Sustainable Development of Mediterranean Aquaculture

Conclusions of the Sidi Fredj workshop, Algiers, 25-27 June 2005

Introduction

Aquaculture production is on the rise in a number of Mediterranean countries. This activity is most often perceived as something new coming to the aid of declining fisheries. It focuses on certain species of high commercial value, such as sea bass and gilt-head, or on traditional activities such as mollusc production.

This production brings with it a number of complex problems of an environmental or socio-economic nature, as well as in relation to access to the resource, which could threaten its continuity and sustainability. These problems relate to the fundamental issue of use of the territory, and prove particularly difficult in the case of coastal strips characterised by both natural wealth and increasing demographic pressure.

The workshop held from 25 to 27 June 2005 in Sidi Fredj, near Algiers, was intended as a case study valid for the whole Mediterranean Basin. It was primarily addressed to the Algerian aquaculture sector (producers, investors, decision-makers and the institutional framework) but also assembled all those parties involved in sustainable development at international level: universities, researchers, students, authorities at the various national, regional and local levels, producers and investors, representatives of civil society, non-governmental organisations and international organisations (e.g. UNEP/MAP/RAC-SPA, IUCN Centre for Mediterranean Co-operation).

The recommendations formulated by this group map out a framework for sustainable aquaculture, that is aquaculture which is ecologically acceptable, socially just and economically viable. Divided into *Fundamental Principles, Strategy, An Integrated Approach* and *Tools*, the recommendations focus in a cross-disciplinary manner on three fundamental principles: the strengthening of scientific foundations, the improvement of governance and the application of the principle of precaution.

1. Fundamental Principles

The group acknowledges that sustainable development of aquaculture is based upon the principles of the conservation of biodiversity and the sustainable use of resources. The group recommends:

- Becoming aware of the fact that the establishment of an aquaculture farm has an impact on the local environment;

- Ensuring sustainable management of the resources used to feed the organisms being raised (flour and fish oil, krill, artemia or brine shrimp, and other feed);

- Ensuring sustainable management of natural stocks, should organisms be fished for subsequent use in aquaculture (spat, larvae, fish fry, adults), and particularly improving and reinforcing monitoring and control measures;

- Fostering the domestication of local stock;

- Encouraging the use of local or already acclimatised species in the case of freshwater reservoir repopulation; and

- Applying the principle of precaution with regard to the introduction of allochthonous species (farmed and associated species).

2. Strategy

The group considers the development of strategic elements a prerequisite for sustainable use. It recommends:

- Participatively conceiving a strategy to recognise the place of aquaculture in the occupation of the territory, including marine areas (at national and local level as well at the different intermediate levels);

- Promoting the principles of precaution and conservation of the environment via adapted management tools, particularly studies and monitoring of the environmental impact of aquaculture, as well as the monitoring of coastal habitats;

- Diversifying production, both with regard to species farmed as food (algae culture, mollusc culture, fish and their processed products, such as ready-made meals, fillets, etc.) and species raised for manufacturing by-products (cosmetics and the pharmaceutical industry);

- Fostering the creation of varied businesses (in size, type of activity and marketing) through a scheme of incentives and advising the strengthening of responsibility;

- Fostering and targeting value-added market niches (labels), as well as promoting and developing the local or national market (proximity);

- Developing the image of aquaculture on the basis of examples and the evolution observed in sustainable and integrated aquaculture; and

- Establishing a coherent and dynamic mechanism for sustainable national aquaculture by simplifying procedures, fostering and developing research and encouraging an integrated approach at the administrative level.

3. An Integrated Approach

The group recognises that sustainable aquaculture rests on three indivisible pillars, namely that it be ecologically acceptable, socially just and economically viable. It therefore recommends an integrated approach combining the various elements constituting the framework of aquaculture. It recommends:

- Coordinating, through the authorities, the planning of coastal areas such that the role of each economic sector, including aquaculture, is acknowledged at the different administrative and geographical levels in question (regional and national);

- Fostering synergies at the local level on the basis of a participative process entailing preliminary consultation with the actors of development, as well as partnership measures with all sectors concerned (agriculture, aquaculture, the environment, fishing, tourism and others);

- Recognising the profession of an aquaculturist by regulating the different professions and occupations in that field , including legal aspects as well as the process of advancement through training; harmonising the position of businesses by including them within the framework of small and medium-sized enterprises (SMEs), particularly by identifying links and correlations with other comparable activities, in order to facilitate their economic integration, especially with regard to social security and social regimes;

- Applying the principle of precaution and attaching greater value to host ecosystems the more fragile and extreme they are, as for instance in the case of Saharan aquaculture;

- Selecting locations for breeding cages in the sea according to criteria validated by experience and scientific literature concerning technical parameters (distance vis-à-vis sensitive, vulnerable or protected species, depth, currents and other factors) in order to minimise negative effects on the surroundings;

- Fostering the development of environmentally friendly, sustainable aquaculture in protected areas (including marine areas), so as to optimise added value expressed in terms of both social development for local populations and production quality;

- Enhancing the value of private initiatives and developing scientific research on the 'reserve effect', the enrichment of the environment associated with the presence of cages and interaction with artificial reefs;

- Developing integrated freshwater aquaculture respectful of water resources, whilst combining aquatic breeding and irrigation in order to protect, economise and manage water in a sustainable manner;

- Fostering local employment and enhancing local and national maritime cultural heritage, particularly by facilitating the transfer of competencies and employment between the fishing and aquaculture sectors;

- Fostering the integration of parity by instituting procedures that take women's work into consideration and observing the principle of equal opportunity; and

- Within the profession, fostering and reinforcing the structuring of socio-professional organisations at producer level (vertically to the inter-professional level of the channel) as well as at inter-sectoral level (horizontally).

4. Tools

The group considers there to be several tools that would facilitate application of the different strategy elements. It recommends:

- Systematising both environmental impact studies and the monitoring of measures taken as a tool for sustainable management; in this respect, and above all due to the prohibitive costs associated with the technology required (studies of currents, sedimentology and others), these tasks should be shared by the authorities and professionals according to their specific responsibilities;

- Regarding land structures (hatcheries, holding ponds), imposing water treatment before use (ozone, UV and others) as well as wastewater treatment (biofilters, recirculating water systems) in order to meet minimum requirements in water quality and bio-safety;

- Enhancing exploitation of the trophic chain (fish, shellfish, algae, etc) by developing integrated production, particularly so as not only to make the space/volume used profitable, but also, and above all, to foster environmental treatment of the farm's nutrient contributions, thereby improving the quality of the water whilst diversifying production;

- Establishing a decentralised public scheme for controlling and monitoring the quality of habitats and production, particularly in the case of shellfish culture and antibiotic residue from fish culture (health and commercial risks);

- Encouraging and pursuing research and applications on substitute protein and lipid sources used in fish feed, particularly developing all local sources, including agricultural and / or marine (e.g. algae);

- Developing multilateral collaboration and participating in international programmes associated with the different areas of sustainable aquaculture in order to define and reinforce a strategy as well as the means for national research on sustainable aquaculture;

- Strengthening national and international research (public funding, public – private schemes), especially on the enhancement of autochthonous species of interest to aquaculture (gaining knowledge on biological cycles);

- Endorsing and participating in international programmes for the conservation of wild genetic stock;

- Strengthening and harmonising the training scheme for the sector, whether at the level of the scientific and administrative framework (direct training and teacher training) or through financial incentives for training; developing the process of regional exchange, knowledge improvement and the sharing of experience;

- Making reliable and easy-to-use information available to professionals and decision-makers, for instance tools for monitoring, planning and orientation (GIS, Geographic Information System);

- Regrouping in a single place the administrative procedures for establishing an aquaculture business, namely by setting up an integrated office to simplify the process;

- Establishing measures to advise and assist businesses, particularly regarding issues of property and the occupation of the Maritime Public Domain, environmental impact studies and other institutional aspects in order to provide security for private investment;

- Developing tools to assist all those actors involved in aquaculture development (authorities, communities and entrepreneurs) in decision-making and in the on-site establishment, in the form of brochures and documents describing procedures;

- Generalising permanent marketing analysis (authorities, communities and businesses) for sustainable socio-economic positioning by enhancing competitive advantages, product differentiation and the diversification of production in order to meet the needs of the market at all target levels, international, national and local; and

- Developing incentive schemes for the profession, as well as communication and information measures to promote and enhance the value of sustainable aquaculture production.