

General Fisheries Commission for the Mediterranean
COMMITTEE ON AQUACULTURE

MEDITERRANEAN – ON IDENTIFICATION OF SUSTAINABLE
AQUACULTURE INDICATORS IN THE MEDITERRANEAN SEA

Fundacion – OESA 10 – 11 June 2010



CAQ - Working Group on Sustainability on Aquaculture

(WGSA)

Function Activities and Outputs

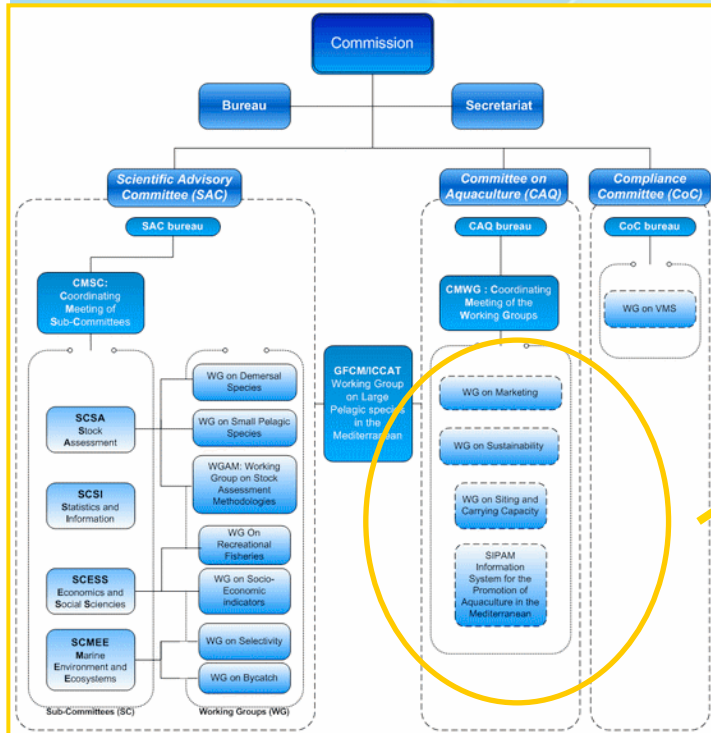
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- Committee on Aquaculture (CAQ), 1995 -
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GFCM established the Committee on Aquaculture (CAQ) :

- to promote the sustainable development and responsible management of marine and brackish-water aquaculture in the region;
- to provide independent advice at technical, socio-economic, legal and environmental level for common standards, norms, guidelines and decisions.

- **WG on Aquaculture Marketing** (data collection on aquaculture products market; market synergies with capture fisheries; Strategy development for aquaculture Marketing and Promotion)
- **WG on Sustainability** (selection of indicators, s reference points for aquaculture sustainable deve guidelines for their use)
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- **CMWG** the coordination of the scientific inputs form the subsidiary bodies of CAQ
- **SIPAM** Information Systems for the Promotion Aquaculture in the Mediterranean

MedAquaMarket

InDAM

SHoCMed

WGSA – Working Group -Sustainability Aquaculture

InDAM Programme “*Selection of Indicators for sustainable Development of Aquaculture and guidelines for their use in the Mediterranean (operative since November 2008)*”

- to provide countries, policy makers and relevant stakeholders with a comprehensive decision support tool for the sustainable aquaculture development in the Mediterranean
- multidisciplinary and multistakeholders approach,
- production of sets of indicators to guide towards the sustainable development of Mediterranean aquaculture,
- in its four dimensions (social, economic, environmental and governance).

- 4 years / phases



WGSA – Working Group -Sustainability Aquaculture (InDAM)

WORKSHOPS ON THE SELECTION OF INDICATORS FOR THE SUSTAINABLE DEVELOPMENT OF AQUACULTURE IN THE MEDITERRANEAN SEA (Montpellier, France 27-28 November 2008)

Organised with the support of IFREMER and Faculty of Economic Science
Montpellier 1 University

aims:

- to **bring together and present the experiences** and the main results of the more recent research programmes that are working to develop a list of indicators;
- to **exchange project knowledge and experiences** in designing and developing the indicators and to prepare a regional synthesis;
- to **agree on the methodological approach** to be implemented (WGSA-InDAM) in the Mediterranean within the context of the CAQ and consolidate (or establish) a regional network for the InDAM initiative;

The Working Group on Sustainable Aquaculture agreed on the EVAD approach, and adopted with minor changes the terms presented and reported in the Evad document (PCI).

Discussion was raised on how Principles, Criteria and Indicators should be selected, as well as on a common understanding of the terms used

Principles Are associated to the different dimensions (or pillars) of sustainable aquaculture (Economic, Social, Environmental and Governance).

Criteria Break down of the principle into specific themes or characteristics and specify the issue to be addressed through the relevant variables to be monitored.

Indicators Allow the criteria to be measured (qualitative or quantitative), and are essential to monitor or assess the behaviours of the criteria over the time.

Reference points Indicate the particular state of the issue to be monitored. Once an indicator is associated with its standard, it is possible to have a reference point indicating the particular state of the issue to be monitored.

Main Dimensions of Sustainable Development	Principles
Economic	Strengthen consumer responsive and market oriented aquaculture
	Strengthen risk assessment and crisis management capabilities
	Strengthen financial management of enterprises
	Strengthen the role of professional organization for the economic sustainability of aquaculture
Environmental	Minimizing the global impact of aquaculture
	Respect the ecological service of ecosystem
	Minimizing the local impact on environmental condition and biodiversity.
Social	Contribute to food security and healthy nutritional needs
	Strengthen the role of the Producer Organizations and NGO's to improve image of aquaculture, social awareness, and responsibilities
	Strengthen corporate social responsibility (respect animal well-being)
Governance	Strengthen integration of aquaculture in local development
	Promote participation in decision making processes
	Strengthen research, information systems and extension services
	Strengthen institutional capacities in relation with sustainable development

- Participants agreed on the **necessity of common criteria and relative indicators to describe the level of sustainability of aquaculture** in the Mediterranean and Black Sea areas. Meeting economic, social and environmental demands with common reference systems is an essential condition for the responsible development of marine aquaculture in the GFCM region
- Following a **multidisciplinary approach**, participants considered that the joint exercise made on selecting both principles and criteria was important for generating discussion and for achieving the appropriation of the **correct terminology** and considered it essential toward the implementation of the INDAM project activities
- The definition of indicators should continue **in a cooperative manner** and according to the different level of expertise, taking into account the recent progresses made and outputs obtained by the various research projects and programmes. **The involvement of the stakeholders is fundamental to harmonise the strategies for the management of aquaculture.**
- For the purposes of the Working Group on Sustainability Aquaculture, **cooperation and exchange knowledge** and experience, represent the base in designing indicators. Reviewing and taking advantages from the outputs of the different initiative will avoid duplication and will help country and stakeholders to design development strategy for sustainable aquaculture.
- **For sustainable aquaculture, environmental and marketing aspects are the most critical issues presently to be addressed.** Therefore, cooperation and synergy with the CAQ Working Groups on Siting and Carrying Capacity and on Marketing, as well as the proper acknowledgment of their outputs is fundamental, when selecting indicators.
- **Indicators should also be considered for the communication between farmers and society.** The criteria should respond to the public's and consumers concerns about aquaculture and serve to communicate the positive aspects of a responsible and sustainable managed sector. The targets beneficiaries of INDAM are the farmers themselves and decision makers who will benefit from the use of sustainability indicators.

2nd Expert Meeting on Indicators for the Sustainable Development of Aquaculture in the Mediterranean (February 2009, Montpellier France) was organized:

- discussion on Principles, Criteria and Indicators
- to create a first list of sustainable indicators including: attribute for their implementation; standards for measurement; reference points to be proposed/adopted in the Mediterranean basin;
- to identify and plan areas for pilot actions for the application of indicators in the Mediterranean basin.

Dimension	Principles	Criteria	Indicators
Social (DSO)	3	13	18
Governance (DGo)	4	19	34
Economic (DEc)	4	20	52
Environmental (DEn)	3	15	52

•The first list of Indicators (156) was presented and each indicator was discussed individually

Discussion:

- number of indicators identified could appear numerous ;
- this could represent a limit when indicators are applied at local scale;
- for the local community the indicators should not represent an additional overload of work (exist. monitor)
- efforts should be made taking advantage of the existing indicators and adapt them to the concepts of sustainability at local level (pilot actions)

A first list of Indicators (156) was selected and each indicator was discussed individually

i.e. Governance

Dimension	Principles	Criteria	Indicators
Social (DSO)	3	13	18
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DG	P1 Strengthen integration of aquaculture in local development
	P2 Promote participation in decision making processes
	P3 Strengthen research, information systems and extension services
	P4 Strengthen institutional capacities in relation with sustainable development

CODE	CRITERIA	N	INDICATORS
P1C3	level of contribution to local employment and to poverty alleviation	3	number of workers (direct and indirect)
		4	percentage of permanent (and seasonal) full time equivalent workers
		5	percentage of seasonal workers in aquaculture compare to seasonal workers in tourism

How to transfer this discussion from the regional to the local level in order to rich a common approach to the sustainability?

InDAM - PILOT ACTION

- to test the appraisal of the different stakeholders, in terms of compatibility, validity and acceptability of the identified indicators and
- to give guidance at local level in the participation progress

The pilot actions consisted mainly in one or two local multistakeholder meetings, following a bottom-up approach.

The meetings were attended by representatives of the different interested parties and discussed and appraised the work done (various Ministries, NGO, POs, researchers, farmers, small scale fishery)

The pilot actions were performed in two selected coastal areas, at different level of aquaculture development (Turkey and Tunisia)



MUGLA



MONASTIR



For each indicator a selection process with the different stakeholders was implemented, some selection criteria were chosen and agreement reached (such as: data availability, statistical robustness; local acceptability);

The outcome of the two local meetings were presented to a workshop (Tunis) as end of phase I of InDAM and aimed to discuss the outputs and the methodology implemented and to detail the activities of phase II.



The Working Group on Sustainability on Aquaculture (WGSA)



The technical meetings of the InDAM Pilot Studies at Mugla (Turkey) and at Monastir (Tunisia) produced a local feedback on the indicators and, among others, identified as main attributes for the indicators. :

- **Understandability,**
- **reliability,**
- **reproducibility,**
- **data availability**
- **and transparency**

• **the *Pilot case studies* are essential to establish a local reference system for the development of sustainable aquaculture; the multistakeholder participation should remain a priority as well as the bottom-up approach.**



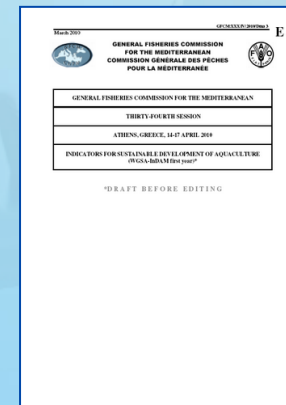
The Working Group on Sustainability on Aquaculture (WGSA)



WGSA - ACTIVITIES AND OUPUTS: within the first year of the InDAM (*) project on “*Selection of Indicators for Sustainable Development of Aquaculture and Guideline for their use in the Mediterranean*”

- A preliminary list of 155 indicators has been selected by the WGSA corresponding to four (Economic, Environmental, Social and Governance) dimensions of Sustainable Aquaculture.
- Two first pilot studies were developed at Monastir (Tunisia) and at Mugla (Turkey) for receiving feedback from stakeholders on the indicators identified by the WGSA at regional level.
- An online data base of relevant bibliography on sustainability on aquaculture and indicators for sustainable aquaculture was implemented.
- A series of documents and technical reviews were prepared by experts of WGSA, dealing with key issues on the use of indicators for sustainable development of aquaculture and on the governance systems in aquaculture.

Dimension	Principles	Criteria	Indicators
Social	3	13	18
Governance	4	19	34
Economic	4	20	52
Ecological	3	15	52



<http://151.1.154.86/GfcmWebSite/private/InDAM/info.html>

(*) InDAM –Funded with EU contribution



The Working Group on Sustainability on Aquaculture (WGSA)



WORKPLAN FOR THE 2nd year of INDAM (July/Sept-2010; July/Sept 2011)

- *Activity 1 Test Indicators Reference System at local level as a result of regional cooperation*
- *Activity 2 Implement a programme for the dissemination of InDAM (Indicators) results, outputs and documentation*
- *Activity 3 Prepare Guidelines on the application of indicators for sustainable aquaculture, according to the methodologies applied and to the agreed schemes*
- *Activity 4 Test the indicators reference system at local level: follow up of the pilot case studies carried out*

WGSA-InDAM- expert meeting Definition of Regional minimum set of the indicators for sustainable aquaculture* Malta 25-26 November 2010;

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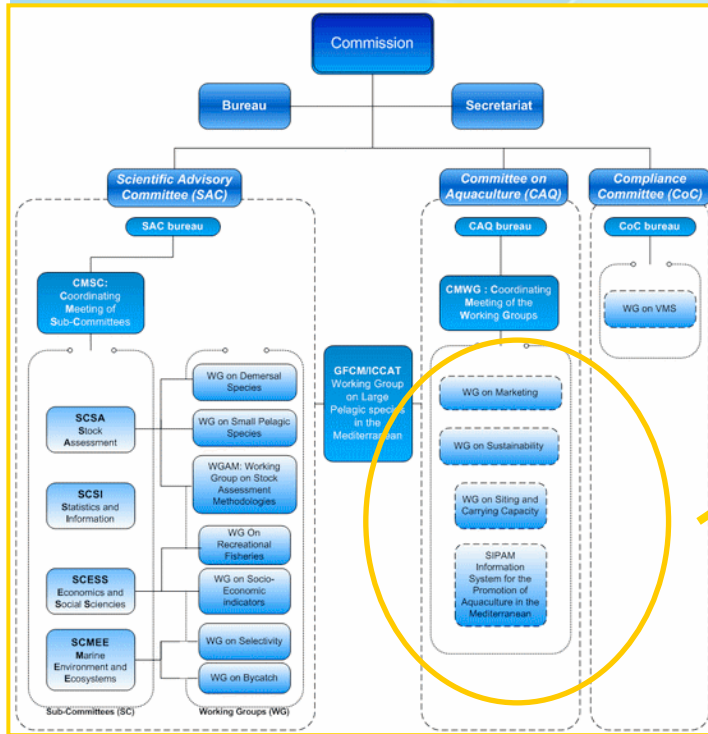
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WGMA

Working Group on Aquaculture Marketing

MedAquaMarket : “*Development of a Strategy for Marketing and Promotion of Mediterranean Aquaculture*” (operative since April 2008 - Dec 2009) (*)

Aims – in support to the WGMA :

- To increase the understanding of the present situation of marketing of aquaculture products in the Mediterranean
 - and to support the members countries in implementing a strategy for the development of the marketing of aquaculture products;
- assessment of the present situation of the marketing aquaculture products (sea-bass and sea-bream) in Mediterranean countries
 - synthesis of the state of aquaculture marketing and preparation of mid term plan
 - prepare a common methodology template for collection of market information and establish creation of a regional data base on marketing issues to be managed in the future by the CAQ information system
 - come up with a set of recommendations towards a strategy for promoting Mediterranean marine aquaculture , focussing on markets and marketing issues



GFCM - Committee on Aquaculture - WGs

- 15 MedAquaMarket Aquaculture Mediterranean National Reports prepared on the basis of a 'standard national market report' template prepared by the WGMA
- Technical document titled "*Regional Synthesis of the Mediterranean Aquaculture Sector & Development of a Strategy for Marketing and Promotion of Mediterranean Aquaculture*" was prepared (by Lara Barazi Yerolanus)
- The meeting on the "*Development of a strategy for marketing and promotion of Mediterranean Aquaculture*" was organized (29-30 October 2009, in Tangier).
- Report prepared "*Emerging Species in Mediterranean Aquaculture: the MEAGRE (Argyrosomus regius), Present market situation and prospects*",
- Market Data Scheme has been finalised (*Fish market; National Market Data, Demographic data, Other Relevant Data*)

GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN

09/09/2010/10/08

STUDIES AND REVIEWS

No. 88 2010

REGIONAL SYNTHESIS OF THE MEDITERRANEAN MARINE FINFISH AQUACULTURE SECTOR AND DEVELOPMENT OF A STRATEGY FOR MARKETING AND PROMOTION OF MEDITERRANEAN AQUACULTURE

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The main recommendation made by the WGMA – MedAquaMarket:

- 1 Marine aquaculture in the Mediterranean is currently facing a series of constrains that limit its further development on a sustainable which are linked to legal and institutional aspects; production and R&D issue and; market aspects.**
- 2 The existing legislation applying to the sector needs to be strengthened. The spatial planning of the coastal zones and the creation of efficient mechanisms to monitor production, distribution and consumption are of critical importance.**
- 3 Licence procedures should be facilitated and a legal framework should be established for an integrated aquaculture spatial planning within the context of the integrated coastal zones management;**
- 4 Legal framework should set to encourage the establishment of Producers' Organizations;**
- 5 Production diversification should be oriented toward new market segments for aquaculture;**
- 6 Incentives should be granted for Responsible Aquaculture Practices;**
- 7 Educational and professional training should be promoted for fish farmers;**
- 8 R&D activities should be industry oriented;**
- 9 Price stability, exploitation of emerging niche market, public image of the sector and the aquaculture products should be improved;**



The main recommendation made by the WGMA – MedAquaMarket:

- 10 Structured and continuous promotion and marketing communication strategy to select target groups for increasing the domestic consumption;**
- 11 Structured and continuous promotion and marketing communication strategy to select target groups for increasing the domestic consumption;**
- 12 Introduction and enforcement of traceability systems. Encourage harmonisation of traceability systems (i.e. species and country origin);**
- 13 Common minimum standard in the GFCM region should be adopted with the aim of informing the consumers and for guaranteeing the aquaculture production;**
- 14 Introduce certification and labelling systems and procedures to improve the competition,**
- 15 Better exploitation of existing and emerging markets and encourage the development of added value and processed products;**
- 16 Establish a permanent data collection system ;**
- 17 Consumer's awareness on attributes of aquaculture products should be promoted to improve consumption and image of farmed products.**



WGMA Working Group on Aquaculture Marketing

<i>Dimension</i>	<i>Principles</i>	<i>Criteria</i>	<i>Indicators</i>
Governance (DGo)	4	19	34
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Principles

P1 Strengthen consumer responsive and market oriented aquaculture

P2 Strengthen risk assessment and crisis management capabilities

P3 Strengthen financial management of enterprises

P4 Strengthen the role of professional organization for the economic sustainability of aquaculture

ECONOMIC DIMENSION

(4 principles, 23 criteria*, 55 indicators)

DEc/ PRINCIPLE 1: Strengthen consumer responsive and market oriented aquaculture

CODE	CRITERIA	Nº	INDICATORS
P1C1*	use of branding or quality assurance schemes/labels	1*	existence of own-label (y/n and %)*
		2	existence of quality certification schemes (independent bodies) (y/n and %)
P1C2	traceable products	3	existence of a traceability system
P1C3	level of value enhancement	4	percentage of value-added products
		5	price differential with respect to quality (y/n)
P1C4	processing capacity	6	availability of processing capacity for the sector
P1C5	level of knowledge management	7	company customer surveys
		8	sector market studies
		9	existence of company marketing plan
P1C6	level of market promotion activities	10	marketing costs/total revenue

ECONOMIC DIMENSION

DEc/ PRINCIPLE 2: Strengthen risk assessment and crisis management

capabilities

	CRITERIA	Nº	INDICATORS
P2C1	level of diversification	11	number of products (i.e. species, size categories, value-added)*
		12	integration of core business with complementary activities (eco-tourism, recreational fishing, restaurant)
		13	geographic market diversification (number and % share of each market of total sales)
		14	share of each customer in total sales
P2C2	level of input self-sufficiency	15	number of national feed suppliers (also % imported)
		16	number of national hatcheries (also % of fry imported)
P2C3	capability to monitor and challenge pathological hazards	17	existence of biosecurity system
		18	existence of legislation on biological waste disposal
		19	existence of farm health management system (including vaccination program)
P2C4	increased R& D capabilities and innovation	20	ratio of R&D expenditure/total sales
		21	ratio of national expenditure on R&D/
P2C5	level of property rights over production sites	22	duration of lease of the site
		23	no. of site lease renewals per year
		24	existence of national legislation for zoning
P2C6	level of awareness of natural hazards	25	existence national emergency funds (natural disasters)
		26	ratio of insurance costs/total sales
		27	existence of legislation for monitoring of environmental parameters
		28	use of ISO 14000 (or other certified system)
P2C7	level of market maturity	29	existence of Pos or cooperatives for sales
		30	supply and sales by contract or by market

ECONOMIC DIMENSION

(4 principles, 23 criteria*, 55 indicators)

DEc/ PRINCIPLE 3: Strengthen financial management of enterprises

CODE	CRITERIA	N°	INDICATORS
P3C1	level of profitability	31	gross profit margin (gross profit/revenue x100)*
		32	rate of return on farm assets
P3C2	level of input efficiency	33	feed cost/kg fish produced (and % of total cost/kg)
		34	fry cost/kg (and % of total cost/kg)
		35	labour cost/kg fish produced (and % of total cost/kg)
		36	unit production cost (total variable and fixed costs/kg fish produced/operating costs) (ex-cage)
		37	energy cost/kg fish produced (and % of total cost/kg)
		38	transportation cost/kg (and % of total cost/kg)
		39	financial costs/kg fish produced (and % of total cost/kg)
P3C3	level of financial strength	40	current ratio (total current farm assets/total current farm liabilities)
		41	debt/asset ratio (total farm liabilities/total farm assets)
		42	debt/equity ratio (total farm liabilities/total farm equity)
P3C4	level of environmental protection costs	43	environmental monitoring costs/kg fish produced (and as % of total cost/kg)
		44	capital investments for environmental protection/kg (and as % of total cost/kg)
		45	existence of incentives, direct or indirect, for environmental protection actions
P3C5	ease of entry into industry	46	existence of national mechanism supporting start-ups (tax-break, subsidies, financing)

ECONOMIC DIMENSION

DEc/ PRINCIPLE 4: Strengthen the role of professional organization for the economic sustainability of aquaculture

CODE	CRITERIA	Nº	INDICATORS
P4C1	level of knowledge management	47	sector market studies
		48	market data dissemination (annual seminars by federations or authorities)
P4C2	level of collective marketing and actions	49	% of annual national federations (producer's organizations) budget allocated to marketing and promotion
		50	annual national budget allocated for marketing and promotion of the sector
		51	existence of a permanent information/ communication program at sector level
P4C3	promotion of training and awareness building	52	existence of training program for sector employees on financial aspects of activity
		53	existence of training program for sector employees on environmental aspects of activity
P4C4	increased capability for crisis management	54	existence of emergency funds
		55	existence of crisis management manual (strategy)