

## Aquaculture in Africa (excerpts from draft FAO regional review)

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- **Regional Review on Aquaculture Development in Africa** draft document being prepared by FAO for the Global Conference on Aquaculture 2010 (GCA 2010), September 2010, Thailand – final version publicly available after GCA 2010 as part of conference proceedings
  - about the region; general characteristics of the sector; resources, services, technologies; aquaculture and environment; markets and trade; contribution to food security, social and economic development; external pressures on the sector; governance; role of shared information
- **salient issues** related to important regional development affecting aquaculture, species, top producers and other aspects related to aquatic animal health

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## Important developments favouring growth of aquaculture sector in Africa

- International awareness and interest in aquaculture spawned by the New Partnership for Africa's Development (NEPAD) **Fish for All Summit** in 2005 continued to be high
- African Head of States at the Abuja, Nigeria Summit on Food Security in 2006 agreed to **promote and protect fisheries and aquaculture as strategic commodity** alongside rice, maize and other strategic products and committed themselves towards attaining continental self-reliance on fish by 2015

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## Important developments...

- FAO's Special Programme for Aquaculture Development in Africa (**SPADA**), **NEPAD's Action Plan for the Development of African Fisheries and Aquaculture** expected to contribute to the foreseen rapid expansion of the sector in the next decade
- WorldFish Center enhanced its presence on the continent in staff strength and disciplines as well as geographical coverage

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## Important developments...

- Dynamic producer associations/organizations in several countries and the establishment of the regional networks, e.g. Aquaculture Network for Africa (**ANAF**), **SARNISSA**, theme-specific networks are contributing to information flow, better exchange of experience, catalytic role in Aq dev.
- Several governments are adopting fiscal policies not specific to aquaculture but with spill-over effects on the sector (UNECA, 2009). This is reflected in the growing public support for aquaculture in regions and countries such as East Africa - Uganda, Madagascar, and Mozambique

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## Countries of the 5 sub-regions of Africa

- Central Africa
- Eastern Africa
- North Africa
- Southern Africa
- Western Africa
- Review covers 47 countries for which aquaculture production data has been reported to FAO in 2007
- No report does not mean that aquaculture is not being practiced in those countries

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### Southern Africa

Botswana
French Southern Terr
Lesotho
Namibia
South Africa
Swaziland

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### Western Africa

Western Africa	Western Africa
Benin	Mali
Burkina Faso	Mauritania
Cape Verde	Niger
Gambia	Nigeria
Ghana	Saint Helena
Guinea	Senegal
Guinea Bissau	Serria Leone
Liberia	Togo

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### Eastern Africa

Eastern Africa	Eastern Africa
British Indian Ocean Ter	Mayotte
Burundi	Mozambique
Comoros	Rwanda
Djibouti	Réunion
Eritrea	Sevchelles
Ethiopia	Somalia
Ethiopia	Tanzania United Rep. of
Kenya	Uganda
Madagascar	Zambia
Malawi	Zanzibar
Mauritius	Zimbabwe

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### North Africa

North Africa	Central Africa
Algeria	Angola
Egypt	Cameroon
Libyan Arab Jamahiriya	Central African Republic
Morocco	Chad
Sudan	Congo Dem. Rep. of the Congo
Tunisia	Rep. of Equatorial
Western Sahara	Guinea Gabon
	Sao Tome and Principe

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### Regional demographics (UN-DESA 2009)

- Africa's population passed 1 billion in mid-2009; growing by 24 million per year and will double in 2050.
- Northern Africa: 205 million
- Western Africa: 297 million
- Eastern Africa: 313 million
- Central Africa: 125 million
- Southern Africa: 58 million
- Over 15 percent of the continent's population is in Nigeria, the eighth most populated nation in the world. The average population growth rate in Africa is 2.3 percent.

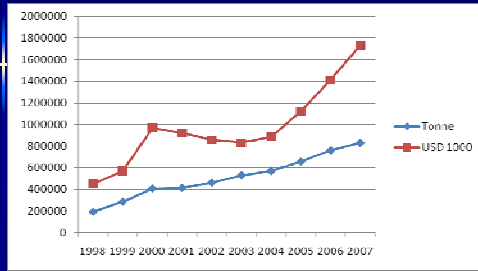
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### Importance of aquaculture

- Agriculture in the broad sense plays a dominant role in most African economies as an important source of livelihood
- Role of aquaculture as a major contributor to livelihood in all but a few countries (Egypt, Nigeria, Uganda, Madagascar, Mozambique) is still very small.
- Significant potential role aquaculture could play in food and nutrition security, employment, wealth generation to both small- and large-scale producers in both rural and peri-urban localities, as exemplified in a few countries.

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Figure 1 Food fish production and growth (1998 – 2007)



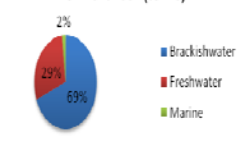
From a production of less than 200 000 tonnes in 1998, production in 2007 was reported to have risen to close to 800 000 tonnes (value of US\$ 1.73 billion). Total food fish production in 1998 was 191 615 tonnes and in 2007 it was 828 260 tonnes. The average yearly growth (APR) in production was 8.3 percent over the 10 year period but was 10.9 percent between 2005 and 2007. Several countries registered negative growth during the period. The four-fold increase in production since 1998 has been limited to only a few countries indicating the immense possibility for increased production if many governments were committed to the development of the sub-sector and helped the growth of the industry by removing constraints.

### Top ten aquaculture producers of food fish supply: quantity and growth 2007

Source: FAO 2009a. FishStat Plus Version 2.32. ([www.fao.org/fishery/statistics/software/fishstat/en](http://www.fao.org/fishery/statistics/software/fishstat/en))

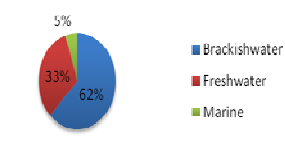
Top ten producers in terms of quantity in 2007				Top ten producers in terms of growth (2005-2007)			
Country	2005	2007		Country	2005	2007	
Egypt	539 748	635 516	7.8	Uganda	10 817	51 110	51.6
Nigeria	56 355	85 887	17.0	Rwanda	386	4 038	46.8
Uganda	10 817	51 110	51.6	Togo	1 535	5 000	44.4
Madagascar	9 376	11 257	8.4	Kenya	1 047	4 240	36.3
South Africa	5 895	5 789	-1.0	Malawi	812	1 500	23.0
Zambia	5 125	5 125	0.0	Nigeria	56 355	85 087	17.0
Togo	1 535	5 000	44.4	Tunisia	2 603	3 367	11.5
Kenya	1 047	4 240	36.3	Sudan	1 600	1 950	9.0
Rwanda	386	4 038	46.8	Madagascar	9 376	11 257	8.4
Tunisia	2 603	3 367	11.5	Egypt	539 748	635 516	14 7.8

### Africa Aquaculture % Production by Environment 2007 (tonne)



### Farming systems and environment

### Africa Aquaculture % Production by Environment 2007 (USD1000)



## Farming Systems

- Without Egypt, 93.4% tonnage from freshwater - predominantly fish and in particular the indigenous and ubiquitous species of tilapias and the African catfishes including *Clarias gariepinus*.
- Brackishwater aquaculture and marine fish culture, as well as the culture of crustaceans and molluscs, date back to less than 20-30 years ago and production is concentrated in a few countries while the culture of marine algae is recent innovation.

### Top five producers for each environment in 2007

Source: FAO 2009a. FAO Fisheries and Aquaculture Department, Fishery Information, Data and Statistics Unit.

Freshwater environment			Brackishwater environment			Marine environment		
Country	Tonnes	USD 1000	Country	Tonnes	USD 1 000	Country	Tonne	USD 1000
Nigeria	85 087	240 753	Egypt	566 360	1062 026	Madagascar	8 457	42 285
Egypt	69 156	130 588	Tunisia	2 067	14 438	South Africa	4 407	28 895
Uganda	51 110	115 662	Cote d'Ivoire	417	1 239	Mozambique	762	4 262
Zambia	5 125	8 717	Morocco	362	1 035	Mauritius	553	3 188
Togo	5 000	11 962	Algeria	89	247	Tanzania	400	77

### Top ten freshwater and brackishwater species

Source: FAO 2009a. FishStat Plus Version 2.32. Universal software for fishery statistics time series. Rome

Species	Quantity in tonnes				
	2003	2004	2005	2006	2007
Oreochromis niloticus	208 870	208 844	229 917	279 072	298 737
Mugil cephalus	135 923	133 011	156 792	231 980	252 886
Cyprinidae	35	135 075	143 846	97 278	109 741
Clarias spp	9 192	14 919	20 747	35 681	49 235
Clarias gariepinus	4 982	16 776	21 321	38 323	39 094
Clarias anguillaris	2 213	2 835	3 575	5 216	5 230
Lates niloticus	.....	299	9 975	5 856	5 195
Cyprinus carpio	20 250	3 326	3 277	3 411	3 919
Gymnarchus niloticus	2 314	2 332	2 500	3 750	3 773
Citharinus spp	1 301	1 344	1 532	2 298	2 312
TOTAL	385 080	518 761	593 482	702 865	770 122
Africa's Total	518 992	557 989	644 355	746 190	816 019

## Regional trends

- Prawn farms in Madagascar intensifying production techniques;
- Madagascar and Mozambique operators are ensuring at the same time strict environmental controls.
- Mozambique has undertaken a large scale mangrove rehabilitation programme for those areas where water supply canals had been built through mangrove swamps - initiative is paid for by the industry and overseen by the relevant authorities.

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## Regional trends

- Possibilities for prawn farms have been identified in Nigeria and Kenya
- Expansion of cage culture in lakes and reservoirs (Nigeria, Ghana, Cote d'Ivoire, Cameroon, Uganda, Zambia, Malawi, Kenya, Madagascar)
- Malawi and Zambia have zoned areas for lacustrine cage culture
- Further research on the production of tilapia in cages and in enclosures have been undertaken in Ghana and Egypt respectively.

## Regional trends

- Successful cage culture initiative in Lake Kariba, Zimbabwe (Lake Harvest (Pvt) Ltd.)
- Established in 1997, single largest aquaculture businesses currently operating in the region
- 10-hectare pond-based hatchery unit which supplies seed to six cage sites, each with 14 cages and capable of producing 800 t/yr.
- Tilapia (*Oreochromis niloticus*) are grown to 750 g and processed in an EU-standard plant with a capacity of 15 tonnes of whole fish a day. The market is in Europe, but local and sub-regional consumers are also targeted.

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## Regional trends

- Culture-based fisheries especially in Uganda where over 4000 tonnes of total production is from this technology.
- Progress is also being made with regard to capture based fisheries in Nigeria and Madagascar, as well as other countries. However the main constraint is the lack of fingerlings for stocking

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## Salient issues and success stories

- Production concentrated in a few countries; bulk of production was from commercial farms not small-scale aquaculture
- Persistent emphasis by several countries in promoting aquaculture with a social objective
- Limited managerial and technical expertise
- Inappropriate policies
- Insufficient inputs such as credits, as well as seed and feeds in quantity and quality.

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## Salient issues and success stories

- Egypt is the second largest producer of tilapia in the world after China; Egypt is also the world's top producer of mullet
- Black tiger shrimp (*Penaeus monodon*) in Madagascar
- *Eucheuma* seaweed in Tanzania is increasing.
- Several countries have identified the potential for farming prawns, seaweed or shellfish, mariculture fish.

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## Market-driven aquaculture

- emerging intra- and inter-regional trade
- processed catfish from Uganda is exported to Congo, Kenya, and Sudan; as well as to the EU.
- seaweed market in Tanzania is monopolized by a few international buyers who export to their mother companies in the United States, France, Denmark and Spain for processing.

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## Market-driven aquaculture

- Principal mariculture products (shrimps, abalone and seaweeds) are high value commodities for which demand is not high in the region and hence are exported
- Tunisia, Morocco and Libya are also involved in fish exports mainly to European countries
- Namibia is reported to export oysters and seaweed, and 700 tonnes of oysters were exported in 2007.

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## Market-driven aquaculture

- The value of marine products exported comprises 95 percent of the total mariculture revenue of the target countries (Madagascar, Mozambique, South Africa and Tanzania) and 33 per cent of the total value of aquaculture products of the region.
- A significant development in the region is the enthusiasm to culture catfish in many countries both for domestic markets and for exports.

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## Food safety and aquatic animal health

- This is an area that is least developed in the region.
- Several countries have in place Standard Sanitary Operation Process (SSOP) and HACCP programmes developed in the framework of capture fisheries and very few countries have aquaculture specific facilities.
- Some countries are working to meet EU regulations on safety and quality control, which will be essential for their emerging export sector.

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## Food safety and aquatic animal health

- Major exporting countries (Mozambique, Madagascar and South Africa) as well as a number of other countries are also aware that biosecurity and aquatic animal health management are critical and essential requirement for the sustainability of their industry. They are taking steps to address the issue.
- Interest in risk analysis has been increased in several countries.

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## EUS in Africa



Zambezi River is the 4<sup>th</sup> longest river in Africa

River flows through Angola, Zambia, Namibia, Botswana, Malawi, Zimbabwe and Mozambique

32 million people inhabiting the river valley; 80 percent dependant on agriculture; heavily fished

River is important for local livelihood, riverine fish for food and nutrition, recreational angling

Home to more than 200 fish species





### EUS incursion in southern Africa



Site (lower tip of the balloon, Kasane, Chobe River, Botswana) sampled and confirmed as EUS positive during the May 2007 Task Force outbreak investigation (courtesy of F. Corsin).

Showing the EUS-confirmed (red balloons), EUS-suspected (yellow balloons) and EUS-negative (blue balloons) as reported during the follow-up surveillance activities conducted in 2007 and 2008 (courtesy of F. Corsin).

### Where is EUS now?



### Key points

- On the whole the demand for aquaculture products in Africa is high and the potential for further growth of the industry in the continent is promising
- Will require that countries have as their overarching objective to promote aquaculture as a viable wealth creating undertaking, whether the product has a social or commercial objective.

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### Key points

- Increased growth could be realized through improvements in technologies and resource use, integration of aquaculture with other farming activities accompanied with appropriate policies and strategies in marketing and trade.

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### Key points

- Specifically....
  - Countries wishing to be involved in export trade should endeavour to develop appropriate strategies in relation to globalization in parallel with the technical development of the sector.
  - Emerging small-scale producers wishing to enter export trade should link into the market chain of the established commercial fish farming and/or fisheries sector.

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### Key points

- Specifically....
  - Countries through appropriate policies should facilitate efforts to improve biosecurity and aquatic animal health management as this could be critical and constitute an important requirement for the sector development and sustainability.
  - Undertake zoning of aquaculture areas and encourage the clustering of producers, as well as, promote the creation of viable organizations for the key aspects of the industry.

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- Thank OIE for inviting FAO and giving us the opportunity to participate and contribute to this regional workshop.