



General Fisheries Commission for the Mediterranean
Commission Générale des Pêches pour la Méditerranée



LaMed-2 Project

Green accounting Italian Experience

Best practices in aquaculture management and development

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Meeting on

Mediterranean coastal lagoons management:
interaction between aquaculture and capture
fisheries

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The first Project in the Mediterranean Region: Green Accounting

The aim of Italian applied pilot research was to the compilation of five different Green Accountings, for each farming factory involved in the research.

The outcome (AT FARM LEVEL) of the specific evaluations achieved for each farming have been reported, as comparable synthesis results, further to a multi-year data-gathering.

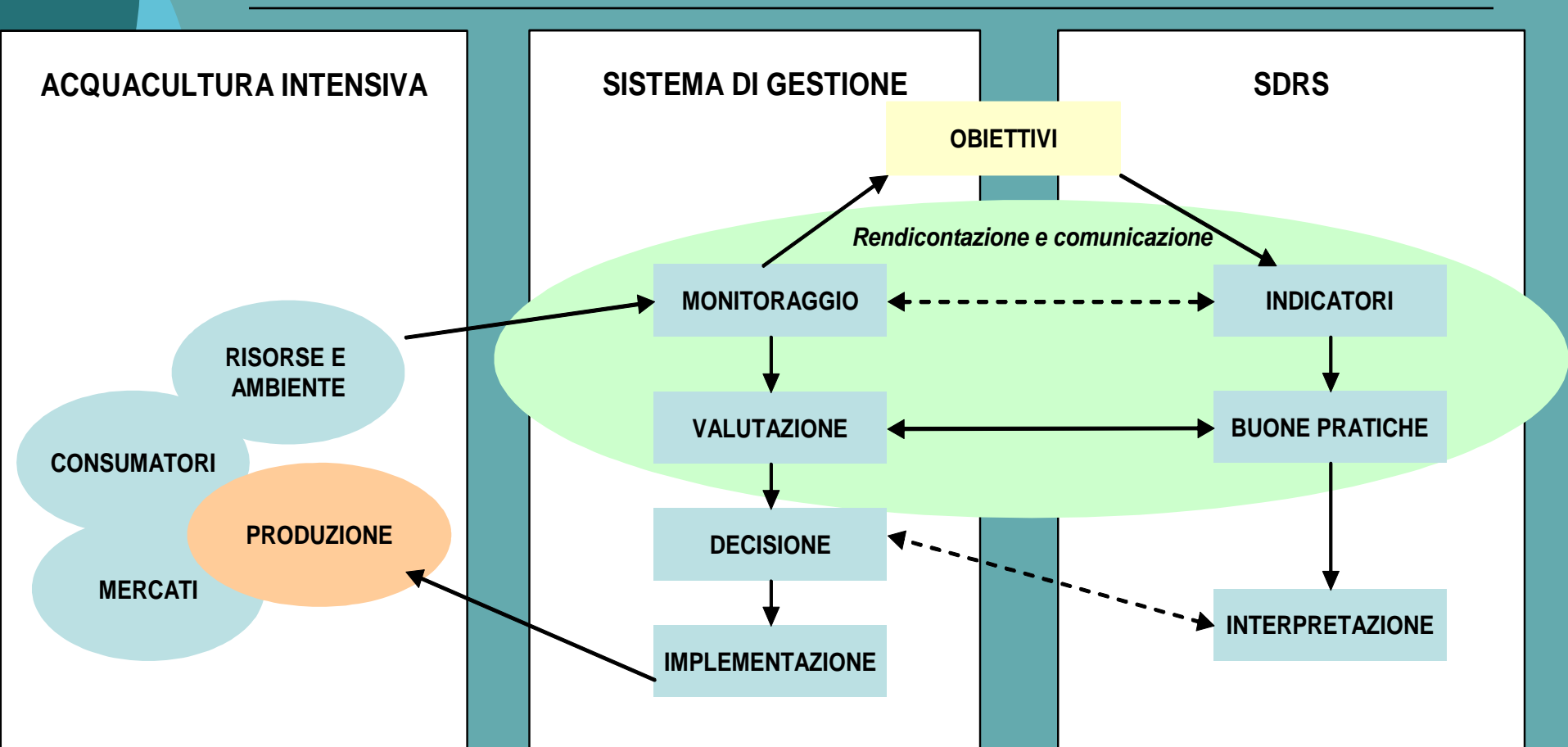


The outcome (AT Regional/National LEVEL) of the general/macro economic evaluations achieved for Italian intensive aquaculture have been reported, as comparable indicators, for a multi-year sustainable development in aquaculture sector.



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Interaction between Aquaculture, Environmental Management System and Sectoral Sustainable Development Reference Scheme (SDRS)





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Main goals in Green Accounting Methodological approach

- Choose Indicators for monitoring and “translate” in “monetary measure” the Environmental cost- investments
- Multi-years Plans and Programs to develop production in Economic/Profitable Sustainability
- Development, at farm/productive level, the new Balance-sheet in which are considered “environmental direct/indirect costs”
- Development, at Regional/National Level, Green and Social accounting and the improvement and assessment of “Data collection” on bio-economic social and ecological performance (year by year!!)
- To provide, at Governance level (Public Admin.) the polyhedral tool for Management of Allocated Zone Aquaculture

- **Socio-economic initial analysis of the sector**
 - **Regional Sectoral aspects**
 - **Type/systems & Technology (semi-intensive, intensive) and Species reared**
 - **Indirect economic and human activities in the area (tourism, transport, navigation, etc...)**
 - **Analysis of trends: demographic, tourism, aquaculture, agriculture, others..**

○ Definition of Matrix of Criteria

- **Turnover in Aquaculture (mln €)**
- **Turnover in fishery/catch (mln €)**
- **Turnover in Tourism (mln €)**
- **Number of Employees in the each and main developed sectors in the considered area (FTE)**
- **Interaction between fishery/aquaculture**
- **Interaction between Aquaculture/tourism**
- **Interaction between aquaculture and the others activities (i.e.: tourism, transport, navigation, etc...)**

Methodology

(C)

○ Definition of Matrix of Site selection

Technology/species

- Employees (number and FTE)
- Annual Production per species (Volume & Value)
- Presence of local/regional/National certification programs/schemes/label...etc
- Relationship with other Economic Sectors
- Interaction between aquaculture and stakeholders

Output - at Micro-economic level

- Definition of the sample of representative farms for Micro-economic analysis
- Definition of Critical Environmental Aspects and their direct and indirect costs at local level
- Choose of specific indicators qualitative & quantitative to use in Environmental Report and Communication
- Construction of internal monitoring and Environmental Management System (EMS)

Environmental Aspects Considered at Farm level

- **Use & consumption of natural resource (water, energy, land)**
- **Emission of CO₂**
- **Water Discharges**
- **Wastes**
- **Noise**
- **visual impact**
- **Impact on biodiversity**
- **Human activities and Safety of job**
- **Social and economic status of employees**

Accounts Chart

- The indicators have been aggregated in the chart in which are **integrated** the main “elements” of green accounting
- The **integration** needs to adopt one or more actions and plans and to evaluate the results of the actions, too
- The **integration** is useful in the multidisciplinary approach in which are considered financial, engineering and environmental aspects

Example of Consumption Data collected

<i>Year</i>	Fuel		Gas		Electricity	
	liters	lt/tons of AAB	tons	tons/ tons of AAB	kWh	kWh/ tons AAB
Year 1						
Year 2						
Year 3						
....						
.....						

AAB: Average Available Biomass reared in the referred year

Expenditures and environmental investments mln €		Year 1	Year 2	Year 3
Expenditures in investments mln €						
	Technology					
	Maintenance					
	Provisions and Reserves for Environmental Risks					
Total Expenditure in Investments						
Current expenditure						
	Air protection					
	Water treatments					
	Waste					
	Noise					
	R&D					
	Environmental Insurance					
	Costs of local conflicts					
	Environmental Communication Costs					
Total current expenditure						

Goals for Communities and Territory

- The adoption and production of Green Accounting represent an opportunity to start a “virtuous” and “pro-active” mechanism of Environmental sensitiveness
- Higher attention towards the sustainability issues leads to higher contribution of aquaculture sector to the local economy
- Best practice in the governance and best relationship with stakeholders
- Benchmarking with others sectors (catch, but also agro-food, Gross Organized Distribution, Consumers Associations, Navigation, agriculture, tourism, etc.)
- Positive image and “better” perception of seafood aquaculture for the consumers
- New opportunity of innovative promotion of aquaculture products, as far as “co-marketing”

Output at Administrative level

- Report of Aggregate Green Accounting for Italian Aquaculture intensive sector
- Guideline to implement Green Accounting in the farms and in the sector
- Definition of a Matrix in which are the most representative evaluation of impacts/effects of aquaculture activities on the environment
- The development of innovative methodology for “re-drafting” standard economic balance-sheet according to green accounting approach

Proposal for LAMED2

- **Initial Environmental Analysis at Lagoon level**
- **Start-up monitoring process of socio-economic data**
- **Selection of Common Indicators related to univocal unit of measure (i.e. Biomass *per* ha)**
- **Benchmarking with others activities in the same lagoon areas /integration of income**
- **Social and economic aspects of employees, mainly Safety (i.e. numbers of disease, incident ...etc) and salary (or unpaid labour)**
- **Cost/benefit Analysis of Lagoon Economic Activities and forecast Analysis for re-conversion of fishermen...**
- **Evaluation costs for environmental training**
- **Integrated Plans for Management of lagoons**
- **Evaluation of Ecological and Environmental service of Lagoon Activities (Catch & aquaculture)**
- **....others**



Thanks for Your Attention

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