

HIGHLIGHTS



Fish-Farming: the new driver of the blue economy?

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On the 3rd of July, CTA in organized the 32nd Brussels Development Briefing on *Fish-Farming: the new driver of the blue economy?* – part of a series of bi-monthly Development Briefings on ACP-EU rural development issues. More than 80 participants discussed the main challenges and issues affecting the sustainability of the aquaculture and the potentialities and challenges of developing aquaculture in the ACP-region.

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- CTA
- European Commission (DG DEVCO & DG AGRI)
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Michael Hailu



Denis Salord

In the opening remarks, **Michael Hailu**, Director of CTA highlighted the recent developments of the aquaculture sector which increased from 32 million tonnes of fish produced in 2000 to 59.9 in 2010. Fish-farming production is expected to overtake fisheries in supplying the world's protein requirements in the future. Asia, is the leading region in fish-farming production, followed by the emergence of new players such as Papua New Guinea, Nigeria, Uganda, Kenya, Zambia and Ghana. The sector is characterized by a great diversity and the coexistence of small scale operations together with high technology systems in Europe and the USA. To reach social, economic and environmental sustainability, the aquaculture sector still faces many challenges such as conflict over the use of natural resources, poor governance standards, gender inequality and child labor. To conclude Hailu stressed the activities of CTA programmes in the fisheries and aquaculture sector and the forthcoming developments, where CTA will work particularly on assessing climate change impacts

on fisheries and aquaculture and promoting smart private-public partnerships in the development of fish-farming.

Denis Salord, Head of Unit Regional Programmes Sub-Saharan Africa and ACP-wide at the European Commission, explained how aquaculture represents a key sector for ACP development which is impacted by global challenges but offers also a strong potential to contribute to poverty reduction. The European Union, which imports almost 65% of fish products (half of it from aquaculture), recognizes the importance of the fish farming sector. Given the increasing pressure on ocean fish stocks and on the overall marine ecosystem, aquaculture certainly represents a sector with potential sustainable fish supply. As a source of employment and commercial opportunities, aquaculture can furthermore contribute to food security and improved livelihoods for fish-farmers in developing countries. The EU support focuses in creating an enabling environment for the development of fish-farming



H.E. Felix Edobor Awanbor



David Little



Patrick Sorgeloos

through different programmes. Salord recalled the EU financed ACP Fish II programme, which is supporting the creation of national policies on sustainable fisheries, for example in Haiti, Sierra Leone, Gabon and Cameroun; the EU Smart Fish programme which promotes a regional fishery strategy in Eastern Africa and the new dialogue established through NEPAD.

Panel 1: Fish-farming the pathway towards a blue revolution?

The first panel chaired by **H.E. Felix Edobor Awanbor**, Ambassador of Nigeria, provided an overview of the key concepts, existing systems, challenges and opportunities in aquaculture, especially for ACP countries. It addressed the main issues involved in the aquaculture sector in terms of food and nutrition security, health management and sustainability of the sector.

David Little, Professor of aquatic resources and development at the University of Stirling in the United Kingdom, explained the various types of aquaculture ranging from the simplest production systems such as small family ponds in tropical countries to high technology systems, such as the intensive indoor closed units. Aquaculture production, which represents half of the seafood supply globally, grew enormously in the last years especially due to production increases in China (production intensity focuses in Asia and Egypt).

Notwithstanding, capture fisheries remains the main source of aquatic resources. Aquaculture development is highly connected with urbanization and the livelihoods of people living on deltas. Although interventions have been directed at supporting small scale aqua-farmers, aquaculture realizes its potential when urban markets are mobilized and urban-rural synergies are established. Furthermore, the “small-scale mantra” needs to be reconsidered as aquaculture represents 10 to 15% household income which has more an incremental than a transformative effect even though the benefits are multiple due to the complexity of social structure, governance, market incentives...). Rather than small-scale farmers, more often relatively richer farmers (entrepreneurs) with higher resource endowments are those who adopt fish-farming to sustain their livelihoods and increase their income. The potential and the benefits of aquaculture are concentrated along the value chain rather than at farm level and promoting regional markets is essential. Regional trade within Asia and between Asia and elsewhere is growing faster than conventional South-North trade. The increasing input cost vis-a-vis a decreasing market value of fish product as well as the supply of seed and feed are the main constraints affecting aquaculture development and those need to be considered when targeting international trade markets.

There is a substantial amount of knowledge gained from Asia which can benefit Africa and other regions and increased efforts should be put

into networking and exchanging best practices such as through the Sustainable Aquaculture Research Networks in Sub Saharan Africa (SARNISSA). More efforts should also go into data collection as to ensure more reliability.

Patrick Sorgeloos, Professor of Aquaculture at the University of Ghent, Belgium explained how aquaculture development would be at a crossroad between being a success story and facing many challenges. Fishmeal and fish oil represent a compelling problem for the sector and regions such as Africa will have to find alternative ways to supply fish feeding. Better investigation is needed to assess whether vegetables and other raw materials could be better valorized as fish feed ingredients. Though aquaculture impact on the environment is acknowledged, nowadays, environmentally sustainable practices of producing fish are spreading such as extensive aquaculture, which doesn't require extra feed from outside the fish-farming systems. An essential distinction exists furthermore between food aquaculture and business aquaculture. The first one is mainly present in urban areas and communities where a demand for fish exists. This includes the practice of integrated agriculture-aquaculture (IAA) which is most common in developing countries where it provides a means for rural systems to diversify and maximize output. The business aquaculture has a commercial nature and has developed into a considerable

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Rohana Subasinghe



Mark Prein



Briefing attendees

scale only quite recently around the farming of pangasius, tilapia and salmon. This system being based on monoculture poses some environmental concerns. Sorgeloos presented the case of Chinese mitten crab, where a great level of production has been achieved through extensive cultivation in rice fields and closed cycles. Agro-ecologically stronger beneficial practices could be further explored relying on already existing experience in the field of aquaculture, e.g. focusing on a better understanding of the role of the microflora and the role of the bioflocs and bacteria. Sustainability implies in the long term a better use of the marine aquatic environment and a better integration within aquaculture and agriculture.

Rohana Subasinghe, Senior Aquaculture Officer at FAO presented the risk analysis and health management in the aquaculture sector. Subasinghe reminded the audience that as a result of new trends such as increasing incomes and national GDPs as well as rapid urbanization, fish demand will increase in the coming decades. Since capture fisheries is stagnant, the increasing fish demand will have to be satisfied by the aquaculture sector which is the fastest growing food producing sector, at a rate of 6.2 % per year. As the annual growth of the sector is expected to slow down, a gap in global fish supply is expected. Annual growth rate of aquaculture would thus need to be further increased by 1.5% per year if

the fish per-capita consumption by 2030 shall not decrease as compared to its current level. Subasinghe reminded the participants that 6 billion dollars, amounting to 5 to 6% of the global fish value, are lost every year because of diseases in aquaculture. That is why biosecurity governance is essential to increase fish availability and bridging the fish supply-demand gap. He presented some cases of disease spread across different regions such as the White Spot Syndrome Virus (WSSV), the Koi Herpes Virus (KHV), the Epizootic Ulcerative Syndrome in the Zambesi river in Southern Africa (EUS) and the Early Mortality Syndrome (EMS), a shrimp disease spread in Asia which caused economic losses of 1 billion US \$ last year. These diseases spread rapidly around the globe. Weak international guidelines and lack of capacity at national level in diseases diagnostic are the main factors causing a serious lack of biosecurity. More recognition of the problem, better surveillance and more research in resistant species are needed.

Mark Prein, Advisor for the Promotion of Sustainable Fisheries and Aquaculture at GIZ, presented the case of organic certification of aquaculture products. Nowadays, globally around 80 standards exist for aquaculture, of which 18 national standards in Europe and a great variety of certified fish products for a global market value of 400 billion dollars. The most prominent organically certified fish species are carps, trouts, Atlantic salmon

and pangasius. Black tiger shrimps, freshwater prawns are amongst the commonly certified shellfishes. In India and Bangladesh a great number of farms producing black tiger shrimps are certified as organic and are produced for the European market. Groups with certified shrimp's production are nowadays present in Costa Rica, India and Bangladesh. Consumer demand is the main driving force of products certified as organic. Prein outlined the main production requirements in organic aquaculture: practicing polyculture farming systems, having a low stocking density, using ponds rather than cages as rearing systems and complying with social standards. The main advantage of organic production is a reduced presence of diseases through the use of pathogen-free larvae. Furthermore, the use of antibiotics is prohibited by some certification standards. Challenges to the future development of the organic production include limited organic certified feed, high costs of certification, undersupply of species such as trout and the harmonization of standards. Cooperatives' certification is the most used approach by farmers and the initial costs are often covered by exporting or processing companies.

The **debate** raised questions on the key recommendations to provide to ACP countries before starting an aquaculture production and the danger of fish diseases; the need for a business approach in training farmers and making aquaculture

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Dr. Pa'olelei Luteru



Sloans Chimatiro



Milton Haughton

projects appealing to donors; the urgency to have fisheries and aquaculture policy frameworks in ACP countries and the key role of research in preventing diseases. Subasinghe stressed how the potential negative impacts of diseases spread have to be taken into account when programming interventions in the sector. Carrying out risk assessment covering genetics and further environmental concerns is essential. Dr Little stressed the importance of breeding and maintaining resisting varieties as key to any aquaculture sector development plan. Regarding the agribusiness sector, he outlined that a true development of the sector can be achieved only if the private sector is engaged. Moving to a value chain approach rather than looking merely at the farm level is thus an essential step. Subasinghe stressed that none of the virus has an impact on human health and that only few of the pathogens can affect humans. In terms of bacteria, they can affect humans only when dead fish is eaten. Sorgeloos stressed that bad management in aquaculture practices can accelerate diseases spread and therefore capacity building is essential. Prein gave the example of a current study by IFOAM to assess the potential of organic aquaculture for consumers in Eastern Africa and how information to consumers on the different aquaculture certifications is key.

Panel 2: Proven successes in fish-farming and lessons learned from the field

This panel chaired by H.E. Fatumanava III Dr. Pa'olelei Luteru, Ambassador of Samoa, looked at practical cases in Africa, the Caribbean and the Pacific regions highlighting best practices which could be upscaled or replicated in areas related to regulatory frameworks, national and regional trade regimes and innovation systems.

Sloans Chimatiro, Senior Fishery advisor at NEPAD presented the aquaculture drivers in Africa. Despite a small production level over the last five years, Africa experienced a significant growth rate in aquaculture production reaching 18%-19% percent in the main producing countries. The limiting factors that the sector has to face are the expansion of production and meeting the demand for an appropriate quality and quantity of feed and seeds. Integrated aquaculture-agriculture (IAA) is a promising practice guaranteeing that aquaculture does not grow at the expenses of the environment. The high level political awareness of the importance of aquaculture is a great potential for the development of the subsector. He reminded the audience of the AU-NEPAD Fish for All summit of 2005, the adoption of fisheries and aquaculture as 6%

target in CAADP and finally the FAO SPADA project (Special Programme for Aquaculture Development in Africa.). Other drivers include the increasing demand for fish and the improved environment for investors. Chimatiro outlined the factors influencing aquaculture development such as legislation, policy and plans, land and water rights, mainstreaming of aquaculture in national plans and in poverty reduction strategy plans. Finally he outlined the main models of aquaculture in Africa. Among them the example of Nigeria, where village centers and youth are engaged into production. Finally he stressed how aquaculture development is happening in those countries where market, governance and investments conditions are favorable.

Milton Haughton, Executive Director of the Caribbean Regional Fishery Mechanism (CRFM), presented the perspective from the CARIFORUM region.

The fisheries and aquaculture sector makes important contributions to the economic and social development of CARIFORUM States in terms of food supply and food and nutrition security, employment generation, foreign currency earnings and coastal development. Fish and shellfish are harvested mainly from the coastal waters, with a small but increasingly important contribution coming from aquaculture production. In 2010, total fishery production from

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Timothy Pickering

domestic fisheries was 176,213 mt of which approximately 11,000 mt came from aquaculture production. The main producer countries in the CARIFORUM region are Belize and Jamaica, which have seen the development of viable commercial farming of shrimp (*Litopenaeus vannamei*) and tilapia (*Oreochromis* species and hybrids). Together these two countries account for seventy-six percent (76%) of production, followed by Dominican Republic, Guyana, Haiti and Suriname.

General constraints to aquaculture development across the region include, inter alia, inadequate seed supply, high cost of financing, weak land tenure, high land costs, high feed costs, inadequate technical knowledge and skills, inadequate extension and market support systems, high energy cost, competition from imports, weaknesses in the marketing chain, and inadequate policy, legislative and institutional frameworks supporting the sector.

Although aquaculture has the potential for making significantly greater contribution to the region's development and food security, the sector has not been widely promoted as an important economic activity in the region. In consequence, the level of private investment in it has been very small. The sector has to be promoted as an industry with adequate legislative and policy frameworks and incentives to encourage private investment, sensitize the public at large of the opportunities available and regulate

activities in accordance with international best practice. However, this situation is changing and CARIFORUM States, with technical support from international donor partners have in recent times been strengthening the policy, legal and institutional frameworks for orderly development of aquaculture.

Timothy Pickering, Aquaculture specialist of the Secretariat of the Pacific Community (SPC) presented the perspective of fish-farming in the Pacific region. Opportunities of aquaculture are numerous with plentiful sites, unique biodiversity in a region largely disease-free and small-scale livelihoods opportunities for communities within large aquaculture businesses (e.g. pearl spat catching, pearl handicrafts, custodianship of re-stocked sea cucumbers, etc).

Pickering underlined the development of a strong internal market as a key requirement for realizing aquaculture potential in stimulating potential positive impacts on micro-economies.

Successes in the region include the cultivation of black lip pearls and marine shrimps in French Polynesia, New Caledonia and Papua New Guinea (PNG). PNG in particular is a big player in aquaculture for food with an estimated amount of twenty thousand farmers producing mainly tilapia and carp. *Kappaphycus* seaweed production represents another success, well established in the outer-islands provinces of Kiribati, Fiji, PNG and Solomon Islands. Although low in value it has a great

socio-economic impact in small-island and micro-economies. Nile Tilapia farming developed as a consequence of depletion of marine fish mainly in PNG and Fiji but also in Cook Island as well as in Samoa and Vanuatu.

Emerging commodities include marine ornamentals like coral and live-rock, clownfish in Vanuatu, mud crab, spiny lobster and sea cucumber which re-stocking trials are underway in Fiji, New Caledonia, Solomon Islands and Kiribati. Culture of lower-value fish for food security is gaining higher priority. Challenges include availability of inputs, distant export markets, small domestic markets, insufficient engagement with the private sector, weak capacity to consider aquatic species introduction responsibly, impact of climate change and costs of adaptation and weak aquaculture statistics.

In the **debate**, various ACP ambassadors advocated for more joint ACP proposals on fish-farming for EU support and South-South cooperation programmes. It was suggested that the imposition of tariffs in the Caribbean region could be a plausible instrument against the increasing competition of cheap products from outside the region. Haughton stressed how the adoption of liberalism and free trade policies is undermining local production; nonetheless the availability of cheap foodstuff is beneficial to the food security of Caribbean's people. Furthermore there is an urgent need to find public-private partnerships to restructure and improve the competitiveness of the aquaculture

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sector in the Caribbean. On South-South cooperation, Pickering gave the example of the Secretariat of Pacific Countries (SPC) cooperation with the Network of Aquaculture centers in Asia-Pacific (NACA).

Some participants raised the need for support to rural aquaculture, extension services and the development of endemic species as well as support in establishing policy frameworks in the aquaculture sector in ACP countries. Chimatiro

stressed how the financial support from EU to Africa is rather fragmented and stressed the need for a more coherent approach with the proposals made by the different regional organizations such as CARICOM and the African Union. Furthermore, he outlined the need to align the agendas of the ACP Fisheries Ministerial Conference to the one of African Conference of Ministries of Fisheries and Aquaculture. Various ACP ambassadors raised the need

for the ACP group to develop a Fisheries and Aquaculture strategy. Ambassador of Samoa concluded the Briefing calling for a concerted action from the Committee of Ambassadors and CTA to design a proposal for EC support to the aquaculture sector in ACP regions.

Concluding remarks stressed the need to promote sharing of best practices and action in the field, including south-south cooperation.

Further information available online

- Brussels Briefings: www.brusselsbriefings.net
- Reader: <http://tinyurl.com/ojuzycs>
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