	20	943	0	0.0	0.00
Zanzibar	15,095	1,737	4	3.7	0.49
Total	1,049,169		2,189	2,054	0.44

ANNEX 2

Employment by subsector

	No. of employees (thousands)	Share subsector (%)	Share within subsector (%)
Total Employment	12,269		
Total Inland Fisheries	4,958	40.4	
Fishers	3,370		68.0
Processors	1,588		32.0
Total Marine Artisanal Fisheries	4,041	32.9	
Fishers	1,876		46.4
Processors	2,166		53.6
Total Marine Industrial Fisheries	2,350	19.2	
Fishers	901		38.4
Processors	1,448		61.6
Aquaculture workers	920	7.5	

ANNEX 3

MAIN RESULTS OF THE FISH MODEL: COMPARISON 2025 VS 2013–15: TRADE (LIVE WEIGHT EQUIVALENT)

	EXPORTS			IMPORTS		
	AVERAGE 2013–15	2025	GROWTH OF 2025 VS 2013–15	AVERAGE 2013–15	2025	GROWTH OF 2025 VS 2013–15
	<i>(Thousand tonnes)</i>		<i>(%)</i>	<i>(Thousand tonnes)</i>		<i>(%)</i>
Africa	2 110	1 483	-29.7	3 949	5 527	40.0
North Africa	622	603	-3.1	687	1 247	81.5
Egypt	26	20	-23.1	404	820	103.0
Sub-Saharan Africa	1 488	880	-40.9	3 263	4 280	31.2
Ghana	31	30	-3.2	335	321	-4.2
Nigeria	11	9	-18.2	1 053	1 525	44.8

ANNEX 4

TOTAL AND PER CAPITA FOOD FISH SUPPLY BY CONTINENT AND ECONOMIC GROUPING IN 2013¹

	TOTAL FOOD SUPPLY	PER CAPITA FOOD SUPPLY
	<i>(Million tonnes live weight equivalent)</i>	<i>(kg/year)</i>
World	140.8	19.7
World (excluding China)	88.3	15.3
Africa	10.9	9.8
North America	7.6	21.4
Latin America and the Caribbean	5.8	9.4
Asia	99.0	23.0
Europe	16.5	22.2
Oceania	1.0	24.8
Industrialized countries	26.5	26.8
Other developed countries	5.6	13.9
Least-developed countries	11.1	12.4
Other developing countries	97.6	20.0
LIFDCs ²	18.6	7.6

¹ Preliminary data.² Low-income food-deficit countries.

ANNEX 5

