

**ADVANCE COPY**

**GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN**

**Report of the**

**AD HOC MEETING OF EXPERTS ON THE EXTERNAL EVALUATION OF THE  
GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN (GFCM),  
COMMITTEE ON AQUACULTURE (CAQ) AND ITS NETWORKS**

**Rome, 28-30 March 2004**

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**OPENING OF THE MEETING**

1. The ad hoc Meeting of Experts on the external evaluation of the General Fisheries Commission for the Mediterranean (GFCM) Committee on Aquaculture (CAQ) and its Networks was held in Rome, Italy, from 29 to 30 March 2004. The meeting was attended by the following experts in their personal capacity: Messrs Jean-Paul Blancheton, Bernardo Basurco, Stefano Cataudella, Ivan Katavić, Mohamed Salem Hadj Ali and Daphne Stephanou. The meeting acknowledged the presence of Mr Riccardo Rigillo on the first day of the meeting in the absence of Mr S. Cataudella. A list of the participants, including Officers from the GFCM Secretariat is attached as Appendix B to this report.

2. The meeting was opened by Mr Alessandro Lovatelli, Technical Secretary of the Committee, and Mr Alain Bonzon, Secretary of the Commission, who welcomed the participants and stressed the importance of appraising the work of CAQ taking into consideration the probable entry into force of the GFCM autonomous budget in the near future. The Consultant, Mr Michael New, was introduced to the participants.

3. The Technical Secretary provided the background to this ad hoc Meeting of Experts. He recalled that initially only an external evaluation of the SIPAM network (Information System for the Promotion of Aquaculture in the Mediterranean) was proposed at the Third Session of the Committee<sup>1</sup> and subsequently the recommendation was endorsed by the Commission at its Twenty-seventh Session<sup>2</sup>. The Committee initiated actions towards the evaluation of SIPAM at the Seventh SIPAM Annual Meeting<sup>3</sup> where it was agreed that the Secretariat will identify an external evaluator, prepare the terms of reference and seek funds to support the activity.

4. During the Twenty-eight Session of the Commission<sup>4</sup>, the Secretariat was additionally requested to consider undertaking a full external evaluation of the whole activities of CAQ, in addition to SIPAM, especially its *modus operandi* since its inception in 1996.

5. The Secretariat organized the external evaluation during December 2003 and January 2004. The evaluation exercise was carried out in two separate phases by the Consultant. The initial and main part focused on the evaluation of the SIPAM Network through the examination of relevant documents and interviews with SIPAM staff in the regional office in Tunis, staff from the GFCM Secretariat in Rome, the SIPAM National Coordinators of Cyprus, Greece, Italy, Tunisia and Turkey, as well as representatives of the private sector in selected countries. The overall CAQ evaluation was conducted through a desk study of relevant documents, discussion with staff from the GFCM Secretariat and correspondence with the Coordinator of SELAM and TECAM (Socio-Economic and Legal Aspects of Aquaculture in the Mediterranean / Technology of Aquaculture in the Mediterranean).

6. The Secretariat suggested that the report of the independent Consultant be reviewed by the above mentioned (see paragraph 1) limited number of Experts from CAQ, whose selection took into account both geographical balance and proper representation of the CAQ networks.

7. Mr Jean-Paul Blancheton was elected Chairman of the Meeting.

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<sup>1</sup> Paragraph 36 of the Report of the Third Session of CAQ; Zaragoza, Spain, 25-27 September 2002.

<sup>2</sup> Paragraph 83 of the Report of the Twenty-seventh Session of GFCM; Rome, Italy, 19-22 November 2002.

<sup>3</sup> Casablanca, Morocco, 19-20 September 2003; Page 5, section on 'External Evaluation of SIPAM' of the Report of the Seventh SIPAM Annual Meeting.

<sup>4</sup> Paragraph 43 of the Report of the Twenty-eight Session of GFCM; Tangiers, Morocco, 14-17 October 2003.

## ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE MEETING

8. The Group of Experts adopted the Agenda attached as Appendix A. In doing so, taking concurrence of the format and similar exercise done for appraising the achievements of the Scientific Advisory Committee (SAC) of GFCM<sup>5</sup>, the participants agreed upon working arrangements and the process to be followed, that is: to undertake a peer review of the draft report of the Consultant and to summarize for each of the Agenda items the consensual views expressed by the Group.

9. Following a brief presentation of the report of the Consultant, the Group of Experts expressed their appreciation of the evaluation made, and considered it a useful support for their self-assessment of the status of CAQ. Meanwhile, the Group noted, *inter alia*, that the presentation stressed that:

- CAQ provides a unique forum for the GFCM member countries to advice on Mediterranean aquaculture and its role should be enhanced.
- In view of the growing importance of aquaculture in the region, the work of the CAQ has been dealt as a rather marginal activity within the overall work of the Commission.
- The CAQ networks have played a significant but unquantifiable role in the development of aquaculture in the region.
- Gratitude is due to the Government of Tunisia for hosting the regional coordination office of the SIPAM network since its inception.
- The activities of the SELAM and TECAM networks have been mainly financed by CIHEAM-IAMZ (International Centre for Advanced Mediterranean Agronomic Studies – Mediterranean Agronomic Institute of Zaragoza, Spain) with support of the FAO Fisheries Department.
- The SELAM and TECAM networks have been coordinated by CIHEAM-IAMZ and relied heavily on the voluntary participation of individuals from other institutions and organizations.
- The activities under the EAM network (Environment Aspects of Aquaculture in the Mediterranean) have been only partly addressed by the TECAM and SELAM networks; however, bearing in mind the importance of environmental matters, the network should be resumed and operated as a separate entity.
- The SIPAM network and its databases remain an extremely valuable tool to assist the development and management of regional aquaculture, but has yet to fulfil its potential and achieve credibility in the light of the present unsatisfactory level of national commitment and financial support.
- The *modus operandi* of the Committee through the current intersessional activities of its networks is inadequate to address relevant policy issues on a regional basis.
- The CAQ networks activities should be strengthened and re-assessed and should establish active working groups to adequately deal with various and pressing issues of regional concern.

10. The Group also agreed to attach the report of the independent Consultant as Appendix C of this report. It further acknowledged that both reports should be formally considered external from CAQ.

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<sup>5</sup> Report of the ad hoc Meeting of Experts on the Independent Appraisal of the Achievements of the Scientific Advisory Committee (1999-2003). Rome, 27-28 August 2003. FAO Fisheries Report No. 717. 51pp.

11. The Group felt that it was appropriate to concentrate on the major strengths and weaknesses of the CAQ and on the recommendations identified by the Consultant in order to identify a possible scenario in terms of an improved working mechanism of the Committee, with the view to providing the Committee at its Fourth Session with preliminary elements to address the major limitations faced by the Committee over recent years. This information will be put forward to the Fourth Session of the Committee for consideration and discussion.

## MAJOR ACHIEVEMENTS OF CAQ

12. The Expert Group did not attempt to summarize all the achievements of CAQ and its networks; rather it chose to highlight the major accomplishments to help the Committee and the Commission in their next sessions to discuss the review of CAQ. The most tangible undertakings can be found in the CAQ independent evaluation reports.

## STRENGTHS AND WEAKNESSES OF CURRENT CAQ PROCESS

13. The Group of Experts noted that the main weakness of CAQ is related to its current structure and a series of external constraints, over which CAQ had no control. In particular, the activities of all of its networks have mainly been possible only because of the generous contributions made by and through FAO, by CIHAEM-IAMZ and by the Tunisian Government. Furthermore, the Group noted that the lack of clear and more detailed terms of reference, the absence of an autonomous budget for the Commission and of secured national financial support of its member countries, and limited data submission to SIPAM which hampered scientific analysis has been examples of external constraints to CAQ. The salient strengths and weaknesses of the Committee itself and its networks are summarized in the tables below<sup>6</sup>.

### Committee on Aquaculture (CAQ)

Strengths	Weaknesses
Provides a unique forum for disciplinary developments for the GFCM member countries on Mediterranean aquaculture.	General policy and strategy formulation role inadequately pursued. Terms of reference of CAQ at regional and national levels inadequate.
Has established four networks (SIPAM, TECAM, SELAM and EAM).	Networks not used as tools for policy issue discussion and implementation. Liaison and collaboration among the networks inadequate. EAM discontinued. Its activities have been partly addressed by the other networks.
Geared to play a significant role in the discussion over issues of regional concern (e.g. bluefin tuna farming).	Programme of work rubberstamped by GFCM without securing financial support. Activities constrained by funding difficulties.
Ability to draw upon national expertise, particularly through its networks.	Insufficient strategic planning in its work plan based on the action plan that stemmed from the application of Article 9 of the FAO CCRF in the Mediterranean.
Activities carried out exclusively on a voluntary basis, with the establishment of powerful 'human networks'.	Limited involvement of the stakeholders and insufficient commitment assigned including funding for regional activities and projects.
Has the potential to be a reference committee providing scientific views on the state of regional aquaculture resources and development advice.	The plan of action that stemmed from the application of Article 9 of the FAO CCRF in the Mediterranean was poorly addressed and found no donors.

<sup>6</sup> The Group did not attempt nor intended any ranking.

Provides capacity building, technical training and information exchange.	The roles and responsibilities of various players (Chair, Vice-chairs, Focal Points, individual scientists, Secretariat, etc.) not clearly defined.
Has established a most useful information network for regional information exchange and communication through the internet.	Inadequate data analysis at national and regional level and the failure to properly address aquaculture issues of regional relevance.

### Information System for the Promotion of Aquaculture in the Mediterranean (SIPAM)

Strengths	Weaknesses
Original concept was sound and remains a valuable tool to assist further development and management of aquaculture in the region.	The opportunities which the network provides have not yet been fully exploited bearing in mind that the system has been running for eight years.
A significant group of information gatherers (the 'human network') has been established, encouraged, trained and supported.	Limited involvement of the stakeholders and inadequate commitment by the participating GFCM member countries.
Coordinated since its inception by a regional office hosted and supported by the Government of Tunisia.	Vague internal management structure with no clear terms of reference for the regional or national staff.
Valuable regional sets of data collected and made available through the SIPAM website.	Submission of incomplete and unvalidated information from the member countries.
The new website emphasises the potential strength of this information system.	The new website exposes its current weaknesses to the world.
Potentially, its statistical data are more detailed and more frequently and quickly available than FAO official statistics.	Not used as tool for diagnosis and analysis at national and regional level. Incomplete and invalidated submission of data from some member countries.
---	Liaison between SIPAM and the other operating CAQ networks inadequate and should be reinforced.
---	Discrepancy between SIPAM statistical data and those collected by the FAO Fisheries Information and Data Service (FIDI).
---	Decline in staff enthusiasm because of funding difficulties and the consequent limitation, after many years, of SIPAM to fulfil its potential.

### Technology of Aquaculture in the Mediterranean (TECAM) and Socio-Economic and Legal Aspects of Aquaculture in the Mediterranean (SELAM)

Strengths	Weaknesses
Activities have been extensive and have certainly contributed to capacity building in the region.	Funding provision inconstant and inadequate. The network has been mainly financed by CIHEAM-IAMZ with support from FAO.
Successfully dealt with regional transfer of technical know-how through its training activities.	Has relied on the voluntary participation of experts from other institutions and organizations with no clear commitment from member countries.
Over one thousand participants have attended TECAM/SELAM courses, seminars and workshops.	The level of activities is related to the availability of funding. The current financial support from CIHEAM-IAMZ remains insufficient.
Since the beginning, they have been successfully coordinated by CIHEAM-IAMZ which has provided substantial human and financial resources.	The regular discussion of issues of regional concern is insufficiently addressed by the networks as they do not operate through ad hoc working groups.
The work and information has been widely diffused regionally through issues of the CIHEAM journal.	Liaison and collaboration among the networks and particularly with SIPAM remains inadequate.
Have conducted a number of regional surveys that	Have conducted a number of regional surveys that

have provided opportunities for collaboration within the region.	have provided opportunities for collaboration that have not yet been completely followed up.
Have successfully engaged the voluntary participation and services of specialists from other institutions and organizations.	Participation of experts from the southern Mediterranean countries still limited.

### **Environmental Aspects of Aquaculture in the Mediterranean (EAM)**

<b>Strengths</b>	<b>Weaknesses</b>
Set up with the aim to create an entity dealing with regional environmental matters. Growing importance of regional environmental issues related to aquaculture growth in the region.	Funding difficulties and consequential failure to carry out substantial activities as a separate entity.

### **OPTIONS FOR IMPROVEMENTS**

14. The Group of Experts acknowledged that the evaluation report of the Consultant has been the starting point for discussion on the potential role of CAQ and its networks and its current limitations. Based on the external evaluation the Experts agreed on salient recommendations aimed at improving the role of CAQ that could be adequately addressed at the Fourth Session of CAQ and subsequently at the Twenty-ninth Session of the Commission. These recommendations appear in the table below.

15. In view of the establishment of an autonomous budget, the Commission should ensure that the GFCM member countries clearly define the role of the Committee, its networks and the activities that it should implement in order for the Committee to establish itself as truly useful forum for regional discussion on aquaculture development in the region.

16. It was agreed that the effectiveness of the Committee has declined over the last few years as its networks have mainly focused on training, exchange of information, and on technical issues rather than dealing with policy and strategic issues of regional concern. The Committee should focus on designing an aquaculture policy shared between all Mediterranean countries, where strategic issues are discussed and adequately dealt with based on the action plan that stemmed from the Consultation on the Application of Article 9 of the FAO Code of Conduct for Responsible Fisheries (CCFR) in the Mediterranean Region<sup>7</sup>. It was suggested that the prioritization of common issues among the GFCM member countries would facilitate the identification of support funding from donor countries and relevant agencies.

17. CAQ should remain an independent entity from SAC and should be reinforced through a more precise mandate on other important activities in Mediterranean related to the sustainable development of the aquaculture industry such as coastal management, environmental issues, and interactions between fisheries and aquaculture.

18. If the terms of reference of SAC are to continue to exclude aquaculture, the Commission should consider renaming it the Committee on Capture Fisheries.

<sup>7</sup> Report of the Consultation on the Application of Article 9 of the FAO Code of Conduct for Responsible Fisheries in the Mediterranean Region. Rome, 19-23 July 1999. FAO Fisheries Report No. 606. 208pp.

19. CAQ should concentrate its activities on issues of strategic importance for regional aquaculture development including guidelines for national and/or regional projects through an expanded role of its current networks which should include the establishment of ad hoc working groups to deal with strategic issues.

**In relation to its overall function, the ad hoc Meeting of Experts recommended that CAQ should:**

- Urge GFCM to recognise the increasing importance of aquaculture in the region through providing CAQ with a similar level of attention to that provided to capture fisheries through the SAC.
- Invite GFCM to devote an adequate amount from its autonomous budget for its aquaculture activities that is proportionate to its current and future regional importance.
- Ensure that CAQ is properly represented by its Chairperson or by one of its Vice-Chairpersons, and its Technical Secretary at GFCM meetings.
- Monitor and support the activities of all its networks more closely and strengthen their coordination and synergy.
- Ensure that all CAQ networks strengthen and expand their current role to ensure that they effectively operate as entities dealing with technical, socio-economic and legal issues as well as information in a wider sense including policy issues .
- A focused and separate entity dealing with environmental matters should also be urgently re-established (EAM) to ensure that pressing environmental aspects related to aquaculture development are clearly addressed as the pressure on the coastal zone is rising.
- In its formal meetings, concentrate on strategic issues of regional importance to aquaculture rather than simply receiving reports of network activities and approving their future programmes. Preservation of the *status quo* is not enough. CAQ should be ready to propose other initiatives to address issues of regional importance.

**In relation to the specific duties of its TECAM, SELAM and EAM networks, the ad hoc Meeting of Experts recommended that CAQ should:**

- Urge, through GFCM, member governments to enhance their support to the aquaculture networks by providing sufficient resources and by requesting the aquaculture institutions and organizations within their countries to offer further support to the activities of TECAM and SELAM.
- In view of the regional importance of environmental matters, re-establish EAM as a separate entity dealing with aquaculture environmental issues.
- Broaden the terms of reference of TECAM and SELAM, which are currently mainly concerned with training and information activities (courses, seminars, workshops, etc.), so that they form true networks within which ad hoc working groups to discuss issues of strategic and regional importance.
- Should CIHEAM continue to support and host TECAM and SELAM networks make no substantial changes in the current work of TECAM and SELAM under the administration of CIHEAM-IAMZ.
- Make long term contingency plans to cover the eventuality that CIHEAM and/or FAO may not be able to continue their significant support for TECAM and SELAM during this interim phase.

**The ad hoc Meeting of Experts also recommended that CAQ should take the following actions that are specific to the SIPAM network:**

- Ask GFCM to provide the utmost support for SIPAM because it is a significant asset that will enhance the future development and management of responsible aquaculture management in the Mediterranean; this implies strong commitment by member countries and the provision of financial support on a regional and national basis.
- However, if a much higher level of national support cannot be urgently agreed, suggest that GFCM

should terminate SIPAM activities as soon as possible rather than continue an activity which shows promise but fails to deliver. This action should be regarded as a last resort.

- Request GFCM to express its sincere thanks to the Tunisian Government for its substantial support for SIPAM to date but, noting that Tunisia can not host and support the SIPAM Regional Centre *ad infinitum* and that different skills are now necessary to bring SIPAM into the “age of information” and that care needs to be taken not to duplicate efforts and waste valuable staff and financial resources, should re-locate the Regional Centre within the GFCM Secretariat. However, given that the GFCM new structure and autonomous budget are still under discussion, the Regional Centre should remain in Tunisia during the interim period until its relocation will be properly addressed. In the meantime the Regional Centre requires the services of an information officer to strengthen the collection and analysis of regional aquaculture information and data.
- Request GFCM, in addition to providing financial support from its own autonomous budget, to authorise the SIPAM Regional Centre to solicit private funding for its activities.
- Prepare and agree on written terms of reference for the Regional and National Coordinators and establish an up-to-date and clear operational structure for SIPAM.
- Abolish the SIPAM Coordination Committee and ask the SIPAM Regional Centre to assume its functions.
- Through GFCM, ask member countries to nominate National Coordinators that are committed to the objectives of SIPAM.
- Through GFCM, ask each member country to set up an efficient national SIPAM network and provide their National Coordinators with an adequate budget that covers both national duties and travel to regional SIPAM meetings.
- Ask the SIPAM Regional Centre to assist SIPAM National Coordinators in developing clear terms of reference and operational guidelines for the National Networks.
- Ask National Coordinators to supply information on a more frequent basis and seek national government support to do so.
- Reduce the frequency of the meetings of SIPAM National Coordinators so that they become biennial events.
- Ask the SIPAM Regional Centre to concentrate on completing and refining information from fully cooperating members rather than trying to add further member countries.

20. Finally, the Group of experts noted that, until the adoption of an appropriate autonomous budget, the future structure and mode of operation of the Committee may very well be a mainly theoretical question. In the context of the autonomous budget, the size and composition of an expanded GFCM Secretariat could have an influence on the structure and operation of the CAQ and its networks.

### **ANY OTHER MATTERS**

21. No other matters were raised.





## APPENDIX A

### AGENDA

1. Opening of and arrangements for the meeting
2. Adoption of the Agenda
3. CAQ major achievements
4. CAQ strengths and weaknesses
5. Options for improvements
6. Any other matters

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**EXTERNAL EVALUATION OF THE COMMITTEE OF AQUACULTURE (CAQ) OF THE  
GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN (GFCM)**

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## PREFACE

This document presents the results of an external appraisal of the achievements of the Committee on Aquaculture (CAQ), which was agreed during the twenty-eight Session of the General Fisheries Commission for the Mediterranean (GFCM 2003). Terms of reference were prepared by the GFCM Secretariat (Annex 1) and the evaluation was conducted during a consultancy that took place between December 2003 and February 2004. The report also includes the results of a fuller and more specific examination of one of the CAQ networks, SIPAM<sup>1</sup>, for which separate terms of reference were set (Annex 2, Appendix 1).

The work of the consultant on the overall CAQ evaluation was conducted through a desk study of relevant documents, discussions with FAO staff from the GFCM Secretariat in Rome, and correspondence with the SELAM/TECAM Coordinator. In accordance with the wishes of the GFCM (GFCM 2003), his report on the evaluation of the other current CAQ aquaculture network, SIPAM, which involved personal discussions with the SIPAM Coordinator and the National Coordinators of Cyprus, Greece and Turkey, has been merged into this appraisal as Annex 2.

This report commences with a brief introduction to the initiation, objectives, and *modus operandi* of CAQ. Comments on its activities and achievements are followed by a discussion of the current weaknesses and constraints that have been observed. Finally, a series of recommendations are provided in this report.

## EXECUTIVE SUMMARY

Separate external appraisals of CAQ and of one of its networks (SIPAM) were conducted between December 2003 and February 2004. Full details of the more extensive evaluation of SIPAM are contained in Annex 2 of this report. The results of both evaluations are summarized below.

In relation to the overall structure and operation of CAQ, and its relationship with the parent body (GFCM), the consultant finds that:

- CAQ has held 3 formal meetings since 1996 and has had two chairpersons, one of which held office for six years. The number of countries sending representatives to its meetings rose from 11 in 1996 to 14 in 2000 but fell back to only 10 in 2002. CAQ is supported by the GFCM Secretariat and has its own Technical Secretary.
- SAC, which was set up in 1999, has a remit that excludes aquaculture.
- During the GFCM session in 1999 there was a call for a significant proportion of the autonomous budget to be allocated to aquaculture; in the 2002 session there was a call for its share to be enhanced. There is no evidence that this has been actioned; in any case, delays in reaching an agreement within GFCM on the levels of the autonomous budget and the new GFCM agreement have seriously hampered the activities of CAQ. The activities of all of its networks have been enabled only because of generous contributions by and through FAO, by CIHAEM/IAMZ and by the Tunisian Government.
- The complementarity of the three remaining networks has been stressed on a number of occasions; however, liaison and collaboration have not been adequate.
- In 2000 CAQ endorsed the recommendations of the Consultation on the Application of Article 9 of the FAO Code of Conduct for Responsible Fisheries in the Mediterranean region and developed a Plan of Action. However, its project idea failed to find funding. In 2002 it noted that the Plan of Action appeared to be in line with the EC strategy related to aquaculture within the CWP and called for a new draft to be prepared. This will be considered during the 4<sup>th</sup> CAQ session in 2004.

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<sup>1</sup> An information system for the promotion of aquaculture in the Mediterranean.

- CAQ played a significant role in the first international symposium on the domestication of bluefin tuna and in the work of the SAC/CAQ/ICCAT *Ad Hoc* Working Group on Sustainable Tuna Farming Practices in the Mediterranean.

**Concerning TECAM/SELAM/EAM the consultant specifically finds that:**

- The activities of its TECAM and SELAM networks have been extensive and have almost certainly had a significant impact of the nature of aquaculture development in the region. However, unlike SIPAM, they do not operate as true (permanent) individual or institutional networks; the activities of TECAM and SELAM are mainly concentrated on training activities.
- By 1996, when CAQ was established, EAM effectively ceased to exist since no budget for its operations was available; since then its duties have been absorbed into the other aquaculture networks. Its Coordination Committee met only once, in 1995. Bearing in mind the regional importance of environmental matters, means should have been found to continue EAM as a separate entity.
- Since 1995 TECAM and SELAM have been coordinated by CIHEAM-IAMZ, which has provided substantial human and financial resources to these networks. Its Coordination Committee has met three times.
- Over one thousand participants have attended TECAM and SELAM courses, seminars and workshops and nearly sixty have joined its postgraduate courses.
- The work of TECAM and SELAM has been diffused through fourteen issues of the CIHEAM journal and, to a more limited extent, through SIPAM.
- It is an undoubted fact that the TECAM and SELAM networks have played a significant but unquantifiable role in the development of aquaculture in the region.
- TECAM and SELAM have also conducted a number of regional surveys which have provided opportunities for collaboration with SIPAM that have not yet been completely followed up.
- The TECAM and SELAM networks have relied heavily on the voluntary participation of individuals from other institutions and organizations.
- The activities of TECAM and SELAM have been mainly financed by CIHEAM-IAMZ, with support from FAO. These two organizations have been totally responsible for the organization of these networks. Without their continued support it is doubtful if they could survive at all.

**When considering SIPAM the consultant specifically finds that:**

- CAQ has a most useful information network that holds latent promise. However, some urgent decisions need to be taken (see below) if SIPAM is to fulfill its potential and develop its credibility. Continuing SIPAM at the present level of national commitment and financial support is not an acceptable option.
- SIPAM has been coordinated since its inception by a Regional Office hosted and supported by the Government of Tunisia. It has held seven Annual Meetings of its National Coordinators. Its Coordination Committee has also met seven times.
- The original concept of SIPAM was sound and it remains an extremely valuable tool to assist the further development and management of aquaculture in the Mediterranean basin and the Black Sea.
- A significant group of information gatherers (the 'human network') has been constructed, encouraged, trained and supported. This was a significant achievement in a period when computers have metamorphosed from 'magic' to accepted components of everyday life.
- At first, before the internet, improvised datacom packages were employed; SIPAM was a pioneer in many fields (including information technology, computer knowledge and usage, data manipulation, decentralised data verification and data dissemination) in the region. All this was done in a group of countries where eight or nine national languages were spoken. This established the basis for the 'data network'.

- However, despite overcoming many problems and difficulties, the opportunities which the SIPAM concept provided (the ‘information network’) have not yet been fully exploited, even though SIPAM has been running for eight years post-MEDRAP.
- Progress has been slow for a variety of inter-related reasons, which include the absence of any mandate at the country level (and thus no direct control over national SIPAM networks), slow progress towards a GFCM autonomous budget; a long external management chain, with SIPAM reporting through CAQ (which does not meet annually) to the GFCM; a vague internal management structure for SIPAM, with no clear terms of reference for the regional or national staff involved; inadequate commitment by member countries during what has proved to be an eight-year “consolidation phase”; late, incomplete and unvalidated submission of information from the member countries; several fundamental software changes that, though resulting in the excellent potential of its current website, have taken too long to implement; and a decline in staff enthusiasm because of funding difficulties and the consequential failure, after many years, of SIPAM to fulfill its potential.
- Many of these deficiencies have long been recognised within SIPAM and the GFCM Secretariat (particularly during the annual SIPAM meetings) in an informal ‘auto-evaluation’ process. However, neither body has the power to control the external factors that have inhibited the rate of development of SIPAM.
- The new SIPAM website, though emphasising the potential strength of SIPAM, exposes its current weaknesses to the world; this makes urgent remedial action essential to avoid long-term damage to its credibility.

**In relation to its overall function, the consultant recommends that CAQ should:**

- Urge GFCM to recognise the increasing importance of aquaculture in the region and to give it a similar level of attention to that provided to capture fisheries.
- Urge GFCM to devote an amount from its autonomous budget for its aquaculture activities that is proportionate to its current and future regional importance.
- In the interest of integrating aquaculture and capture fisheries within a single system (as already called for by GFCM) suggest that GFCM enhances the mandate of SAC to include aquaculture. Alternatively, if SAC is to continue to be confined to capture fisheries matters, it is suggested that its name be altered to reflect this (e.g. ‘scientific advisory committee for capture fisheries’).
- Ensure (whether as a committee or a sub-committee) that CAQ is properly represented by its chairperson and technical secretary, or their deputies, at GFCM meetings.
- Monitor the activities of all its networks more closely and strengthen their coordination and synergy. The latter would be facilitated if the Regional Coordinator of SIPAM attended the meetings of the TECAM/SELAM Coordination Committee and the TECAM/SELAM Coordinator attended the SIPAM National Coordinators meetings (previously the latter have been annual events; elsewhere in this report it is recommended that they become biennial).
- Bearing in mind that only SIPAM is currently a true network, rename the three currently operating ‘networks’ as CAQ sub-committees for technical matters, socio-economic and legal matters, and information, respectively. A sub-committee for environmental matters should also be established.
- In its formal meetings (whether separately, or as part of SAC), concentrate on strategic issues of regional importance to aquaculture rather than simply receiving reports of network activities and approving their future programmes. Preservation of the *status quo* is not enough; CAQ should be ready to propose other initiatives.
- Through GFCM, urge member countries to make their SIPAM National Coordinators additionally responsible for making their official aquaculture statistical returns to the FAO Fisheries Information and Data Service.

**In relation to the specific duties of its TECAM, SELAM and EAM networks, the consultant recommends that CAQ should:**

- Urge, through GFCM, member governments to enhance their support to the aquaculture networks by providing sufficient resources by requesting the aquaculture institutions and organizations within their countries to offer further support to the activities of TECAM and SELAM.
- In view of the regional importance of environmental matters, re-establish EAM as a separate sub-committee for environmental matters.
- Broaden the terms of reference of TECAM and SELAM, which are currently mainly concerned with training.
- Make no other changes in the current work of TECAM and SELAM, which are satisfactory.
- Make long-term contingency plans to cover the eventuality that CIHEAM and/or FAO may not be able to continue their significant support for TECAM and SELAM indefinitely.

**The consultant also recommends that CAQ should take the following actions that are specific to the SIPAM network:**

- Ask GFCM to provide the utmost support for SIPAM because it is a significant asset that will enhance the future development and management of responsible aquaculture management in the Mediterranean; this implies strong commitment by member countries and the provision of financial support on a regional and national basis.
- However, if a much higher level of national support cannot be urgently agreed, suggest that GFCM should terminate SIPAM activities as soon as possible rather than continue an activity which shows promise but fails to deliver. This action should be regarded as a last resort<sup>2</sup>.
- Request GFCM to express its sincere thanks to the Tunisian government for its substantial support for SIPAM to date but, noting that different skills are now necessary to bring SIPAM into the “age of information” and that care needs to be taken not to duplicate efforts and waste valuable staff and financial resources, should re-locate the Regional Centre within the GFCM Secretariat (i.e. within FAO, where it can take advantage of in-house website developmental and operational facilities and efficiently coordinate SIPAM activities with those of the many other fisheries and aquaculture information networks based in Rome).
- Request GFCM, in addition to providing financial support from its own autonomous budget, to authorise the SIPAM Regional Centre to solicit private funding for its activities.
- Prepare written terms of reference for the Regional and National Coordinators and establish a clear operational structure for SIPAM<sup>3</sup>.
- Abolish the SIPAM Coordination Committee should be abolished and ask the SIPAM Regional Centre to assume its functions.
- Through GFCM, ask member countries to nominate National Coordinators that are committed to the objectives of SIPAM.
- Through GFCM, ask each member country to set up an efficient national SIPAM network and provide their National Coordinators with an adequate budget that covers both national duties and travel to regional SIPAM meetings.
- Ask the SIPAM Regional Centre to assist SIPAM National Coordinators in developing clear terms of reference and operational guidelines for the National Networks.
- Ask National Coordinators to supply information on a more frequent basis and seek national government support to do so.
- Reduce the frequency of the meetings of SIPAM National Coordinators so that they become biennial events.

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<sup>2</sup> The other recommendations relating to SIPAM that are made in this document assume that the GFCM and its Member States will decide to strengthen their support for SIPAM, to allow it finally to achieve its goals.

<sup>3</sup> Drafted in Annex 2 Appendix 5.



- Ask the SIPAM Regional Centre to concentrate on completing and refining information from fully cooperating members rather than trying to add further member countries.

## INTRODUCTION

### Historical

In 1993, the General Fisheries Council<sup>4</sup> for the Mediterranean (GFCM) entrusted itself through its Executive Committee with the coordination of the four networks created by the UNDP/FAO Regional Aquaculture Project, MEDRAP (1990-1995). These four networks covered various aspects of aquaculture activities (GFCM 1996a):

- a) Information aspects for promotion of aquaculture in the Mediterranean (SIPAM).
- b) Technical aspects for promotion of aquaculture in the Mediterranean (TECAM).
- c) Economic and legal aspects for promotion of aquaculture in the Mediterranean (SELAM).
- d) Environmental aspects of aquaculture in the Mediterranean (EAM).

Following a proposal at its meeting in 1994 to institutionalise the MEDRAP networks and to establish a mechanism to discuss aquaculture issues in the Mediterranean, the GFCM established the Committee on Aquaculture in replacement of its Working Group on Artificial Reefs and Mariculture in 1995.

CAQ held its 1<sup>st</sup> session in Rome in 1996 (FAO 1996). A session was scheduled for 1998 (GFCM 1997), but extra-budgetary funds were not located, so the Committee did not next meet until 2000. The 2<sup>nd</sup> and 3<sup>rd</sup> sessions were held in Rome in 2000 (FAO 2000) and in Zaragoza in 2002 (FAO 2002a). The 4<sup>th</sup> meeting is scheduled to take place in Alexandria in June 2004.

### Objectives

The objectives of CAQ were defined in 1995 (FAO 1996):

- To provide a forum for the exchange of information related to the networks (TECAM; SELAM; EAM; SIPAM).
- To provide coordination in dealing with the broader aspects of aquaculture in a more integrated manner using the networks as tools for this purpose and as a starting point.

Originally, it was intended that detailed terms of reference should be prepared by the Secretariat for submission at the next meeting of the GFCM Executive Committee but, since this meeting did not materialize, they were in fact submitted to the 1<sup>st</sup> session of the CAQ in 1996 (FAO 1996), which reviewed and adopted them (Annex 3).

### Structure

CAQ is managed through formal biennial sessions and originally comprised four networks (see above). However, the activities of the network on environment and aquaculture in the Mediterranean (EAM) have been absorbed into those of the other three networks since 1996.

### Procedures and participation

In 1996 CAQ decided to hold its formal sessions every two years, but there was no meeting in 1998. To date, CAQ has had only two chairpersons, one of which held office for six years. The chairpersons and their vice-chairpersons are listed in Table 1:

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<sup>4</sup> The word ‘*Council*’ was replaced by the word ‘*Commission*’ in 1997.

**Table 1.** CAQ Chairpersons and Vice-Chairpersons.

	1996 - 2000	2000 - 2002	2002 - to date
Chairperson	Stefano Cataudella (Italy)	Stefano Cataudella (Italy)	JeanPaul Blancheton (France)
Vice-Chairperson(s)	Daphne Stephanou (Cyprus)	Abdellatif Orbi (Morocco)	Mariam Mousa (Egypt) Spyros Klaufodatos (Greece)

The participation in CAQ meetings is shown in Table 2.

**Table 2.** Participation in CAQ sessions.

PARTICIPANTS		Numbers of participants		
		Session 1 (1996)	Session 2 (2000)	Session 3 (2002)
GFCM Member States	Algeria		1	1
	Bulgaria	1		
	Croatia	1		
	Cyprus	1	2	
	EC		2	2
	Egypt		1	1
	France	3	3	2
	Greece	3	3	2
	Italy	3	8	1
	Lebanon		1	
	Libya		1	
	Malta	1	1	
	Morocco	1	3	2
	Romania			1
	Spain	2	2	2
	Tunisia	2	1	1
Turkey	2	2		
<b>TOTAL GFCM</b>		<b>20</b>	<b>31</b>	<b>15</b>
Observers from FAO Member States not Members of GFCM	EC <sup>5</sup>	1		
	Portugal		1	
Observers from UN Members States	Russian Federation	1		
Representatives of the UN and Specialized Agencies	UNEP	1		
Observers for IGOs	CIHEAM	2	1	2
Observers from NGOs	EAS			1
	FEAP	1		
<b>TOTAL NON FAO</b>		<b>26</b>	<b>33</b>	<b>18</b>
<b>FAO (GFCM Secretariat &amp; others)</b>		<b>12</b>	<b>7</b>	<b>3</b>

CAQ is supported by the GFCM Secretariat, which is based in FAO Rome, and has its own Technical Secretary. The original Technical Secretary, Mario Pedini, was replaced by Alessandro Lovatelli in 2002, when the former moved to the FAO Investment Centre.

Since 1995, the TECAM and SELAM networks have been coordinated by the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM), through the Mediterranean Agronomic Institute of Zaragoza (IAMZ). The two networks are coordinated by a Coordination Committee composed of a representative from CIHEAM-IAMZ, another from the GFCM Secretariat, and two experts from each network on a rotational basis. The TECAM/SELAM Coordination Committee has

<sup>5</sup> By the date of the second CAQ session, the EC had become a GFCM Member.

met three times, in 1995, 1997 and 2002. An Assistant Coordinator from each of the two networks collaborates.

The SIPAM network has a Regional Office in Tunis, hosted by the Tunisian Government and holds regular meetings of its National Coordinators<sup>6</sup> and has a separate Coordination Committee comprising of representatives from the Regional Office and the GFCM Secretariat and two of its National Coordinators. So far there have been a total of fourteen meetings of the National Coordinators and the Coordination Committee.

The EAM network was coordinated by Mr. Ivan Katavic (Consultant to PAP/RAC). The only meeting of the EAM Coordinating Committee was held in April 1995 (MAP-PAP/RAC 1995a; FAO 1996) and was attended by its Coordinator and representatives from France, Lebanon and FAO. A number of new activities were proposed during this committee meeting, at a total cost of US\$ 245,000 (excluding the cost of an activity on lagoon management). However, in the absence of clear budgetary allocations, the committee could not plan any clear follow-up actions. Finally, since sufficient financial support for the separate existence of EAM did not become available, the environmental aspects of Mediterranean aquaculture became a facet of TECAM and SELAM activities.

## **ACTIVITIES AND ACHIEVEMENTS**

Highlights from the three formal CAQ sessions held in 1996, 2000 and 2002 are presented here, followed by a summary of the achievements of the various networks.

### **FORMAL CAQ ACTIVITIES**

Three formal sessions of the GFCM Committee on Aquaculture (CAQ) have been held, in September 1996, June 2000, and September 2002. Each session was based on a similar agenda, which included (*inter alia*) consideration of the major recommendations from the most recent GFCM sessions; a review of the current status of Mediterranean aquaculture; the reports of intersessional network activities; and programmes of work for the next period. In 2000, CAQ additionally discussed the report of the consultation on the application of Article 9 of the FAO Code of Conduct for Responsible Fisheries (CCRF) in the Mediterranean.

#### 1996 Session

During its first session (FAO 1996), having adopted its terms of reference, CAQ began by discussing a review paper prepared by the Secretariat on the status of Mediterranean aquaculture; this was followed by a series of national reports on the evolution and actual trends of the aquaculture sub-sector. The regional review presented at its first meeting formed a benchmark against which progress, based on information papers also prepared by the Secretariat, was assessed in each of the two subsequent meetings (FAO 2000; 2002a). The Technical Secretary noted that consolidation of the various networks was a major concern to GFCM and FAO and required political willingness on the part of member countries, which would have to finance both the participation of their national staff and (ultimately) specific actions and meetings, while FAO continued to seek financial resources for the work programmes of the networks (for example, several activities in support of CAQ networks were included in FAO's Regular Programme plans for the biennium under way. The strategy proposed by the Secretariat, which emphasised the complementarity of the networks, with SIPAM as a tool to enhance the work of the others, was accepted. The Secretariat was recognised as the overall Coordinator. The Committee recommended that delegates from the private sector should attend the next session.

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<sup>6</sup> Otherwise known as SIPAM Annual Meetings.

## 2000 session

The report of the 2<sup>nd</sup> CAQ session (FAO 2000) included an account of the Consultation on the Application of Article 9 of the FAO Code of Conduct for Responsible Fisheries in the Mediterranean region, which was proposed and funded by the Italian government. The Committee accepted its conclusions and agreed in general terms with the Action Plan that was proposed by the Consultation. An advance project idea was presented by the Secretariat for implementing the regional priorities identified by the Consultation. The Committee recommended that the results of the Consultation and the general and immediate objectives of the project should be presented at the next COFI session and through the next issue of the State of Fisheries and Aquaculture (SOFIA), because of its innovative character.

In this 2<sup>nd</sup> session CAQ noted the need to give its work an order of priorities, taking into account the scarcity of funds, and the new orientation of the work of the Committee as recommended by the Consultation, was accepted. A greater need to integrate the work of the networks was voiced, reflecting the inter-disciplinary approach required in systems analysis. Special attention should be paid to the interactions between fisheries and aquaculture as components of a single system. In this context it was noted that the ADRIAMED project intended to mount an expert consultation on this topic and that cooperation with the work of the GFCM Scientific Advisory Committee (SAC) and CAQ was needed. Delays in reaching an agreement within GFCM on the levels of the autonomous budget and the new GFCM agreement were reported by the Technical Secretary to be considerably hampering the activities of CAQ. For the activities proposed (which, unlike those proposed for SAC, did not require additional personnel), which included biennial CAQ sessions in four languages and the network activities, would (taking into account the hosting of the Regional SIPAM office by the Tunisian government and the significant level of support that was being provided by CIHEAM for the TECAM and SELAM networks) require a minimum of US\$ 180,000 per annum (Table 3) to maintain the current level of activities. The Committee asked that its view that the fisheries sector should be treated as a whole, including the two components of fisheries and aquaculture, should be brought to the attention of the GFCM. The Committee noted that the GFCM had dealt in a totally separate manner with the two sub-sectors and recommended that they be integrated as part of a single system for the provision of fisheries products to the member countries. The new vision of the interactions between the two sub-sectors, as highlighted by the CCRF and, more recently, by the Consultation on the Application of its Article 9 in the Mediterranean, was thought to give a new task to the GFCM. A request to the Commission for adequate importance be given to its (aquaculture-related) programmes and budgets in the context of CAQ and for the integration of the two sub-sectors.

**Table 3.** Budget for the basic activities of CAQ (GFCM 2000b).

ITEM	ANNUAL COST (US\$)	NOTES
CAQ sessions	50,000	Per biennial meeting
SIPAM Coordination Committee meetings	5,000	Annual
SIPAM Coordinators meetings	25,000	Annual
Functioning of the SIPAM Regional Centre	-	Paid by Tunisian government under an agreement with FAO
SIPAM Consultancies	10,000	
SELAM and TECAM Seminars	60,000	Two per year
SELAM and TECAM Advanced Courses	80,000	Two per year
Less: contributions from CIHEAM towards the networks it coordinates	- 50,000	
<b>TOTAL REGULAR REQUIREMENT</b>	<b>US\$ 180,000</b>	

**Note:** This budget seems to be over-estimated, in that CAQ sessions are biennial; thus, though US\$ 180,000 would be required in the years when there is a formal CAQ session, US\$ 130,000 would suffice in alternate years.

## 2002 session

The report of the 3<sup>rd</sup> CAQ session (FAO 2002a) noted that the GFCM had endorsed the recommendations made by CAQ at its 2<sup>nd</sup> session, including a Plan of Action on Article 9 of the CCRF, called for better integration of capture fisheries and aquaculture as part of a single system, and asked for additional resources in support of SIPAM; in this context it noted that the GFCM had acknowledged the work of CAQ within its limited financial resources. Efforts were made to lower the costs of CAQ sessions, especially while in the transitional phase before the autonomous GFCM budget had been finalised, by reducing interpretation costs; however, decreasing the number of languages (4) was not agreed.

Until the autonomous budget was agreed by GFCM, CAQ would have to continue operating in a transitional manner, with its programme of work being funded through direct contributions from countries, partner organizations and the FAO. The Committee reiterated that the estimated funds (US\$ 140,000 for the inter session) were insufficient if CAQ was to implement its mandate properly. In addition, the forecasts for expenditure within the autonomous budget would need to be revised and increased; meanwhile, the Committee called upon FAO to continue providing funding.

CAQ noted that one of its networks (EAM) had become inactive but believed that, in view of the financial constraints, thoughts of its reactivation were premature. For the moment, it considered that TECAM should pursue activities related to environmental issues.

Several delegates at the 3<sup>rd</sup> session noted that the strategy outlined by the EC within the Common Fisheries Policy (CFP) related to aquaculture appeared to be in line with many of the provisions of the CAQ Plan of Action (PoA). However, funds for the implementation of the PoA had not been secured. Noting this fact, the Committee decided that it was necessary to update the document in order to prioritise short- and medium-term activities and to target major issues of regional concern better. A new draft has been prepared for the Secretariat and will be discussed during the 4<sup>th</sup> CAQ session in 2004, following which a draft project document will be prepared.

The close collaboration between CIHEAM and the FAO Fisheries Department in the work of TECAM and SELAM, and the fact that over 800<sup>7</sup> professionals, mostly from GFCM countries, had participated in the activities of these networks was noted with satisfaction. In addition, their efforts to obtain financial support to cover the expenses of participants from non-EU countries were welcomed. The resources available from CIHEAM and FAO for the activities of SELAM and TECAM were, however, limited and the need to involve additional relevant national or international institutions and associations was stressed by the Coordinator of those networks.

During the 3<sup>rd</sup> session of CAQ, the observer from the European Aquaculture Society suggested that joint CAQ-EAS workshops could be organised, and that CAQ might consider holding its meetings in parallel with EAS conferences (the next two being in Mediterranean countries - Spain in 2004 and Italy in 2006); discussions on this possibility are on-going.

In discussing the interactions between fisheries and aquaculture, the Committee was informed about the outputs of the First International Symposium on the Domestication of the Bluefin tuna *Thunnus thynnus thynnus* (DOTT), held in early 2002, as well as the recommendation made by SAC to the GFCM for the establishment of a joint SAC/CAQ/ICCAT *Ad Hoc* Working Group on Sustainable Tuna Farming Practices in the Mediterranean. The Committee endorsed the Terms of Reference proposed by the SAC for this working group, proposed that experts from its networks should be involved, and stressed that liaison with the DOTT project supported by the 5<sup>th</sup> RTD Framework Programme of the EC was essential.

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<sup>7</sup> By 2002. By 2004 this had risen to over 1,000.

## The work of TECAM and SELAM

These two networks, though separate, are coordinated by the same organization (CIHEAM-IAMZ) and have a joint Coordination Committee; for these reasons, their activities are considered together in this report. The early work of these networks was described in a progress report dated 1996 (GFCM 1996b), while their activities since then were reviewed in a report to the TECAM/SELAM Coordination Committee in March 2002 (TECAM/SELAM 2002). The activities of TECAM since 1996 are summarized in Annex 5, while those of SELAM are given in Annex 6. Other activities related to TECAM and SELAM are listed in Annex 7.

The TECAM and SELAM networks have contributed significantly to the development of Mediterranean aquaculture by facilitating the exchange of information and ideas on the various technical (TECAM) and socio-economic (SELAM) aspects of aquaculture. While SIPAM assembles and distributes regional information on aquaculture (initially through its National Coordinators and more recently through its website), the work of TECAM and SELAM has consisted of training (postgraduate studies leading to a diploma of postgraduate specialisation, plus research studies leading to the award of a Master of Science degree, and short advanced courses), seminars and workshops (organised by CIHEAM-IAMZ alone or in collaboration with other regional or national institutions) designed to encourage participatory interaction on state of the art topics leading to future collaboration, and regional surveys on various topics. So far, the work of the two networks has also been diffused through 14 aquaculture issues of the CIHEAM-IAMZ journal *Options Méditerranéennes*; four more publications are in preparation. In addition, these two networks have been involved in activities related to tuna fattening in the Mediterranean (e.g. the symposium on the domestication of bluefin tuna held in 2002).

So far a total of 1,026 individuals have participated in the courses, seminars and workshops organised by TECAM (731) and SELAM (295), and another 57 in postgraduate courses. This is a very significant achievement, which must have far-reaching impact on the future of aquaculture in the region. An average of 12 countries were represented in TECAM and SELAM course, seminars, and workshops (Annexes 5 and 6). In general, participation in workshops and seminars is greater from northern Mediterranean countries; on the other hand, training courses are particularly popular with participants from southern Mediterranean countries. Courses have been popular; for example, 97 individuals from 16 countries applied for the 1996 TECAM advanced course on the food and feeding of farmed fish and shrimp. Some courses have been so popular that they have been repeated.

The technical surveys conducted by TECAM and SELAM provide opportunities for collaboration with SIPAM, for example in the provision of lists of aquaculture experts and projects. Another potential opportunity has, as yet, remained unexploited: the disease diagnostic directory, despite having been promised on many occasions, appears to have been delayed so that it could be published in *Options Méditerranéennes* first. This is the only example identified by the consultant where the priorities of CAQ and CIHEAM-IAMZ have appeared to be in conflict so far. However, the future of the TECAM and SELAM networks is vulnerable if priorities and staff within any of the organizations concerned were to alter. Several TECAM/SELAM activities have facilitated research contacts that have led to collaboration, for example in species diversification studies and in the organisation of the first bluefin tuna symposium (DOTT). A SELAM activity on the legal aspects of aquaculture development was agreed as part of the work programme for 1996-1997 but does not appear to have been held (Annex 6).

The TECAM and SELAM networks have relied heavily on the voluntary participation of individuals from other institutions and organizations. National institutes and other organizations (for example in Cyprus, Egypt, France, Greece, Italy, Malta, Morocco, and Spain, as well as the EU Concerted Action MASMANAP) have also collaborated. However, the activities of the networks have been mainly financed by CIHEAM-IAMZ, with support from FAO. These latter two bodies have also been totally responsible for the organisation of the training, meeting and survey activities of the networks. While the results attained through limited resources have been outstanding, greater achievements would have

been possible if further resources from Mediterranean national institutions and organizations could have been offered and mobilised.

### **The work of EAM**

Several EAM activities during 1994-1995 were reported at the 1<sup>st</sup> session of CAQ (FAO 1996). These comprised three workshops (on impacts of intensive farming outfalls on the coastal ecosystem, environmental aspects of shellfish culture with special reference to monitoring, and selection and protection of sites suitable for aquaculture, which were held in Tunisia, Croatia, and Greece respectively) and three meetings of a working group on lagoon management, that were held in Morocco, France and Greece (MAP-PAP/RAC 1995b). These activities included a number of other organizations and projects: MAP-PAP/RAC, MEDRAP II, INSTOP of Tunisia; ISPM of Morocco, IOF of Croatia, University of Montpellier, IMBC of Greece, IFREMER and FAO. However, no activities were planned for 1996, partly due to the lack of funds at MAP-PAP/RAC that resulted from delayed contributions by some countries supporting the Mediterranean Action Plan. Several proposals for EAM activities in 1996-1997 were proposed by its Coordinator during the 1996 CAQ session. While delegates discussed the relative priorities of these and other topics, they recognised that the funds available were far below the requirements; additional financial resources were seen to be needed.

### **The work of SIPAM**

The activities of SIPAM have been the subject of a separate in-depth evaluation. The detailed results are contained in Annex 2, while the recommendations that were generated by the appraisal are contained in the body of this (CAQ evaluation) report.

## **WEAKNESSES AND CONSTRAINTS**

Several weaknesses and constraints were identified that related specifically to the TECAM and SELAM networks. The first was that there seems to be limited coordination between the activities of these networks and SIPAM. There is an impression that SIPAM and TECAM/SELAM are working almost as rivals within CAQ rather than as cooperating networks in the same team. This observation became evident in discussions with the respective Coordinators and during the 3<sup>rd</sup> CAQ session, which the consultant attended as an observer. A much closer working and personal relationship needs to be established between the Coordinators. Failure to ensure this would mean that the potential synergy between the availability of regional information, the provision of training, and the discussion and solution of problems of importance of aquaculture in the region will not be achieved.

The second weakness of the TECAM/SELAM networks is that their survival depends entirely on the prolongation of the close working relationship that has been built up over many years between CIHEAM and the FAO Fisheries Department. Should the priorities of CIHEAM change, the future of both networks could be in jeopardy. The effect of conflicting priorities has been observed in the delayed release of the disease diagnostic directory; CIHEAM wanted it to appear in their in-house publication before it was released through the SIPAM network (this may also be a symptom of the rivalry noted earlier). Another problem would arise if FAO were no longer able to provide the support to TECAM and SELAM that has been made available to date; a change in priorities and/or available resources could also affect the future TECAM/SELAM programme of activities. CAQ should make some contingency plans to anticipate these potential future problems.

A third constraint, which affects the efficiency of the TECAM/SELAM networks, is the limited involvement of the many other bodies dealing with aquaculture in the region. Even though results have been outstanding, even greater achievements would have been possible if further resources from Mediterranean national institutions and organizations could have been offered and mobilised.

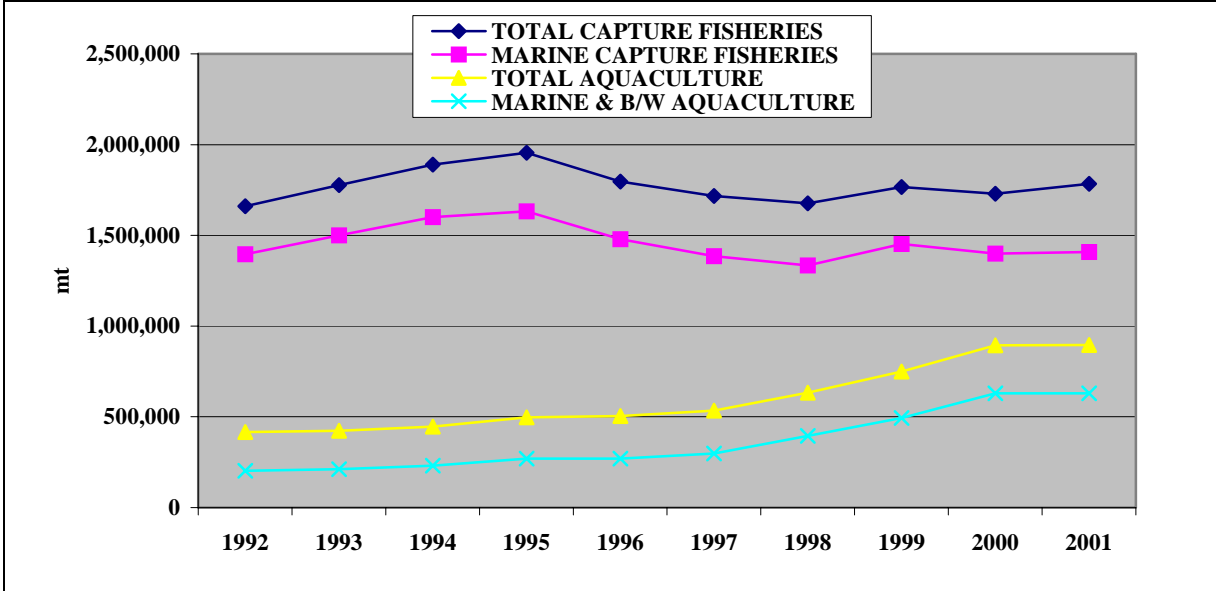
Several specific problems were identified in relation to the SIPAM network; these have been reported in detail within Annex 2, and addressed in the recommendations section of this report.

A number of general weaknesses and constraints that affect the overall role, operation and efficiency of CAQ (and therefore of all its activities, including its networks) have been identified during this evaluation and are discussed below.

Firstly, as a preliminary to discussing the general weaknesses and constraints that CAQ faces, the importance of aquaculture in the region is briefly reviewed.

**Aquaculture in the Mediterranean and the Black Sea**

Aquaculture is of considerable, and increasing, importance within the region. Figure 1 shows that foodfish production from marine capture fisheries by GFCM countries in the Mediterranean and Black Sea is relatively static and in the order of 1.5 million mt/yr. While production of foodfish by aquaculture in marine and brackishwater areas by GFCM countries is still less than from capture fisheries, it shows an increasing trend. By 2001 it had reached over 600 000 mt/yr, more than three times its output in 1992. Overall foodfish production through aquaculture (including freshwater) in GFCM countries had reached almost 900 000 mt/yr by 2001.



**Figure 1.** Relative volume of foodfish production through aquaculture and capture fisheries in GFCM countries<sup>8</sup>.

**AQUACULTURE WITHIN THE GFCM**

One of the functions of the GFCM is to promote the sustainable development of aquaculture in the Region and, during the implementation of its mandate, to promote programmes for marine and brackish water aquaculture and coastal fisheries enhancement (Article III of the GFCM revised agreement and rules of procedure). However, the attention paid to aquaculture within its formal sessions has not matched the relative importance of aquaculture in the region, as illustrated by the content of the reports of GFCM sessions from 1997 to date, summarized in Annex 4. The level of discussion and the record of those discussions seem more influenced by the presence and enthusiasm

<sup>8</sup> Capture fisheries excludes Atlantic fisheries; aquaculture excludes production on Atlantic coastlines; Portugal excluded.



of the current CAQ chairman and on the composition, orientation and literary style of the members of the report drafting committee, than by the real importance of aquaculture in the Mediterranean.

While the volume of discussion of aquaculture issues increased to a peak during the years 2000-2002 (25<sup>th</sup> – 27<sup>th</sup> sessions), the picture was very different in 2003 (28<sup>th</sup> session). Neither the CAQ Chairperson nor either of the two Vice-Chairpersons was present in the 28th session; in addition, neither the GFCM Technical Secretary for Aquaculture nor the Observer from CIHEAM (which coordinates the TECAM and SELAM networks) were able to be there. Apart from other members of the GFCM Secretariat, the only person able to speak on behalf of the activities of CAQ at this session was the SIPAM Regional Coordinator. Although there undoubtedly were extenuating circumstances for the absence of all of the individuals mentioned above, the absence of so many important players did nothing for the image of the relative importance of aquaculture within the GFCM. Strenuous efforts should be made to see that this problem does not reoccur.

The GFCM is insufficiently critical of the programmes of work presented by CAQ, which tend to extend and develop existing (network) activities, rather than addressing other issues of regional importance (see below). In addition, in common with a weakness of the current SAC process, which was identified during an appraisal of its achievements (FAO 2003), the GFCM seems to rubberstamp CAQ programmes of work without securing sufficient financial support.

## **THE MANDATE OF CAQ AND ITS ROLE AND STATUS WITHIN GFCM**

CAQ was set up by the GFCM in 1995, in replacement of its Working Group on Artificial Reefs and Mariculture. It was given two objectives. The first was to coordinate the aquaculture networks that the GFCM had ‘inherited’ from MEDRAP (namely EAM, SIPAM, TECAM and SELAM). By and large this part of its mandate has been fulfilled.

However, its second objective, namely ‘to provide coordination in dealing with the broader aspects of aquaculture in a more integrated manner using the networks as tools for this purpose and as a starting point’ was rather vague and has not been fully achieved. As mentioned above, CAQ has perpetuated and, in some cases, enhanced the network activities established during the days of MEDRAP but has not taken on a role within Mediterranean aquaculture similar to that achieved by the SAC in relation to capture fisheries. Perhaps it was never the intention of GFCM that it should do so, in which case (in retrospect) it might have been better to retain the status of the original Working Group and simply change its name and objectives. Having already established CAQ, giving SAC and CAQ equivalent stature (and the formality and cost of its sessions would indicate that this indeed was the intention) required the GFCM to give CAQ a clearer and more comprehensive, yet specific set of objectives.

There is a curious anomaly that is reflected in the titles and functions of SAC and CAQ. The title of SAC (Scientific Advisory Committee) correctly denotes its function as a body which has been set up to give advice on questions put to it by the Commission. Furthermore, when it was set up the Commission proposed several SAC sub-committees to consider specific topics and gave it clear terms of reference (GFCM 1998). On the other hand, the title of CAQ (Committee on Aquaculture) and the objectives that it was set were vague. Having established a scientific advisory committee, it would have been expected that this committee would advise the Commission on all aspects of fisheries and aquaculture matters, since Article III of the GFCM agreement states that one of its purposes is to promote the development of sustainable aquaculture. However, aquaculture was specifically excluded from the work of SAC when it was set up in 1997, according to the recent independent review of the achievements of SAC (FAO 2003). SAC first convened in 1999, three years after the 1<sup>st</sup> CAQ session. Aquaculture was presumably excluded from its work because CAQ already existed. Since its formation, SAC has met annually, holding its sixth session in 2003, whereas CAQ has only met twice more since 1996 and expects to hold its 4<sup>th</sup> session in 2004.

Whereas the Commission, at each of its session, gives specific tasks to the SAC and spends a considerable amount of time discussing the advice that it receives and to setting it further tasks, its attention to CAQ is confined to receiving activity reports and agreeing future programmes of work that perpetuate existing activities. This rather passive attitude towards CAQ (and aquacultural matters) is the legacy of poor initiation and subsequent direction by the Commission but is also due to the lack of initiative shown by CAQ.

The overall effect is that whereas SAC bears every sign of an active, dynamic and useful GFCM body which has achieved 'an impressive amount of work though it has some weaknesses that need addressing' (FAO 2003), CAQ retains only its original characteristics – a means of perpetuating useful activities set up by the regional project MEDRAP – and has not evolved into a regional committee of stature. In addition, the result of earlier decisions by the Commission is that two formal committees are running in parallel, with SAC meeting every year and CAQ biennially. Since each type of meeting generates a lot of work for the GFCM Secretariat (both in preparation and in reporting), is very expensive to convene (especially in four languages), and requires the presence and time of representatives of each member country and others involved and interested organizations, this seems a rather wasteful use of limited resources.

In hindsight, it was a pity that the Commission did not put its aquaculture networks under the supervision of an aquaculture working group in 1995, instead of setting up a formal committee. Then, when it set up its scientific advisory committee in 1997, the working group on aquaculture could have been absorbed as a sub-committee of SAC. It is not too late to redress this situation. To suggest that aquaculture considerations should be given sub-committee status is not intended to downgrade their importance but to emphasise the obvious fact that a Scientific Advisory Committee should be able to advise the Commission on all aspects of fisheries and aquaculture, not just the capture fisheries sub-sector. Is aquaculture regarded as 'less scientific' than capture fisheries? If not, it should be within the remit of the SAC. In its 2<sup>nd</sup> session (2000), CAQ itself noted that the GFCM had dealt in a totally separate manner with the two sub-sectors and recommended that they be integrated as part of a single system. Now is the chance for the GFCM to provide an example by uniting the sector within its own house under one committee (SAC).

The quirk of fate and history that resulted in the terms of reference of SAC (FAO 1998) illogically excluding aquaculture has resulted in the existence of two formal bodies and a too many formal meetings. Savings could be achieved by combining the meetings of SAC and CAQ. However, in the consultants view, the GFCM should take a more radical step by abolishing CAQ, creating a separate Sub-Committee on Aquaculture (which would *inter alia* absorb the activities of TECAM and SELAM) and absorbing the work of SIPAM into its existing Sub-Committee on Fisheries Statistics and Information (renaming this the Sub-Committee on Fisheries and Aquaculture Statistics and Information). If the latter suggestion was accepted, it would facilitate the coordination of all GFCM information activities and enable closer collaboration with FAO fisheries and aquaculture information activities.

## **DELIBERATIONS OF CAQ SESSIONS**

The reports of the sessions of the parent body, GFCM, indicate that references to aquaculture, apart from tuna fattening issues (which are linked to capture fisheries matters), are confined to receiving reports of past CAQ activities, congratulating the networks for their work, complimenting those that have supported it (notably FAO, CIHEAM, and the Tunisian government), and agreeing to future programmes of work.

These restrictions may be caused by the nature of the aquaculture matters brought to the attention of the GFCM by CAQ and member countries. In addition, GFCM delegates tend to have a capture fishery background, which may inhibit discussions on aquaculture. The choice of delegates is, of course, a prerogative of member governments but, recognising that capture fisheries matters may

otherwise dominate deliberations during GFCM session, those involved in aquaculture within member governments should ensure that their delegates are adequately briefed, so that matters of regional importance to aquaculture can be tabled.

So far, with the exception of the joint GFCM/ICCAT working group on sustainable tuna fattening, GFCM sub-committees or working groups to consider matters of regional aquaculture importance do not exist. Perhaps this is because the programmes of work proposed by CAQ have tended to be confined to an extension and development of current network activities (SIPAM, TECAM, SELAM) – the preservation of the *status quo*. Relevant regional issues are covered in the workshops of SELAM and TECAM but few, if any, specific matters are brought to the attention of CAQ as outputs, let alone brought to light during GFCM deliberations.

CAQ should be making recommendations to GFCM for the establishment of working groups (not just discussions in workshops) to consider proposals for regional actions on matters of common importance to member countries (e.g. pollution; marketing of selected farmed products, regional control and enabling legislation; promoting the image of coastal aquaculture; the regional direction of aquaculture research; etc.)

### **Funding difficulties**

There have been frequent appeals to FAO to continue providing financial support, both for specific CAQ activities and for meetings of network coordinators and coordinating committees. Total reliance has been placed on the continued support, not only of FAO but also of CIHEAM and the Tunisian government; it is clear that without any one of the legs of this three-legged stool the work of CAQ would have collapsed long ago. The provision of funding by FAO has been essential during the ‘transitional phase’ but the transition process has been very slow (and, at the time of writing) still incomplete.

A ‘model budget’ for the GFCM totalling US\$ 756,000 was reproduced in the report of the 24<sup>th</sup> GFCM session (GFCM 1999). 67% of this total was for the operation of the Secretariat. It is difficult to pinpoint the actual allotment for aquaculture within that budget but it was presumably based on the member contribution of the indicative autonomous annual budget proposed by FAO during the extraordinary session of GFCM in 1999 (FAO 1999), which totalled US\$ 741,860. In the budget proposed by FAO, an estimate of US\$ 55,000 for biennial CAQ sessions and US\$ 140,000 for network activities was included. However, the figure inserted into the indicative budget (GFCM 1999) for CAQ meetings was US\$ 25,000/yr. Funding for aquaculture network activities was included in two other budget lines, namely ‘other meetings (includes SIPAM): US\$ 47,000’ and ‘support to intersessional activities (includes aquaculture networks activities): US\$ 57,000’. The proportion of these two budget lines allotted to aquaculture is not specified but the total is clearly much less than the US\$ 140,000 in the proposals introduced by FAO in the extraordinary GFCM session (FAO 1999).

Requests that a significant proportion of the autonomous budget be allocated to aquaculture have been made by some GFCM members (GFCM 1999) and, in 2002, the Commission agreed that, ‘whenever timely’, the share of the autonomous budget dedicated to aquaculture should be enhanced in order to enable the CAQ to carry out its mandate. TECAM and SELAM activities are generally co-funded by CIHEAM and FAO (FIRI). It seems clear that the operation of the aquaculture networks will still need to depend on the sourcing and provision of significant external (non-GFCM) support in the future. One such source, so far unexplored, is the private sector; private funding for SIPAM has been recommended in the evaluation of that network (Annex 2).

## RECOMMENDATIONS

Based on the results of the general evaluation of CAQ and the more detailed appraisal of one of its networks, SIPAM (Annex 2), a number of specific recommendations are made below.

It is recommended that CAQ should:

- (i) Be properly represented at all GFCM sessions, either by its chairperson or his/her deputy and the Technical Secretary or a deputy, in order to ensure that aquaculture issues are given adequate consideration.
- (ii) Remind the GFCM that it had called for (capture) fisheries and aquaculture be integrated as part of a single system.
- (iii) Request the GFCM to change the status of CAQ from a formal committee to become a sub-committee of SAC, within which relevant working groups would be established, not only to supervise the activities of the TECAM and SELAM networks and to initiate the Action Plan but also to develop future initiatives to assist the development of sustainable aquaculture in the region.
- (iv) Request the GFCM to absorb SIPAM into the SAC Sub-Committee on Fisheries Statistics and Information (renaming the latter as the Sub-Committee on Fisheries and Aquaculture Statistics and Information).
- (v) Make contingency plans to cover the possibility that CIHEAM may not always be able to support TECAM and SELAM in the way it has done until now.
- (vi) Improve the synergy between the networks by ensuring that the SIPAM Coordinator or his/her deputy attends the meetings of the TECAM/SELAM Coordination Committee and that the TECAM/SELAM Coordinator or his/her deputy attends the meetings of the SIPAM National Coordinators.
- (vii) Urge the GFCM to provide the utmost support for SIPAM as an asset that will enhance the future development of responsible aquaculture management in the Mediterranean, including its interactions with capture fisheries; this implies the provision of financial, as well as moral support.
- (viii) Reiterate that GFCM should recognise that continuing SIPAM at the present level of national and financial support is not an acceptable option.
- (ix) Suggest that if a proper level of support for SIPAM cannot be urgently agreed it would be better to terminate SIPAM activities as soon as possible, rather than continue an activity which shows promise but fails to deliver<sup>9</sup>.
- (x) Recognising that the current Regional Centre has, with the assistance of FAO, worked hard under less than ideal conditions to set up a framework for SIPAM, CAQ should ask GFCM to express its sincere thanks to the Tunisian government and FAO for their support.
- (xi) Noting that different skills are now necessary to bring SIPAM into the 'age of information' and that care needs to be taken not to duplicate efforts and waste valuable staff and financial resources, recommend that the Regional Centre be relocated within the GFCM Secretariat (i.e. within FAO, where it can take advantage of in-house website developmental and operational facilities and efficiently coordinate SIPAM activities with those of the many other fisheries and aquaculture information networks based in Rome).
- (xii) Appreciating that the network cannot be fully funded by the GFCM (for regional activities) and member countries (for national networks), ask GFCM to authorise the solicitation of private funding for SIPAM, for example through website advertisements.
- (xiii) Prepare written terms of reference for the Regional and National Coordinators<sup>10</sup> and establish a clear operational structure for SIPAM.

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<sup>9</sup> Other recommendations in this report relating to SIPAM assume that measures to properly finance its activities will be found.

<sup>10</sup> Drafted in Annex 2 Appendix 5.

- (xiv) Abolish the SIPAM Coordination Committee (sometime previous referred to as the Steering Committee), transferring its functions to the staff of the Regional Centre.
- (xv) Ask SIPAM member countries to nominate National Coordinators that are committed to the ideals of SIPAM.
- (xvi) Ask SIPAM member countries to support SIPAM with a significantly enhanced level of commitment, recognising the immense potential of SIPAM to create tools to assist in the management and further development of responsible Mediterranean aquaculture.
- (xvii) Ask SIPAM member countries to provide their National Coordinators with an adequate budget that includes a commitment for adequate staff time and for national and international travel (SIPAM annual meetings).
- (xviii) Advise SIPAM member countries that they should set up an efficient national SIPAM network for collecting data, with adequate staff and financial allotment.
- (xix) Develop clear terms of reference and operational guidelines for the SIPAM National Networks, for application by member countries.
- (xx) Ask SIPAM member countries to instruct their National Coordinators to supply information on a more frequent basis. Delaying the updating of other databases until new annual statistics become available is not satisfactory. Many databases (and the news section) need frequent input but this implies enhanced support within national budgets. Returning information to the Regional Centre should not be regarded as an annual chore.
- (xxi) Limit the frequency of SIPAM Annual Meetings to biennial and request them to concentrate on future planning, with less emphasis on the past and less discussion of detailed software problems.
- (xxii) Recognising that some countries are fully cooperating with SIPAM, while others are committed only in word, ask the Regional Centre to concentrate on completing and refining information from fully cooperating members rather than trying to add further member countries. This would significantly enhance the quality of the information available on the SIPAM website, which is necessary to ensure satisfied and loyal users. It would also encourage other GFCM countries to fully cooperate in the work of SIPAM. Once the value of the network is demonstrable, it should no longer be necessary for regional staff to travel the Mediterranean in (sometimes unsuccessful) attempts to persuade new countries to join and existing members to submit their national returns<sup>11</sup>.
- (xxiii) Monitor and evaluate the specific activities of all three networks regularly.
- (xxiv) Ask FAO and other collectors of global, regional and national aquaculture statistics to strive hard to coordinate the way in which national returns are submitted. This would obviate the submission of multiple returns to different agencies, each with their own questionnaires and formats.
- (xxv) Based on its consideration of the recommendations made above, urgently recommend to the GFCM that SIPAM should either be continued, through a significantly enhanced commitment on the part of its member countries and a relocation of its Regional Centre, or terminated forthwith. In making this decision, the CAQ should take into consideration the opinion expressed in this evaluation that SIPAM has considerable potential value in the further development of aquaculture in the Mediterranean. It would be shame to terminate it but this would be preferable to allowing it to limp along as at present.
- (xxvi) Whatever its final recommendations are, ask the GFCM to take urgent decisions on this matter. Failure to do so would result in the continuation of a potentially useful but frustratingly inadequate information service to Mediterranean aquaculture.

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<sup>11</sup> It is realised that limiting the number of countries from which data is distributed through the network could be construed as being 'discriminatory'. However, this is not the intention; it is merely a way forward that is suggested in order to improve the quality of the information available. In the opinion of the consultant it would be better to distribute solid, verifiable and frequently updated information from a few countries at first, rather than to seek blanket coverage and publish data of dubious quality. Refining the system in a few countries first would quickly enhance the image of SIPAM, especially now that it is so visible on the internet, and would certainly encourage the remaining countries to become more fully committed and active.

## **ANNEX 1 - TERMS OF REFERENCE: CAQ EXTERNAL EVALUATOR**

### **Background**

During the 28<sup>th</sup> Session of the General Fisheries Commission for the Mediterranean (GFCM) held in Tangiers, Morocco, from 14 to 17 October 2003, the Secretariat was requested to conduct a full external appraisal of the achievements of the GFCM-Committee on Aquaculture (CAQ), in addition to SIPAM.

### **Activity**

Under the overall supervision of the Mr Jia Jiansan, Chief FIRI, and the direct supervision of Mr Alessandro Lovatelli (FIRI), and in close collaboration with other concerned FAO technical officers, Mr Michael New will:

- Review and analyse all pertinent and relevant CAQ documentation: the establishment of CAQ and its mode of operation (objectives, structure, procedures), its activities and results and the recommendations made by CAQ (All relevant documentation will be made available to the consultant via Internet as well as hard copies supplied by the GFCM Secretariat).

## **ANNEX 2 - RESULTS OF THE EXTERNAL EVALUATION OF SIPAM**

This annex reproduces the results of a separate and extensive evaluation of the SIPAM network that was carried out by the same consultant (Michael New) during December 2003 and January 2004.

### **PREFACE**

This document presents the results of an evaluation of the SIPAM network that was recommended during the 3<sup>rd</sup> meeting of the GFCM Committee on Aquaculture (CAQ) and endorsed at the 27<sup>th</sup> GFCM (General Fisheries Commission of the Mediterranean) meeting. Terms of reference were prepared by the GFCM Secretariat (Annex 2 Appendix 1) and the evaluation was conducted during a consultancy that took place between December 2003 and January 2004.

The work was conducted through an examination of relevant documents and the new SIPAM website in Rome, supported by interviews with SIPAM staff in the regional office in Tunis, FAO staff from the GFCM Secretariat in Rome, the SIPAM national coordinators of Cyprus, Greece, Italy, Tunisia and Turkey, and representatives of the private sector in Greece and Turkey.

This document commences with a brief introduction to the initiation, objectives, and current mode of operation of SIPAM. Detailed comments on its strengths follow, together with an analysis of the opportunities that exist for SIPAM in the Mediterranean. The current weaknesses and constraints of this information network are also discussed in detail. Currently, the weaknesses and constraints heavily outweigh the strengths; however, this fact does not negate the opportunities that SIPAM represents for the region. A series of recommendations have been provided, which are included in the text of the overall CAQ evaluation report. The executive summary that originally formed part of the SIPAM evaluation report (this annex) has also been transferred to the CAQ evaluation report.

### **INTRODUCTION**

#### **Initiation**

SIPAM (Information System for the Promotion of Aquaculture in the Mediterranean), was originally conceived in 1992. In 1995, however, when the FAO-executed Mediterranean Regional Aquaculture Project (MEDRAP II) came to an end, it was noted that an effective information system for aquaculture development in the Mediterranean would not exist in the participating or observer countries. SIPAM was therefore established as an entity by the General Commission on Fisheries in the Mediterranean in order to contribute to aquaculture development through improving the flow of aquaculture information among the participating countries in the Mediterranean Basin and Black Sea.

#### **Objectives**

SIPAM was designed to support and link the work of the other specialized research and development networks<sup>12</sup> that were set up within the Committee on Aquaculture (CAQ) of the General Commission on Fisheries in the Mediterranean (GFCM), namely:

- Technology and Aquaculture in the Mediterranean (TECAM).
- Social, Economic and Legal aspects of Aquaculture in the Mediterranean (SELAM).
- Environment and Aquaculture in the Mediterranean (EAM).

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<sup>12</sup> TECAM and SELAM are coordinated by the "Centre International des Hautes Etudes Agronomique de Méditerranée (CIHEAM); the activities originally under EAM were subsequently absorbed into TECAM and SELAM.

The linkage between SIPAM and the other networks was intended to ensure a more multidisciplinary approach in the treatment and use of specialized information and to avoid the compartmentalization which would occur if independent information networks were put in place for each research network.

The approach selected for SIPAM was to develop national information systems with a similar structure, which would communicate through a regional centre. It was generally agreed that these information systems could serve as a tool for planning purposes within each member country and that they would also provide information and other services to the aquaculture industry. The sharing of non-confidential national information through the SIPAM regional centre was intended to allow participating countries to access information from other countries and thus to keep abreast of developments at a regional level. This would help each country to be better equipped to deal with and respond to changes, emerging challenges, and new technologies in the sector.

The SIPAM network started in 1992, during the life of the MEDRAP project, with five participating countries collecting and disseminating data using DOS. At present (late 2003), fifteen Mediterranean and Black Sea countries (Albania, Algeria, Croatia, Cyprus, Egypt, France, Greece, Italy, Lebanon, Libya, Malta, Morocco, Romania, Tunisia, and Turkey<sup>13</sup>), together with Portugal, are members of SIPAM. The network is coordinated through a regional centre hosted by Tunisia within the framework of an agreement signed in early 1996 between the Tunisian Government and FAO. Support is also provided through the GFCM Secretariat in Rome. Since being established by the GFCM, its Regional Coordinator has been Mr Hadj Ali Salem.

### **Historical perspective**

The evaluation which this report covers is confined to the years 1996-2003. This is the period that SIPAM has been operating outside its original context of MEDRAP, from whose remaining funds it was initiated. For this reason, the hard and dedicated work that went into its conceptual design is not mentioned in subsequent portions of this report. However, the consultant wishes to congratulate the originators of the concept for their foresight. Since its inception the concept and design of the network has been developed with the active participation of the SIPAM member countries and their synergy with enthusiastic representatives of the GFCM Secretariat. Its design was participatory and decentralised; it was not a 'top-down' idea imposed by FAO but a coordinated response to a need felt by all the countries in the region. The selection of the SIPAM databases (in the original DOS and Access versions, and of the fields to be included) was carried out by a nucleus of countries with the guidance of FAO. These facts explain the initial enthusiasm demonstrated by the National Coordinators and the feeling of ownership which characterized the early years of its operation.

An annotated historical perspective of the development of SIPAM since 1996 is provided in Annex 2 Appendix 2. The influence of the GFCM and its Committee on Aquaculture and the continuing role of the National Coordinators is clear in the documents studied. The special enthusiasm shown by Tunisia in hosting the SIPAM Regional Centre during these years was certainly invaluable. The extensive support and detailed technical guidance and training<sup>14</sup> that SIPAM regional staff and National Coordinators have received from the GFCM Secretariat, both in terms of technical know-how and fund sourcing, is also recognised.

In making this evaluation, the effects of the relatively slow diffusion of the internet in some of the GFCM countries, which forced the simpler choice of a DOS system and later an Access-based system in order to enable full regional coverage, have been taken into account.

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<sup>13</sup> Slovenia and Bulgaria are expected to join later.

<sup>14</sup> SIPAM Regional staff and National Coordinators have received in-depth training on the software utilized in the network; training sessions were included in the first three or four SIPAM Annual Meetings.



## **Current mode of operation**

Currently, SIPAM is operated through national coordinators that collate information and transfer it to a regional office in Tunis for validation and publication. National coordinators are appointed by the respective governments. Each national coordinator is expected to collate information from a number of appropriate locations, including government departments and institutes, universities and the private sector, into the SIPAM database, an MS-Access platform.

At first, regionally collated information was provided by the regional office to the national coordinators, whose responsibility was to make it available nationally; now it is available to all on the dedicated SIPAM website ([www.faosipam.org](http://www.faosipam.org)). A brief analysis of the current website is provided in Annex 2 Appendix 3.

## **STRENGTHS AND OPPORTUNITIES**

### **Potential value**

The countries of the Mediterranean basin and the Black Sea share special characteristics that make the exchange of information on aquaculture valuable – including common resources, common markets, similar farmed species (especially in brackish and marine waters), shared effects and impacts through introductions and pollution, etc. Such similarities are obvious and the need for information exchange was recognised more than ten years ago; this need remains valid. The information gathering network that was originally set up, namely the establishment of national networks that include public, institutional and private “locations” that collect and submit information to National Coordinators (NCs) who, in turn, provide this information to a Regional Centre (RC), was, in the opinion of the consultant, sound. Perhaps this is why SIPAM has survived, despite many vicissitudes, where other regional information networks have failed.

Even the necessarily cursory glance at the new SIPAM web page that was possible in an evaluation such as this reveals the enormous potential that the SIPAM network has as a Mediterranean information tool, for both private and public sectors (some examples are given later in this report). The current content of the web site is briefly reviewed in Annex 2 Appendix 3. Providing that its information is comprehensive, complete, accurate, and up to date, SIPAM would be the first point of call for anyone needing to know the detailed characteristics of the Mediterranean aquaculture sector, not only in his/her own country but also in other countries in the region. However, even though SIPAM will soon become a teenager, its potential has neither been realised nor adequately demonstrated or publicised. Its current problems will be discussed later. The real (or potential) strength that SIPAM has is the unique data that it contains; this is original information, most of which cannot be obtained elsewhere.

A recent feature is the news items that have been added to the new web site by GFCM Secretariat staff (just to demonstrate this new facility). The provision of news items should now be solicited and coordinated by the RC. This section should contain “first hand” information, not merely “cuttings” from other information sources; if not, this feature may just be regarded as a “frill” to attract new web site viewers. If NCs can be motivated to provide unique news (not previously published elsewhere), and the RC can extract such original information from the NC reports that it receives, this service could add to the uniqueness of SIPAM.

### **Accessibility**

Until recently the accessibility of the information contained in the SIPAM system has been very passive. Information collated by the RC in Tunis from the returns submitted by the various NCs on the SIPAM database has been returned in regional format to the NCs. Here, in many cases, it has gathered dust. Like so many other organizations, SIPAM has collected information but has been rather puzzled

on how to utilise it. Many NCs have not made the existence of this body of information public. Access up to now has generally been very passive; information has only been provided on demand. In some countries (e.g. Morocco and Turkey) the SIPAM National Coordinators are well-known as “Mr or Ms SIPAM and people have asked them for information; in others, the existence of SIPAM, especially in the private sector, is virtually unknown, even after more than ten years of life<sup>15</sup>.

Since September 2003, a well-designed and easy to use web site has been available, and access to SIPAM is potentially and freely available to all who know its web address or who use an on-line search engine and enter the words “aquaculture”, “information” and “Mediterranean”. In most of the locations visited during this evaluation, the existence of SIPAM on the web was unknown; its demonstration caused great excitement, with some viewers seeing (perhaps for the first time) the real potential that the SIPAM network now has.

While the easy availability of its information on the web is a great leap forward for SIPAM this not only exposes its considerable potential but also its many deficiencies. There is a danger that those who consult its web site before these deficiencies are addressed may not return to the site again. This would be most unfortunate; a good reputation may take years to achieve but is easy to destroy. If the GFCM is determined to provide this remarkable aquaculture information tool, it must take important decisions and rapidly implement them in order to solve the various problems that are identified in this evaluation, before the credibility of SIPAM is destroyed.

### **Data verification**

The potential for verifying data is one of the strengths of SIPAM. Validating data is difficult at a central, global level. For example, verifying the statistical information on aquaculture (and capture fisheries) that is provided by Member States to the FAO Fisheries Department has posed many problems that have not yet been surmounted. FIGIS (Fisheries Global Information System) may encounter similar difficulties. On the other hand, SIPAM has the possibility of decentralising validation (quality control) to the national level. Providing statistics to FIDI, for example, may be seen as a “duty” – merely a chore that is extra to providing similar information to national statistical bodies. However, if the GFCM countries that own SIPAM can be induced to be proud of the accuracy of the data that they have collected within its national networks and coordination offices, SIPAM could become an internationally recognised source of complete, accurate, and up to date information on the aquaculture sector in the Mediterranean. This would be a GFCM achievement that would not only assist its own region but also be a model for the development of responsible aquaculture practices on a regional level, something that other regions would seek to emulate.

### **Linkages**

SIPAM has a significant opportunity, through its existing relationships with the FAO Fisheries Department (which could be enhanced if the recommendations provided in this evaluation are accepted) to strengthen existing and adopt future linkages with other information networks operated by FAO and/or the projects that it is involved in. Annex 2, Annex 2 Table 1 lists a selection of these opportunities. The linkage of SIPAM with FIGIS (as an associated network), is of particular mutual benefit and is becoming active. The position of SIPAM within MedFisis is something for future discussion within GFCM.

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<sup>15</sup> For example, the General Manager of the Federation of Greek Maricultures had, until this evaluation visited Greece in December 2003, never heard of SIPAM.

**Annex 2, Table 1.** Existing and potential information linkages for SIPAM.

ACRONYM	SCOPE	WEB ADDRESS
FAO LEX	National laws and regulations on food, agriculture and renewable natural resources	<a href="http://faolex.fao.org">http://faolex.fao.org</a>
FIGIS	Integrated fisheries information. [includes aquaculture glossary, National Aquaculture Sector Overviews, database on introductions, aquaculture photo gallery, fact sheets on cultured species, etc., that are in preparation]	<a href="http://www.fao.org/figis">www.fao.org/figis</a>
AAPQIS	Aquatic animal pathogen and quarantine information	<a href="http://www.aapqis.org">www.aapqis.org</a>
COPEMED	Support to fisheries management in the Mediterranean	<a href="http://www.faocopemed.org">www.faocopemed.org</a>
ADRIAMED	Promotion of fisheries management in the Adriatic Sea	<a href="http://www.faoadriamed.org">www.faoadriamed.org</a>
EASTMED	Similar to COPEMED and ADRIAMED (in formation)	
MedSudMed	Assessment and monitoring of fisheries and ecosystems in the Straits of Sicily	<a href="http://www.faomedsudmed.org">www.faomedsudmed.org</a>
MedFisis	Fishery statistics and information in the Mediterranean	

## WEAKNESSES AND CONSTRAINTS

Overall, despite the strong personal commitment of several of the people involved, both at a national level and within FAO, SIPAM exhibits the profile of an amateur information network to which its member countries are not sufficiently committed.

### Visibility and publicity

As noted earlier, the visibility of SIPAM has until now been poor but, with the new website, it would be easy to enhance it. The existence of SIPAM, and the cache of information that it contains, needs publicity within national government organizations and universities, through national and regional producers and suppliers organizations, within investment banks, and through the media. However, such publicity should not be sought until the SIPAM databanks are more complete and up to date and have been validated in collaboration with FAO. The usefulness of the data presented should also be improved by regular analysis.

### Commitment

So far, fifteen Mediterranean governments and Portugal have signed up to belong to SIPAM; the inclusion of more countries is being actively sought by the RC. However, signing up has not equated to commitment. So far, the fact that SIPAM has survived at all is due to the *personal* commitment of individual members of staff in certain member countries and in FAO, and their ability to motivate national data collectors and obtain FAO and external funding for SIPAM to operate. However, real commitment and support on a governmental level, with two or three notable exceptions, has been minimal; in many cases support has been given by word in various GFCM meetings but not followed up by deed.

Some countries have joined SIPAM relatively recently and it is therefore understandable that they have had insufficient time to establish national SIPAM networks and local recognition of the opportunities that the data that it contains provide. However, some of the original member countries, where the recognition of SIPAM and the use of its data should have become established long ago, are also failing. As mentioned earlier in this report, the National Coordinators in Morocco and Turkey are well-recognised nationally as sources of information. This is not currently so in other countries, including France (even though it was a pioneer and practical supporter of the concept in the days of MEDRAP), Italy (this country, as acknowledged elsewhere, has provided tremendous financial and other support to SIPAM regionally but could further enhance its national visibility of SIPAM as a

source of relevant Mediterranean aquaculture information) and Greece and Spain (which are currently inactive).

The duties entailed in being a National Coordinator have simply been added to those of existing staff members of governmental organizations. No true commitment of staff time or funding has been made; in addition, no clear terms of reference for NCs appear to exist. The result has been that those individuals that have recognised the potential of SIPAM and have been willing to commit their own personal time to its development have injected enthusiasm into the network (though signs of weariness, when they observe that others do not share their burden, are emerging). Where the potential has not been recognised, or where the individual appointed as the NC has been unable or unwilling to devote the time and effort necessary to make it a success, the supply of national information has wilted and, in some cases, died.

Apart from the continued support for the RC by the Tunisian government, Member States have relied on FAO and its close contacts with various donors (particularly in Italy) to supply operational funds for SIPAM. Few governments have even found funds for their own NC to attend its annual meetings. The funds that have been sourced have been quite small and it seems at first surprising that SIPAM has achieved so much on such limited resources. One of the reasons for this is because its funds have not had to be spent on staff costs<sup>16</sup>; while recognising this fact, it does not become a valid argument for continuing this situation. If making SIPAM into a truly effective modern information network needs special skills within a new regional office (as will be recommended later), as well as closer coordination with other global and GFCM information initiatives, then staff expenditure will be essential. Naturally this means increasing total costs but a means of generating revenue will also be suggested.

However, it would have been more beneficial if more of the limited resources could have been spent in building up efficient national information networks than on holding so many meetings. While SIPAM does not have a mandate to establish and control the national networks, it could have provided support. SIPAM has held seven meetings of National Coordinators and another seven meetings of its Coordination Committee (CC) since 1996.

In common with the other components of SIPAM management, no clear terms of reference exist for the CC; in their absence, its function is unclear, and its work could be undertaken within the RC or combined with SIPAM annual meetings. Some attempts have been made to combine SIPAM CC meetings with other regional meetings (including two SIPAM Annual meetings) to minimise costs; however, CC meetings could be discontinued without any deleterious effect on the effectiveness of SIPAM.

SIPAM annual meetings cost US\$ 20,000-25,000 each<sup>17</sup>. These meetings have generally been supported through the FAO regular programme, often through external funding, but FAO has said many times that this cannot continue, especially now that the GFCM is becoming autonomous. The value of having face to face meetings for NCs is considerable; in particular they provide a chance to share experience and to discuss important issues concerning the further development of SIPAM. However, the minutes of these meetings show that much of the time has been spent in discussing day to day operational software difficulties, matters that should have been resolved directly with the RC. Now that the GFCM will be providing core funding for SIPAM within its autonomous budget it may be advisable to hold SIPAM annual meetings every second year, rather than annually.

The GFCM needs to establish a feeling of ownership over SIPAM, now that it is to enhance its functional autonomy. However, it is clear that a much higher level of national government commitment than has been evident so far is required if SIPAM is to flourish. More commitment to SIPAM at the EU level would also be desirable. If regional governments and the GFCM itself cannot

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<sup>16</sup> However, it cannot be assumed that the Tunisian government will assume these costs *ad infinitum*.

<sup>17</sup> E.g. the budget for the NC meeting during the inter sessional period 2000 was US\$ 23,000 (GFCM 1999).

see the value of SIPAM it would be better to terminate it off now rather than allow it to fade away through lack of support and waning personal enthusiasm – a minor but unnecessary scandal.

### **The development of SIPAM-on-the-web and database completeness**

SIPAM was first developed in DOS (Dbase IV, compiled in Clipper) because this was the programming language best known by the FAO programmer. This was a strategic decision that enables the network to be set up very quickly and allowed the rapid briefing of National Coordinators. This version was used for immediate data entry, while another team (in Tunisia and Greece) started the development of the new version in Windows (MS-Access).

FAO has made a very significant contribution to database management and web development; this function should continue, since it is unlikely that any other location in the Mediterranean could have the access to expertise in this area that FAO has. This should be a function of the GFCM Secretariat.

The content of the SIPAM web site is briefly reviewed in Annex 2 Appendix 3. Some directories, sections and datasets provide considerable information, notably those containing country reports and aquaculture production statistics; some are in the process of development (e.g. links to the private sector); some remain empty (e.g. pathology) or only provide links to other websites (e.g. laws and regulations, which may require a lawyer to interpret). This is unfortunate, because clear information on fish health and the regulations that apply to aquaculture is of paramount importance regionally, especially for the existing private sector and for future investors.

At its inception, a decision was taken to include information on all types of aquaculture within Mediterranean countries. Thus, the data collected is not confined to activities that take place in the brackish water or marine zones of the region but includes inland aquaculture as well. The data therefore represent a total picture of aquaculture activities in all the countries with a Mediterranean border, plus Portugal. A certain level of confusion exists because some countries have other coastlines besides those in the Mediterranean and the Black Sea (notably France, Morocco and Spain, with Atlantic coastlines, Egypt and Israel with Red Sea coastlines, and Portugal, with no Mediterranean coastline at all). One result of this, for example, is that the mollusc production of Spain and France appears in SIPAM data for these countries; the uninitiated may not at first realise that its origin is their Atlantic coastlines. This needs clarification and preferably separation in the database. Since the GFCM also covers the Black Sea, this type of problem may also apply to other potential members of SIPAM and GFCM.

Detailed examination reveals that even those databases that appear to be complete are not. Just a few examples:

- the last country report from France is dated 1999, Spain is not linked to the system, and the Tunisian annual report is in French (although the SIPAM language is English);
- the aquaculture production statistics either are frustratingly incomplete, out of date, or both;
- the bibliography database is woefully incomplete.

Comments have been made that the aquaculture statistics provided by SIPAM do not always agree with those circulated by FAO in its annual statistical yearbooks. This is because data is often collected from different national sources (Annex 2 Appendix 4). While this discrepancy may be confusing (and can only be corrected by coordinated action by FAO and GFCM Member States) it could be said that SIPAM has some potential advantages over FIDI (see below). However, ideally, the sources of information for SIPAM and FIDI should be the same. Member States should consider making the same unit responsible for completing the FAO statistical questionnaires and for being the SIPAM National Coordination Office.

While it would be inappropriate for a NC to report statistical data that differ from those submitted by their government to FIDI, the publication time lag can be shorter (e.g. examination of the SIPAM

website shows a considerable amount of statistical data for 2002 exists; such data will not be published by FIDI until later in 2004). In addition, since much of the information generated by the NCs for SIPAM is based on personal contacts with the private sector, it is possible for the national annual reports to contain information that differs from that published by FAO. The SIPAM-gathered information is considered to consist of “real”, rather than “official” data, since a level of local interpretation is applied<sup>18</sup>. Thus, while the data in the statistics database ought to agree with the figures published by FAO, the annual reports allow for a closer examination of reality. Another advantage of SIPAM data is that it is much more comprehensive than that currently published in the FAO yearbooks (e.g. numbers of farms, numbers of fingerlings produced, etc.).

The analytical potential of SIPAM has not yet been exploited. Collecting data *per se* has a value, especially if that information is unavailable anywhere else; however, its value can be enormously enhanced by analysis. The failure to utilise the bank of information already contained within the SIPAM network is perhaps a legacy from the FAO Fisheries Department of a decade or more ago. Until the past decade FAO had seen others initiate the use of FAO’s huge bank of statistics to produce papers on the status and future potential of global aquaculture development (e.g. New 1991). More recently, it has used its data to generate its own analyses of this type (e.g. FAO 1997; Pedini 2000; FAO 2002b), which are frequently cited by the international aquaculture media. This use of “in-house” information has not yet extended to SIPAM; this deficiency needs addressing before SIPAM can demonstrate its true value to the region.

In general, the content of the SIPAM website is not satisfactory. Those who enter the website are likely to be initially excited by the potential but disappointed by the reality. The SIPAM website must (rapidly) be completed, and be constantly updated and checked for accuracy. This implies a much higher level of commitment by all the parties involved. Failure to correct these deficiencies will seriously damage the future of SIPAM.

### **National coordinating offices and national networks**

Limited access (Tunisia; Turkey) to national network staff was possible during this evaluation but the impression gained from discussions and from reading the various reports was that the national networks are extremely variable in efficiency. The level of efficiency currently depends almost entirely on the personal commitment of each National Coordinator. Where the NC is keen, the national network is good, and *vice versa*.

Some of the people working in national SIPAM “locations” expressed frustration that they were asked to provide the same information to several different entities in different formats (e.g. to their national statistical office; to FAO for global aquaculture statistics; to Eurostat; to SIPAM; etc.). This attitude is understandable and the problem needs to be addressed

The amount of time involved in supporting SIPAM has not fully been recognised by governments signing up to belong to SIPAM<sup>19</sup>. Since SIPAM is normally an “extra” task for over-stretched staff, the work can only be done through unpaid overtime; thus the level of personal commitment needs to be high or the work will not be done properly. A potential “motivation” (other than payment) that was frequently mentioned was travel (e.g. to conferences, workshops, SIPAM meetings, etc.). However, such events should not be the reward for doing one’s job. Working on SIPAM should be part of each individual’s job (i.e. included in his/her job description) and the receipt of salary should be sufficient incentive. It is only because SIPAM duties are not regarded as part of the individual’s job but as an extra unpaid duty, for which no space within normal working hours is allowed by the employer, that extra “perks” are expected.

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<sup>18</sup> For example, a farm may under-declare its production for national (and therefore international) statistical purposes because, instead of exporting it all, as its permit allows, it sells some locally at a more favourable price.

<sup>19</sup> For example, the Mugla “location” in Turkey spends 20 people-days to enter the information each year.

Some countries (e.g. Croatia, Egypt, Italy, and Turkey) have a demonstrable commitment to SIPAM. Personal commitment features highly. The NC is not an office, but a person; thus, if the person changes, the level of commitment is similarly altered. Other countries (or the individuals chosen to be their NCs) currently demonstrate little enthusiasm. Active participation in the network by France, except in SIPAM Annual meetings, seems to have declined, perhaps partly because its delegate's recommendation to the first CAQ meeting in 1996 (that it was necessary to initiate the setting up of a permanent financing fund for the operation of the SIPAM Regional Centre) was not accepted (see Annex 2 Appendix 2). Information from other major aquaculture producing countries in the region (e.g. Greece, Portugal, Spain) is either not being received at all, or is markedly out of date; in the case of Greece and Spain this is said to be caused by a change in the location of the NC office. However, SIPAM software was installed in the new office in Greece in January 2003 but, by December 2003, data entry had not yet commenced; the person responsible was not appointed until the evaluation meeting. The current lack of involvement of Spain may be exacerbated by the existence of an excellent national aquaculture information base ([www.mispecies.com](http://www.mispecies.com)) that, although commercially run, could be a model for SIPAM. Information from some other countries is absent because they are (relatively) recent entrants to the system. Expanding SIPAM to new countries before existing members had satisfactorily completed their inputs was, in my opinion, a mistake.

When the provision of information to SIPAM is not granted clear national priority or support, personal commitment (this time at a local level) again takes on paramount importance. Even in Tunisia, which (as the host country of the RC), one would expect to be the most committed of all countries, the NC is only able to place SIPAM work at the bottom of the priority list. Efforts should be made to simplify and coordinate the way in which information is gathered, at national, regional, and international levels. Generally, governments originally appointed senior staff members to be their National Coordinators but some of these individuals, having had their main duties increased and/or their seniority enhanced, have delegated the actual work to more junior staff. Since the other duties of these staff are not decreased and they may not get the personal regional visibility that travelling to SIPAM annual meetings brings, and they are not paid extra for accepting the national responsibility of SIPAM, motivation is poor. This problem needs to be addressed.

Huge language difficulties for SIPAM exist in some countries; translation of SIPAM information (for example into Arabic and Turkish) may be necessary in some countries before "locations" can operate effectively and the full potential of SIPAM can be exploited.

The submission of information by NCs to the RC would be facilitated by a number of improvements, for example:

- the removal of the problem that some data is rejected because of relatively minor omissions, such as the postal codes of addresses; though complete details are obviously ideal, their absence should not invalidate all the other information being submitted;
- the standardisation of the terms and definitions used; the definitions being developed in the FAO aquaculture glossary and FIGIS reference tables should be applied to SIPAM as soon as possible;
- stressing the responsibility of NCs to validate the information submitted to the RC - this should not just be a function of the RC; NCs should be in a more favourable position to judge whether the data that they are submitting is accurate or not and this ability affords SIPAM one of its key advantages over other data collection systems;
- NCs should push their governments to give more serious levels of commitment to SIPAM but they need much stronger support from the RC and from FAO in doing so.

## Stage of development

In its eight years of post-MEDRAP life, SIPAM has only begun to scratch the surface of the facilities that it could provide for the management and further development of aquaculture in the Mediterranean region. It is therefore still in its infancy.

Several opportunities for further development have been identified by the Secretariat, including:

- The utilisation of GIS technology could lead to SIPAM becoming a source of detailed local maps of existing and potential aquaculture production sites, hydrographical conditions, resource availability, existing environmental conditions, the potential for future pollution (by other resource users as well as aquaculture itself), etc.
- The application of APS (aquaculture project simulator) software<sup>20</sup> within SIPAM. APS software already exists and has been applied in Italy; the system was detailed at a SELAM meeting in Montpellier in 1995 (Pedini, Coppola and Moretti 1995) but has not yet been applied regionally.
- Through the use and further development of its existing databases, farm directories could be constructed. Thematic maps that provided information on the size, capacity and exact location of existing and planned aquaculture units could be constructed that would provide a planning tool for governments. This tool would enhance their ability to provide development support, suitable roads, institutional support, predict possible future difficulties (including pollution), etc.

By developing such facilities SIPAM could provide tremendously effective decision support systems. In addition to facilitating the future development of responsible aquaculture in the Mediterranean, it could assist in the harmonisation of aquaculture-related legislation; perhaps even a common regional legislation could be a target. On a more immediate level SIPAM should strengthen its links with the other CAQ networks, as well as generating topics for future TECAM/SELAM workshops.

## Regional coordination

The SIPAM Regional Office was located in Tunis for historical reasons; this is where the network originated, under the MEDRAP-II project. It has remained there since 1996, partly through the generosity of the Tunisian government (which has supplied office premises and facilities, staff, and an annual grant currently set at approximately US\$ 20,000) and partly through the support (e.g. non-expendable equipment; technical backstopping) provided from FAO through its regular programme and/or its access to external funds, mainly from Italy. This arrangement established a structure for the operations of SIPAM during its (rather long) gestation.

Strenuous efforts (which have generally involved considerable travel) have been made by the Regional Coordinator to increase the number of GFCM countries participating in SIPAM. In hindsight, it would have been better to concentrate on improving the effectiveness of the NCs in a core of really enthusiastic and compliant countries, rather than adding flags for the sake of demonstrating regional cover. Having every country involved has little value if some are members of SIPAM in name but not in substance.

Efforts have also been made to convince NCs to provide the data requested fully, and on time; however, in the absence of full commitment by the countries involved, this has often been unsuccessful. The flow of information from the NCs to the RC is neither regular throughout the year, nor voluntary. The impression is that NCs do not submit data until they are requested by the RC to provide it prior to SIPAM annual meetings; indeed it was claimed that this is one of the justifications

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<sup>20</sup> This uses confidential information from real commercial farms, rather than simulation, to construct models of good practice, which can be used to evaluate applications for permits to start new projects or farms or to expand existing farms.



for holding these meetings! Depending on the time of the year selected for each NC meeting, some countries say that they are unable to provide the most recent annual figures. However, the provision of inputs to SIPAM should not be seen as a purely annual commitment, but a regular process that continues throughout each year.

Contacts between the RC and the NCs do not seem to be good. RC staff complained that some NCs do not reply to messages from the RC, even after several months. On the other hand, one NC complained that his most recent data submission had been supplied three times, after the RC had said that it was not receiving them; his level of frustration was such that he was threatening not to send any more information at all! In addition, some of the NCs met during the evaluation commented on the lack of feedback from the RC – no analysis of the information received, no newsletter, no real feeling of being part of the same team.

Clearly communications between the RC and the NCs in both directions are generally poor. This situation might have been better if adequate ToRs for the regional and national coordinators had been established; draft ToRs are suggested in Annex 2 Appendix 5. Adequate contacts between the RC and the NCs at a level below that of Regional Coordinator have, until recently, been hampered by the existence of only one internet connection within the RC. Potentially, this situation has now improved, following the provision of new computers from FAO funds; personal internet access for the data manager and the programmer was being installed in December 2003.

Relationships between SIPAM and the GFCM Secretariat and other FAO staff have been excellent. One gets the impression that SIPAM would have died long ago if it had not been for the continuing enthusiasm and support of the FAO staff that initiated it, now enhanced by relatively recent additions to the staff of the FAO Fisheries Department who provide technical support.

The Data Manager, recruited from the Tunisian private sector, seems meticulous in processing and validating the data received; however, the opportunities for analysing the data received have not been exploited<sup>21</sup>. His current work seems confined to mechanical data processing, although he, and sometimes the Programmer are given the opportunity to demonstrate details of the system to National Coordinators. The Programmer has received some training in Rome but both she and the Data Manager had some criticisms of the value of the training received and said that they require more to undertake their duties efficiently<sup>22</sup>. It is not clear whether these deficiencies were noted during the training sessions or whether they formed part of any back to office reports.

Little or no attempt seems to have been made to measure the usage and value of the information generated by SIPAM. Without such measures it is difficult to prove the merits of SIPAM's existence. This deficiency may be because of a lack of direction; when this need was mentioned to the Database Manager he said that this was a duty of the Regional Coordinator, or of the FAO Secretariat, not his. Without clear ToRs, such important functions fall between many stools. Now that SIPAM is available on the internet such evaluation is quite easy to perform. It should be a regular activity of the Regional Centre and should also be conducted at a national level. In particular, the value of existing databases could be measured by examining the number of "hits", the time each person remains linked to the website, and the number of times he/she returns to the site. Detailed analyses of each enquiry would also provide useful indicators of the value of the information collated to the various types of individuals and organizations logging on; in turn this would help the decision-making process in selecting further development of the site.

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<sup>21</sup> Some years ago, the Data Manager made some attempts to analyse the information received (which would have created added value, rather than merely collating the information received and distributing it) but this was continued; it is not clear whether this type of work was encouraged or stifled.

<sup>22</sup> It is not clear whether, as is often required at the end of a training course, they were asked to provide a personal evaluation of the training received, so that any real deficiencies could have been addressed.

Although part of the function of SIPAM is to provide data of use to the other aquaculture networks of the GFCM (and part of the function of TECAM and SELAM is to stimulate the work of SIPAM), there is no evidence that such cross-fertilisation is occurring. A close relationship between the SIPAM Coordinator and the CIHEAM Coordinator of TECAM and SELAM should exist; instead there were some indications of rivalry between the two Coordinators, with each criticising the other. Close coordination and collaboration between the various CAQ networks is essential for efficiency. This area needs substantial improvement.

Overall, the leadership provided to the SIPAM network by the RC lacks the dynamism necessary to bring its potential into fruition. Following discussions with the various personnel met, this evaluation has been unable to identify a strong case for the RC to remain in Tunis. However, to suggest moving it to another GFCM Member State might cause unnecessary offence or “political rivalry”. A more important consideration is that the RC should be based where the skills necessary to bring it into the “information age” exist, and where coordination with other information networks can be most efficiently performed.

It is therefore recommended that the RC office be relocated within the GFCM Secretariat<sup>23</sup> where it would be independent, have ready access to the latest website developments, and be able to link and coordinate the SIPAM system effectively with the many other information networks that exist (or are being developed) within other FAO and GFCM projects (Annex 2 Table 1). Continuing and expanding the link between SIPAM and FAO also has at least one other important advantage: the sharing of SIPAM information, though acceptable under the FAO aegis, might fall foul of national privacy laws if any individual country attempted to distribute it. At present, some data that is available to the NCs is not shared regionally, because it is deemed to have national or commercial proprietary value.

## FUNDING

To date, the funding for SIPAM has been insufficient for its full development. Reliance has almost totally been placed on the Tunisian government to support the RC, and on FAO to supply funds (or locate external support, principally from Italy) for equipment, travel, training, database and web site development, and to provide general technical backstopping, as well as fulfilling its duties within the GFCM Secretariat. The delays in endorsing the new GFCM agreement, and in defining its autonomous budget and the level of national contributions, have hampered the development of SIPAM throughout the eight years since the CAQ was established.

Funds have not only been limited but those that have been available have not always been put to best use. A considerable proportion has been associated with travel for the visits of RC staff to existing and potential member countries and to support frequent NC and SC meetings. More efficient use of these funds could have included courses in database management for NC staff (in the RC or in Rome). The trainees and those that attend SIPAM annual meetings should be those who actually collect, collate and send information to the RC<sup>24</sup>, not those nominally responsible for this task.

The current level of support from the Tunisian government cannot be relied upon *ad infinitum*, and there have been many warnings from the Secretariat that funds for SIPAM activities will not continue to be available from the FAO regular programme; neither can FAO guarantee to source external funds. Clearly, SIPAM needs funds for its survival and expansion. Some will be allocated from the autonomous GFCM budget but, in the opinion of the consultant, they will not be sufficient for SIPAM to operate effectively. The rest could, in the consultant’s view, be generated from private sources by

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<sup>23</sup> For the purposes of this evaluation, it has been assumed that the GFCM Secretariat will remain located in the FAO Headquarters in Rome.

<sup>24</sup> This evaluation was informed in Tunis that the last NC course was held in 1999; one year later 30% of the trainees were no longer NCs.

including links to commercial websites within the SIPAM website<sup>25</sup>. While private funding might have been difficult to countenance before, there should be no objection once the GFCM has activated its autonomous budget.

An idea of the scale of expenditure that is believed to be necessary for the operation of SIPAM, based on the assumption that the various recommendations made in this evaluation will be accepted, has been developed during this evaluation (Annex 2 Appendix 6). It has been estimated that the annual cost of regionally coordinating SIPAM and providing honoraria for each National Coordination Office would be US\$ 297 000. This substantially exceeds current annual costs but it is envisaged that only part of the necessary funding would need to be provided from the autonomous GFCM budget, as indicated in the previous paragraph of this report. This information is provided to set the scene for budgetary and funding discussions during the 4<sup>th</sup> CAQ session in June 2004.

## RECOMMENDATIONS

Based on the results of this evaluation, a number of specific recommendations for SIPAM have been made. These are recorded below and have also been copied within to the main text of the CAQ evaluation. It is recommended that CAQ:

- Ask GFCM to provide the utmost support for SIPAM because it is a significant asset that will enhance the future development and management of responsible aquaculture management in the Mediterranean; this implies strong commitment by member countries and the provision of financial support on a regional and national basis.
- However, if a much higher level of national support cannot be urgently agreed, suggest that GFCM should terminate SIPAM activities as soon as possible rather than continue an activity which shows promise but fails to deliver. This course of action should be regarded as a last resort<sup>26</sup>.
- Request GFCM to express its sincere thanks to the Tunisian government for its substantial support for SIPAM to date but, noting that different skills are now necessary to bring SIPAM into the “age of information” and that care needs to be taken not to duplicate efforts and waste valuable staff and financial resources, should re-locate the Regional Centre within the GFCM Secretariat (i.e. within FAO, where it can take advantage of in-house website developmental and operational facilities and efficiently coordinate SIPAM activities with those of the many other fisheries and aquaculture information networks based in Rome).
- Request GFCM, in addition to providing financial support from its own autonomous budget, to authorise the SIPAM Regional Centre to solicit private funding for its activities.
- Prepare written terms of reference for the Regional and National Coordinators and establish a clear operational structure for SIPAM<sup>27</sup>.
- Abolish the SIPAM Coordination Committee should be abolished and ask the SIPAM Regional Centre to assume its functions.
- Through GFCM, ask member countries to nominate National Coordinators that are committed to the objectives of SIPAM.
- Through GFCM, ask each member country to set up an efficient national SIPAM network and provide their National Coordinators with an adequate budget that covers both national duties and travel to regional SIPAM meetings.
- Ask the SIPAM Regional Centre to assist SIPAM National Coordinators in developing clear terms of reference and operational guidelines for the National Networks.

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<sup>25</sup> For an example of the way in which such funds have been generated in a national aquaculture information network, see [www.mispecies.com](http://www.mispecies.com).

<sup>26</sup> The other recommendations relating to SIPAM that are made in this document assume that the GFCM and its Member States will decide to strengthen their support for SIPAM, to allow it finally and rapidly to achieve its goals.

<sup>27</sup> Drafted in Annex 2 Appendix 5.

- Ask National Coordinators to supply information on a more frequent basis and seek national government support to do so.
- Reduce the frequency of the meetings of SIPAM National Coordinators so that they become biennial events.
- Ask the SIPAM Regional Centre to concentrate on completing and refining information from fully cooperating members rather than trying to add further member countries.

## **ANNEX 2, APPENDIX 1 - Terms of Reference for the SIPAM External Evaluator**

### **BACKGROUND**

The aim of the external evaluation of the GFCM-CAQ SIPAM Network (Information System for the Promotion of Aquaculture in the Mediterranean), recommended at the 27<sup>th</sup> GFCM Session in Rome, Italy (19-22 November 2002), is to evaluate the SIPAM Network as a whole from when it was first established until now, including an examination of its current structure and mode of operation as well as the functionalities of the system (i.e. whether it meets the objectives of the original plan).

The outcome of the external evaluation will focus on issues related to the functionality of the Network, including the drawbacks and difficulties experienced at national (i.e. in the participating member countries) and regional levels (i.e. the SIPAM Regional Centre in Tunis), and on the likely future development of the system. The evaluation will include recommendations to be delivered and discussed during the next session of the GFCM.

### **ACTIVITY**

Under the overall supervision of the Mr Jia Jiansan, Chief FIRI, and the direct supervision of Mr Alessandro Lovatelli (FIRI), and in close collaboration with other concerned FAO technical officers, Mr Michael New will:

- Examine the existing structure of information flow from the SIPAM member countries to the SIPAM Regional Centre.
- Identify issues that facilitate and constrain the collection of data and information at the national level.
- Examine the current overall expenses attached to all SIPAM activities (SIPAM Regional Centre, SIPAM-on-the-Web maintenance, external consultations, SIPAM Annual Meetings, FIRI staff time, etc.).
- Examine the current network architecture, including the organization of internal network in the participating countries to enhance data collection and dissemination amongst the end users and commitment of the countries in this regard.
- Meet with Mr. S. Coppola (FIRM), the designer of SIPAM, to evaluate whether the original conceptual design is still valid and the developed system still responds to the initial main objectives: (1) Serve as an aquaculture information and connecting tool for general public; (2) Serve as a tool for scientific and administrations to share data and information and assist them in analysis and decision making; and (3) To serve as a useful source of information to aquaculturists and other persons involved in aquaculture.
- Visit the SIPAM Regional Centre in Tunis, Tunisia, to evaluate its functionality and overall role in providing support to the SIPAM Network taking into account the means and facilities available.
- Meet the SIPAM National Coordinators of Italy, Tunisia and Turkey to discuss and report on issues related to the collection and submission of data and information to the SIPAM Regional Centre.
- Provide comments on the new SIPAM website release ([www.faosipam.org](http://www.faosipam.org)) and provide suggestions on areas that require improvements; identify any errors; and suggest development of new topics of interest to the Network that should be covered on the website (e.g. trade and marketing statistics/analysis, etc).
- Meet with the FIGIS Project Officer (Mr M. Taconet) to evaluate the current interaction with FIGIS and derived reciprocal benefits.
- Identify potential links between SIPAM and other existing information systems which disseminate aquaculture information on the Mediterranean region.

- Meet with Mr A. Bonzon (FIPL) and Mr S. Coppola, GFCM Secretary General and Technical Secretary of the GFCM Statistics and the Information System, respectively, to evaluate how SIPAM should be framed, or better framed, in relation to the information component of the Mediterranean projects, FAO and the GFCM.
- Contact and interview selected SIPAM National Coordinators over the phone.
- Prepare a report covering the topic outlined above.
- Provide comments of SIPAM and FIDI aquaculture statistics and suggest how best to deal with discrepancies.

A request for the consultant to provide draft ToRs for the Regional and National Coordinators was subsequently added.

## ANNEX 2, APPENDIX 2. - SIPAM - An Annotated Historical Perspective

### Software and web development

A contract between GTI and the SIPAM Regional Centre to finalise and develop the SIPAM software in DOS was signed in February 1996. The last DOS version (release 4) was prepared in July 1996 and delivered to the member countries after testing by the Regional Centre in September 1996. SIPAM for Windows was prepared from the DOS version in 1997 by the IMBC (Crete, Greece); tested by the Regional Centre in 1998 and first released to member countries in 1999. A second release of SIPAMWIN to the member countries occurred in 2000, which marked the start-up phase of SIPAM on the internet. The first release of the SIPAM Web page occurred in 2002. Finally a new release of SIPAM on the web took place in September 2003. Since then, SIPAM information has become freely available to all (www.faosipam.org) and its full potential as an information tool has become much more visible (Note: though this is an important step forward, development is too slow; this perhaps reflects partly on the inexperience in this topic in the Regional Centre and on the many other non-SIPAM duties of those that have worked on it in FAO).

### Selected information from the National Coordinators and Coordinating Committee meetings

Since 1996, a total of seven meetings of the SIPAM Coordinating Committee<sup>28</sup> (CC) and seven SIPAM Annual Meetings have been held<sup>29</sup> (Annex 2 Table 2). On three occasions, in 1997, 1998, and 2000, the two types of meetings were combined. On average, attendance at SIPAM annual meetings has been 22; at CC meetings it has been 7.

Annex 2, Table 2. SIPAM meetings.

COORDINATING COMMITTEE			ANNUAL MEETINGS		
Location	Date	Number attending*	Location	Date	Number attending*
1. Tunis	Jan 96	9			
			1. Bari	Mar 97	19
2. Salerno	Oct 97	6	2. Salerno	Oct/Nov 97	16
3. Olhao	Sep 98	6**	3. Olhao	Sep 98	19
			4. Malta	Nov 99	20
4. Tunis	Feb 00	7			
5. Istanbul	Nov 00	6	5. Istanbul	Nov 00	23
6. Rome	May 01	8			
			6. Italy	Jan 02	31
7. Rome	Jun 02	10			
			7. Morocco	Sep 03	29
<b>TOTALS</b>	<b>7</b>	<b>52</b>	<b>TOTALS</b>	<b>7</b>	<b>157</b>

\* Including observers and invitees.

\*\* Assumed; not stated in report.

The following chronological notes have been derived from the minutes of the fourteen SIPAM meetings that have been held since 1996, together with the reports of the three meetings of the GFCM Committee on Aquaculture and the seven regular and one extraordinary GFCM meetings that were held between 1997 and 2003. Matters of particular importance have been italicised and comments underlined.

<sup>28</sup> Sometimes referred to as the SIPAM Steering Committee.

<sup>29</sup> Meetings of the GFCM Committee on Aquaculture (CAQ) were held in September 1996, June 2000, and September 2002. GFCM meetings are held annually.

## GENERAL

The activities of SIPAM are very briefly reviewed during annual meetings of the GFCM (since its formation, within the context of the Committee on Aquaculture - CAQ). The support of the Tunisian government to the Regional Centre and of the Italian government/ICRAM and FAO in facilitating meetings of the National Coordinators and developing the website were acknowledged on a number of occasions (e.g. GFCM 1998, 1999, 2000); however, further support was felt to be necessary if the system was to be developed properly (GFCM 2000a). Despite this shortage of resources, the GFCM twice stated that the work of SIPAM had been satisfactory (GFCM 2000a, 2001).

### 1996

The first meeting of the SIPAM Coordinating Committee (CC) that was held in 1996 was the first SIPAM meeting after the termination of the MEDRAP-II project (SIPAM 1996); during this meeting a draft report on “SIPAM Development Status and Policy, and proposed Programme of Work for 1996” was discussed. Earlier information about SIPAM, which is contained in the annals of the MEDRAP project, has not been studied during this evaluation. However, from the minutes of this first post-MEDRAP project it is clear that SIPAM activities had been on-going for several years under that programme (since 1992). At this meeting, the support of the Tunisian government and the inheritance of equipment from the MEDRAP-II project were recognised. Setting a precedent for future reports of both the Coordinating Committee and National Coordinators’ meetings, it was noted that “*in general, there had been little progress with national data banks*”. A budget was presented at this CC meeting (Annex 2 Table 3).

**Annex 2, Table 3.** SIPAM budget 1996-1997.

ITEM	COST (US\$)
Adventitious labour, including complementary operating costs	12,000
Operating costs: staff time	20,000
Operating costs: contract for improvement of software)	10,000
Equipment: computer standardization	8,000
Training of personnel in Tunis	1,000
Training of personnel in Malta & Morocco	6,000
Working group meeting on Window version	20,000
CAQ meeting costs	4,000
Sundry (5%)	3,000
<b>TOTAL</b>	<b>84,000</b>

Support for this budget was envisaged from a Tunisian contribution to cover operational costs, agreed at US\$ 40,000 for the first year (not including staff costs and rental of offices), funds made available from the regional project GCP/REM/055/FRA (which, in addition to the Data Manager, would provide US\$ 40,000, according to a revision submitted to the French government for approval<sup>30</sup>), and a contribution from FAO of approximately US\$ 27,000, mainly through the TCDC scheme.

(Note: the interface between SIPAM and the other networks (SELAM and TECAM) established during the MEDRAP project seems to have been much closer at that time (SIPAM 1996) than has been the case more recently. There is an impression that SIPAM (based in Tunis) and TECAM/SELAM (based in Zaragoza) now operate rather independently, with little contact except during the meetings of the CAQ. Whereas the work of TECAM and SELAM has been quite visible regionally (many people have participated in its workshops and many publications issued), the work of SIPAM has been neither adequately publicised nor recognised in the region. From an external viewpoint there seems to be an element of jealousy from one side and criticism from the other.

<sup>30</sup> however, support from this project terminated at the end of 1996, as noted during the first NC meeting



Although understandable, both reactions may be unfair because the level of support from Mediterranean countries to the two types of activities has not been equal.)

It is interesting to note that, at the first CAQ meeting (FAO 1996), the delegate from France recommended *that it was necessary to initiate the setting up of a permanent financing fund for the operation of the SIPAM Regional Centre* but other delegates thought that this was premature until a consolidation phase had demonstrated that the system was useful. The delegate from France also drew attention to the danger of using the GFCM account set up by FAO in Rome (to receive donations from countries for specific activities additional to the minimum programme of work) to request funds for activities with partner organizations which were already funded by his Government, as this could result in refusal. The technical secretary of CAQ informed the committee that such consolidation *required political willingness on the side of member countries, which would have to finance the participation of their national staff in the activities of the network(s), and eventually the financing of specific actions and meetings should be envisaged* (Note: now, eight years on, member governments are still failing to properly staff and finance their National Coordinators offices, let alone finance other activities). Thus the potential of SIPAM has not been adequately demonstrated and the failure of member countries to support it wholeheartedly in this long consolidation phase has damaged its credibility and caused a loss of enthusiasm amongst those that were enthusiastic at the beginning. At this first CAQ meeting, FAO said that it would continue to devote time and effort, seeking (other) financial resources for the work programmes of the network(s) (Note: that promise has been fulfilled; without this fundamental support, SIPAM would have died long ago). CAQ recognised the complementarity of the (four) networks with SIPAM as a tool to enhance the work of the others. *It also recognised the responsibility of the Secretariat as overall coordinator for CAQ.*

## 1997

The first NC meeting noted that French support (through the regional project GCP/REM/055/FRA) towards the establishment of SIPAM had terminated at the end of 1996. Despite this, it noted that the main recommendations of the first meeting of the CAQ in 1996 included accelerating the preparation of the regional data base, as a matter of urgency, requiring the participation of the national centres (SIPAM 1997a). At that time, twelve countries were participating – Croatia, Cyprus, Egypt, France, Greece, Italy, Malta, Morocco, Portugal, Tunisia and Turkey – and the NC meeting was already noting that more efforts had to be made by the NCs to consolidate data collection and to enter it into the data bases, especially in regard to those for legislation, pathology, bibliography, and import statistics. In the report of the second CC meeting, which followed the NC meeting in 1997, it was said that the two types of gatherings would normally occur back to back<sup>31</sup>. In this 2<sup>nd</sup> CC meeting (SIPAM 1997c) it was noted that *“it was decided to adopt the 1998 programme of work and budget as agreed by the National Coordinators meeting”* (Note: this implies that the CC felt that it had some decision-making power, or was able to approve or alter decisions taken by the NCs in their meetings; whether it did have this power or not is unclear, because the CC had no terms of reference or clear status in the management structure of SIPAM).

In the second NC meeting (two were held in 1997) FAO reiterated that the SIPAM network must become more active (SIPAM 1997b); at this time the IMBC undertook to solve some of the problems being experienced with the Windows version. The Regional Coordinator reported that the database for pathology remained empty and that the databases for import/export statistics, research and development, laws and regulations, and bibliography had only partially been filled by the NCs. At this stage the experimental phase of SIPAM was deemed to be completed (Note: adequate consolidation had not in fact taken place; nor did it occur within the next seven years) and the NCs were asked to ensure that good quality timely data of acceptable volume would be generated. It was noted that *the credibility of the system and its interest to end users would depend on the reliability of the data*. A web site was envisaged at this time; it was proposed that there would be two versions, one of which would

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<sup>31</sup> However, this only happened twice more (four of the seven CC meetings were held separately, presumably taking advantage of other meetings in the region that brought the participants together).

be limited and free and the second more complete and requiring payment for access; however, the policy on charging was referred to the GFCM CAQ. It was agreed that a financing system (and financial sources obtained) needed to be set up amongst the participating countries; contributions were to be based on GNP and the importance of aquaculture within each country; the funding of SIPAM was expected to be discussed at the 1998 GFCM session.

In 1997 the GFCM recommended that SIPAM (*inter alia*) be consolidated and strengthened (GFCM 1997).

### **1998**

Difficulties in recruiting a programmer in Tunisia were noted during the third NC meeting in 1998 (SIPAM 1998a); at this time considerable support was being provided by IMBC. Concerning entries for the legislation and regulation database it was reiterated that these should remain in the original languages but that a title and abstract should be provided in English. *Comments were again made about the incompleteness of the records being entered into the databases*; those for pathology, legislation and import/export were practically empty; some of the difficulties of accessing import/export data, particularly concerning the EU countries were discussed (Note: five years on, the picture has not significantly changed). A small group was established to develop a standard format for the national reports. The 1998 NC meeting was followed by the 3<sup>rd</sup> CC meeting (SIPAM 1998b). Its topics mainly concerned data management but its report included a budget for the 1999 programme of work that totalled US\$ 95,000. Of this total, the FAO Regular Programme (with support from Italian funds) would cover a total of US\$ 35,000 for software development, marketing and pathology meetings, travel connected with the expansion of SIPAM to new countries, and liaison activities; US\$ 10,000 for training in the use of SIPAM software through TCDC funds; US\$ 20,000 from the Tunisian government for the Regional Centre; and US\$ 30,000 for SIPAM NC and CC meetings (no source identified).

Although some activities of SIPAM were reported during the 23<sup>rd</sup> GFCM meeting (GFCM 1998) it received no specific reference in discussions about the GFCM programme of work and budget, either for 1998-99 or for the medium- or long-term.

### **1999**

At an extraordinary session of the GFCM in 1999 (GFCM 1999), a draft autonomous budget and a scale of contributions were presented by the Secretariat. The FAO proposal was for a total of US\$ 1,029,240 (US\$ 287,380 originating from FAO for the provision of the Secretariat and for technical backstopping from the Fisheries Department; the rest being provided by Member country contributions). However, the EC proposed a total budget of only US\$ 750,000. A single proposal was to be derived from these drafts for presentation to the 24<sup>th</sup> GFCM session; this totalled US\$ 756,000. The 24<sup>th</sup> GFCM meeting, though agreeing on the substance of the scale of contributions, was only able to pave the way for its adoption at a later stage, once the amendments to the GFCM agreement had been accepted by two-thirds of its Members (GFCM 1999). This annual budget allowed US\$ 25,000 for a biennial meeting of the CAQ, US\$ 47,000 for “other meetings (including SIPAM)”, and US\$ 57,000 for “support to intersessional activities (includes aquaculture networks activities)”.

The shortage of funds was again mentioned in the fourth NC meeting in 1999 (SIPAM 1999) and *it was recognised that SIPAM needed promotion as it was not well known* (Note: this is still true in 2004). Decisions to become an ASFAs partner, and that completion of the import/export database would not be compulsory for EU members were taken in 1999. It was also decided not to further develop the pathology database because “*SIPAM was waiting for the new structure being developed by the AAPQIS and, although promised never released*” (Note: again, the situation has not markedly changed, four years later); it was decided that if the structure had not been provided by the end of 1999, the further development of this database or complete exclusion would be discussed by the CC. The same deadline (and procedure) was to be applied to the marketing data expected to be supplied by SELAM. The original homepage was demonstrated by FAO. *It was noted that Spain was absent from*

*the meeting for the second time and that it had neither been supplying input nor distributing information nationally (Note: a clear sign that member countries that had been initially keen on SIPAM were losing interest).*

The (proposed) addition of a pathology database to SIPAM was noted by the GFCM in 1999 (GFCM 1999).

## **2000**

In the fourth meeting of the Coordinating Committee in 2000 (SIPAM 2000a) it was noted that SIPAM would be providing inputs to ASFA for countries in the region that were not yet members of ASFA. No progress on AAPQIS was reported; the visit of the programmer to Rome was reported to be “*entirely unsuccessful as she was not shown the programme notes on the AAPQIS software*”. Similarly, no progress had been made with the exchange of (trade) data with FEAP following an agreement with the FEAP secretary. An important point was made at this committee meeting, namely that the *SIPAM annual meetings should discuss strategic issues relating to the work of SIPAM, not details of and changes in software (Note: this point seems to have been often ignored in subsequent meetings)*. The proliferation of information networks, such as MARAQUA, AQUAFLOW, and AquaTT, was noted. The provision of almost US\$ 19,000 from FAO sources for 2000 was acknowledged.

During the second session of the CAQ (FAO 2000), the EC delegation noted that priorities had to be established for the networks according to the availability of funding. Several delegates highlighted the need for the NCs to liaise with other aquaculture information systems. *SIPAM* was regarded as only covering basic information needs and *required urgent evolution to optimise its comparative advantage, namely the availability of a wide range of data in various (aquaculture) fields*. A clear strategy for the development of SIPAM to make sure that the systems that had been established were updated appeared to the CAQ Chairperson to have a high priority. *Extreme concern at the level of funding available for SIPAM was expressed by several delegates*.

In the fifth NC meeting in 2000 (SIPAM 2000b), it was noted that *few requests for information were received by NCs* (it could have been added that few attempts to disburse available information were made by the NCs; this poor flow of information nationally has generally continued to be the case, but the availability of the website will change the situation) and it was suggested that NCs should record how many times and by whom they had had requests for SIPAM data, in an attempt to provide evaluation. It is not clear if such records were actually kept or reported in the future. Only Turkey and Morocco reported that SIPAM had fundamental importance in their countries (Note: the NC from Morocco is known as “Mr. SIPAM”; it seems likely that the promotion of SIPAM and its national value is very much a function of the personal commitment of the national coordinator selected by the government). It was recorded that the few national “locations” for data collection existed to date, partly due to the lack of time for NCs to train the operators. Again, it was reported that there were difficulties in developing the AAPQIS database; nevertheless the decision was taken to adopt it for later implementation. The use of Globefish records for establishing a provisional marketing database was agreed. It had not been possible to complete the laws and regulations database because this would require specialised lawyers. Noting that SIPAM had been presented at the NACA 2000 millennium meeting in Bangkok and at the WAS/EAS meeting “Aqua 2000” in Nice and that it had powerful potential, *FAO said that SIPAM’s capacity had been under-exploited to date*. In this year it was reported that a budget for SIPAM was expected by 2002 and that Italy and Portugal were expected to support it during the transitional year (2001), while Tunisia continued to support the Regional Centre. A proposed programme of work for 2001 was discussed during the fifth meeting of the Coordinating Committee (SIPAM 2000c), which was held during the fifth NC meeting.

In 2000 the GFCM noted that SIPAM became an input centre for ASFA (GFCM 2000a).

## 2001

In 2001, at the sixth meeting of the Coordinating Committee (SIPAM 2001) *it was reported that the survey on pathology capabilities by TECAM would be published by CIHEAM within a few months (i.e. within 2001) and that the adaptation of the AAPQIS system to the Mediterranean would be completed within 2001 (Note: two years later, neither task had been completed). Slow progress on completing the missing fields in the regional database was noted and problems were particularly noted in Greece and Spain.* The proposed linkage with FIGIS was agreed, subject to SIPAM retaining its autonomy. *FIRI agreed to bridge the (financial) gap until the autonomous GFCM budget will be approved.*

Problems in the establishment of the SIPAM pathology database were noted by the GFCM in 2001 (GFCM 2001). Difficulties in obtaining market information were also noted at this time but the distribution of selected monthly information from Globefish in 2001 was welcomed. In this year, the GFCM also noted that SIPAM had become a partner organisation of ASFA (GFCM 2001). In addition, the development of a new web page through the support of the FAO regular programme and its linkage to FIGIS was recorded (GFCM 2001).

## 2002

The arrival of Alessandro Lovatelli to replace Mario Pedini as the Technical Secretary of the GFCM CAQ was noted in the sixth NC meeting in 2002 (SIPAM 2002b). It was reported that monthly GLOBEFISH data was being distributed to the NCs. The possibility of obtaining information by searching for data from the Mercaberba/Merca (Madrid) and Rungis (Paris) web sites was being explored by the RC. It was agreed that the pathology database would initially consist of information generated by the TECAM Diagnostic Directory and *noted that the adaptation of the AAPQIS to the Mediterranean was not finalised even though it had been initiated in 1999 and should have been completed in 2001.* It was reported that *practically no information for the bibliography database had been provided by the NCs; meanwhile information on certain MEDRAP project documents and selected TECAM and SELAM work was being entered.* Again it was recorded that *countries were either supplying no new information (France; Greece) or very incomplete data (Note: this reflects on the poor level of interest and priority being given to SIPAM by some member countries; two years later, this situation has not perceptibly changed).* NCs for some countries (Greece; Spain) were being changed (*Note: two years later, although new NCs have been chosen, no information has yet been received*). France and Spain noted that data from their Atlantic coasts should be separated from their Mediterranean production (*Note: this has still not been done and, in some cases, results in very misleading information*). Legal data remained sparse, except from Italy and it was decided to establish a link with FAO LEX; however, this implied that NCs would become one of the sources of legal information for the FAO LEX database; it did not “let them off the hook” as far as legal matters were concerned. At this year’s NC meeting it was reported that the last SIPAM CC meeting had decided to get SIPAM onto the web as a matter of urgency. It was noted that *the visibility of SIPAM was still very low (10 years after inception) with little information being disseminated beyond the “SIPAM Club”;* the move towards SIPAM on the web should change this. At this point, according to a consultant’s report, *the possibility of paid advertisements was raised for the first time* but discussion was postponed until the first draft of the SIPAM portal was completed and viewed. The expansion of FIGIS into aquaculture in September 2001 was noted and it was decided to establish a link between FIGIS and SIPAM. One of the pioneers of SIPAM, Mario Pedini, was asked (and accepted) to be an adviser to SIPAM despite his move to the Investment Centre.

During the most recent (seventh) meeting of the Coordinating Committee in 2002 it was reported that the diagnostic directory had been completed and was undergoing a final revision by CIHEAM-IAMZ and FIRI (SIPAM 2002a); however, the survey analytical reports were still under preparation and needed to be finalised. The complete report was to be put onto the SIPAM portal by September 2002 (in January 2004 this was still missing). A similar report was given about the relationship with AAPQIS. A crucially important point was made during this meeting: it was stated that *unless the SIPAM web site contained adequately up-dated and dynamic records and information it would be difficult to retain first-time users;* in addition, they would not spread the news about the existence of

the web site to others. In this report, an account of the Tunisian support to SIPAM was provided (Annex 2 Table 4).

**Annex 2, Table 4.** Tunisian support to SIPAM.

ITEM	LINE ALLOCATION (US\$)
Temporary assistance	3,000
Operating expenses	4,000
Travel	8,500
Non-expendable equipment	2,890
Expendable equipment	1,000
<b>TOTAL</b>	<b>19,390</b>

Funding for other items of expenditure was being sought (Annex 2 Table 5).

**Annex 2, Table 5.** Other budgetary requirements of SIPAM.

ITEM	BUDGET (US\$)
Temporary assistance	1,600
Sundry travel	5,700
Communications	2,660
Expendable equipment	1,000
Non-expendable equipment (3 PCs and a photocopier/scanner; later supplied by FAO)	9,000

It was stressed that *the establishment of dedicated technical and country fora would enhance the visibility of SIPAM* was stressed and it was agreed to launch the “SIPAM National Coordinators’ Forum” with Mr Hadj Ali as the Moderator; this forum would be operational by July 2002. Two technical fora, on “health” and “marketing and trade” would be opened, with FIRI identifying suitable moderators. A third technical forum on “laws and regulations” would be established once the first two were up and running. The prerogative of the Regional Coordinator to close all fora that would not generate discussion and traffic was agreed (Note: currently, no fora are active).

At the third session of the CAQ (FAO 2002a) the Regional Coordinator expressed his *concern over the limited financial support that SIPAM was receiving and the irregularity of the data furnished by some countries*. The committee suggested that the Secretariat investigate the possibility of securing financial incentives for the SIPAM National Coordinators, in order to ensure a better and regular provision of data (Note: this request appears to imply that their services are not regarded by their countries as part of their normal duties; “incentives” should not be necessary unless, as is patently the case with those NCs that are providing adequate and timely data, they are working for SIPAM in their own time because of a personal belief in the value of the network). During this meeting the French delegate noted that the provision of information by SIPAM through the internet required member countries to increase their efforts to supply the information in a timely manner (Note: however, France itself has not updated its country report since 1999). The Regional Coordinator suggested that the services of a communication expert would be beneficial (Note: since this time a P2 position has been established within FIRI, partly to service this need). It was agreed that full integration of the pathology database with AAPQIS should be finalised as soon as possible.

In 2002 the GFCM noted that *the development of a new web page needed further financial support because the RC lacked the necessary technical skills* (GFCM 2002). At that time, *all GFCM countries were also urged to provide adequate resources to National SIPAM centres and to support the attendance of their NCs in the SIPAM annual meetings* (GFCM 2002). It was reported that the SIPAM

network was in full operation, with 16 participating countries (GFCM 2002). An independent audit of SIPAM was requested at this time (GFCM 2002).

### **2003**

The development of on-line submission forms for four databases (experts, suppliers, production centres and research institutions) was agreed in the most recent (seventh) NC meeting in 2003 (SIPAM 2003) (Note: these databases undoubtedly enhance the value of the website but makes the completeness, accuracy and “topicality” of the main databases - statistics; country reports - of paramount importance. A news file was also added at this moment; however, to date - January 2004 – the only items of news posted have come through the input of the Secretariat). The need for the GFCM to be adequately informed about SIPAM in order to increase visibility and to ensure proper financial support from the GFCM for its development was essential. The GFCM decision to conduct an external evaluation was noted; FAO funds were only available for the consultant to visit Italy and Tunisia and one other country, rather than all participating countries (Note: the third country selected was Turkey and a short stop-over in Greece became feasible). Following previous “warnings”, it was noted that, in the absence of an autonomous budget, participation in future SIPAM meetings would have to be covered by participating countries; it might no longer be possible for this to be funded by the FAO Regular Programme budget (often with externally generated funds). In any event, *it was decided not to convene another NC meeting until considerable progress had been made in the SIPAM network and in SIPAM-on-the-Web* (Note: a sound decision).

In 2003 the GFCM noted that the MedFisis project will include the incorporation of SIPAM as well as other sources of data while establishing the GFCM Information system (GFCM 2003). An independent audit of SIPAM was again supported by the GFCM in 2003 (GFCM 2003), within the framework of an evaluation of the whole of the work of CAQ.

## ANNEX 2, APPENDIX 3. - Comments on the Current SIPAM Website

The following databases are currently included in the SIPAM website:

- Annual country reports
- Annual aquaculture statistics, grouped under species, techniques, and areas
- Directory of aquaculture experts
- Directory of production centres
- Directory of suppliers
- Directory of research institutions
- Laws and regulations, grouped under fisheries, wildlife and biodiversity, and environment
- Research and development programmes
- Pathology
- Bibliography

There is also provision for news, links (member countries, Mediterranean, international and private sector), a forum for discussion, and virtual and photo libraries.

The current status of the databases and other sections of the website is summarised below:

### Annual country reports:

Annex 2 Table 6 shows that *there is considerable inconsistency in the frequency and reliability of country returns*. Only three countries have provided 2002 data so far (by December 2003). *Several countries are many years out of date*, including some major Mediterranean producers.

**Annex 2, Table 6.** Frequency and reliability of the national returns to SIPAM as at December 2003.

COUNTRY	REPORTS AVAILABLE	COMMENT
Algeria	1998; 2001	intermittent; 2002 delayed
Croatia	1994; 1996-2002	1995 missing
Cyprus	1992-2001	2002 delayed
Egypt	1995-2001	2002 delayed
France	1996-1999	nothing since 1999
Greece	1995-1998	nothing since 1998; new NC appointed 2003
Italy	2002	nothing before 2002
Lebanon	2002	recent participant
Libya	1999	nothing since 1999
Malta	1994-2002	complete
Morocco	1994-2000	nothing since 2000
Portugal	1996-1999	nothing since 1999
Spain	-	currently inactive
Tunisia	1993;1996;1999; 2000; 2000	not annual
Turkey	1996-2000; 2002	2001 missing

### ANNUAL AQUACULTURE STATISTICS

*This database is frustratingly incomplete in all sub-directories, caused by incomplete, missing or late country data.* The “year of maximum production” is particularly misleading because this usually only identifies the most recent year in which data was available from the maximum number of countries. There is also missing data in some earlier years. These specific problems could be alleviated if the

letters “n.a.” (not available) were entered in the boxes where no information has been supplied. Inserting a “-” implies that there was no production in that location in that year, which is not necessarily the case.

## **EXPERT DIRECTORY**

457 experts listed. The list is (inevitably!) incomplete; for example, it does not include several names well-known within CAQ circles.

## **PRODUCTION CENTRE DIRECTORY**

2,415 centres listed; completeness unknown.

## **SUPPLIERS' DIRECTORY**

421 suppliers listed; completeness unknown. The exhibitors' lists in international aquaculture exhibitions (such as AquaNor and the World Aquaculture Society) would be useful to enhance this directory.

## **RESEARCH INSTITUTIONS DIRECTORY**

222 institutions listed; completeness unknown.

## **LAWS AND REGULATIONS**

Linked to FAO LEX database.

## **RESEARCH AND DEVELOPMENT PROGRAMMES**

258 programmes listed; completeness unknown.

## **PATHOLOGY**

*Empty database*, since decision was taken to abandon dedicated SIPAM pathology database. Link to AAPQIS proposed but not activated. Input from TECAM awaited. While diagnostic and treatment information could be obtained nationally and would be valuable, there is a (natural) resistance in the private sector to reporting actual disease outbreaks to SIPAM.

## **BIBLIOGRAPHY**

804 items listed. Database linked to ASFA, with which SIPAM has an agreement. *The information is visibly incomplete and out of date* (e.g. only 65 items in all languages of relevance to nutrition in the region between 1920 and 2002; a total of 4 items under marketing; only three items on cooperation and external relations, all in the 1980s).

## **FORUM**

A discussion on tuna farming was entered in September 2003 but there have been no takers; however, this is not surprising because few people know of the existence of the SIPAM website to date. *Discussion groups need dynamic leadership and careful management.*



## **MARKETING INFORMATION**

This does not exist at present, although the RC does send monthly Globefish data to the NCs. A closer link with Globefish would be advantageous, so that this information, preferably more frequently supplied than monthly, would be available directly on the SIPAM web.

## **NEWS ITEMS**

This section is under development. *So far, only about 80 items have been entered since June 2003.* Inputting draft information is easy; however, *until now (January 2004), the only news items being posted have originated from GFCM Secretariat staff.* News should originate from the NCs and be checked by the RC before being posted. Till now information has been checked by FIRI staff before entry onto the web page.

## **LINKS**

*This section is clearly in the early stages of development.* International links comprise only ASFA, EAS, FIGIS and the EU Fisheries Directorate. The Mediterranean links are mainly with GFCM activities. Country links are incomplete, but there is sufficient information to indicate the potential value of this facility. *As yet, linkages to the private sector are unavailable.* Linkage to the other GFCM CAQ networks (SELAM, TECAM) is missing. A linkage with the FEAP/AquaMedia website would also be useful.

## **VIRTUAL AND PHOTO LIBRARIES**

So far, only 14 publications have been cleared for the virtual library. It is sure that more will be submitted for approval once this facility is publicised. To date, less than 50 photos exist in the photo library but *this could be a most useful facility when fully developed.*

## **WEBSITE CLARITY AND ACCESSIBILITY**

*In general, the website is easy to navigate.* One small but irritating problem, however, is that if you click the “down” arrow on the right-hand side of the page you are immediately taken to the end of the last entry page, instead of (as normal) being able to move sequentially downwards through every page. Another is the lack of standardisation in the presentation of numerical information. Numerical data should ideally be presented with commas (e.g. 201,235 mt), or perhaps in the normal FAO format (201 235 mt), but definitely not with periods (201.235 mt).

Not all potential users of SIPAM information have access to the internet, although this situation is rapidly improving. However, *while many users do not have broadband access the insertion of graphic images into the website, though visually attractive, may cause delays in downloading so severe as to inhibit access to the databanks.*

## ANNEX 2, APPENDIX 4. - Statistical Difficulties in SIPAM

*Differences between FIDI and SIPAM statistical information on aquaculture production have been detected.* According to a study conducted by Alan Lowther in November 2003 on the 14 countries with active National Coordinating Offices showed that in only one case (Italy) was the same person responsible for providing statistical information both for SIPAM and the official FAO aquaculture statistics collected by FIDI (FishStat Plus) (Annex 2 Table 7).

**Annex 2, Table 7.** Information sources for FAQ\* and SAQ\*\* aquaculture production data in SIPAM countries.

FAQ returned by same person as SAQ	FAQ returned by same office as SAQ but by a different person	2 FAQs sent out, one of which is returned by the same office as SAQ	2 FAQs sent out, neither of which is returned by the same office as the SAQ	FAQ returned by different person in a different office of the same Ministry as the SAQ	FAQ and SAQ returned by totally different offices (Ministries)
Italy	Albania Cyprus Tunisia***	Libya Malta	Morocco	Lebanon	Algeria Croatia Egypt France Romania Turkey

\* FAQ = FIDI questionnaire.

\*\* SAQ = SIPAM questionnaire.

\*\*\* However, in the case of Tunisia, the FIDI contact is actually responsible for one of the SIPAM national location centres.

This situation obviously needs resolution; *ideally the SIPAM NC offices should be the national entities nominated by their respective governments to provide data to FIDI as well.* More detailed (and, in some cases, more up to date) information is published on the SIPAM website than in FishStat Plus (but, as noted elsewhere, some countries are not supplying their returns on time).

## **ANNEX 2, APPENDIX 5. - Draft Terms of Reference for SIPAM Leaders**

### **SIPAM Regional Coordinator**

Recognising that for full development, SIPAM requires journalistic as well as coordination skills, the duties of the SIPAM Regional Coordinator, who shall be responsible to the CAQ, shall include (but not be confined to):

1. Coordinating the work of the whole SIPAM information network.
2. Managing the work of the SIPAM Regional Centre.
3. Promoting SIPAM to every potential user through every form of media.
4. Organising and chairing biennial meetings of the National Coordinators.
5. Preparing annual activity and progress reports for the CAQ.
6. Drafting annual work programmes and budgets for CAQ/GFCM approval.
7. Soliciting external funding for the work of SIPAM, specifically from the private sector.
8. With the assistance of the data programmer, collating information in all databases on a regional basis, preparing analyses, and disseminating the results through the SIPAM website and other publications means.
9. With the assistance of the data programmer, maintaining and improving SIPAM software.
10. Initiating and moderating discussion fora on topics of importance to Mediterranean aquaculture, and synthesising and publishing the results.
11. Under the guidance of the CAQ, initiating new databases and services<sup>32</sup>.
12. Soliciting, editing and publishing up to date news items on the SIPAM website and in other publications.
13. Preparing articles on the activities of SIPAM and the information that it generates.
14. Assisting National Coordinators in preparing annual SIPAM work programmes that provides clear staff time allotment for all current SIPAM activities, for approval by their governments.
15. Assisting National Coordinators in preparing annual draft budgets for all national SIPAM activities, including essential national and international travel, for submission for national government funding.
16. Conduct continuous internal evaluation of the efficacy of information dispersal by SIPAM on a regional and global level<sup>33</sup> in order to improve future services.

### **SIPAM National Coordinators**

Recognising each government's commitment to SIPAM within the aegis of the GFCM, and the full support of his/her supervisors, the duties of SIPAM National Coordinator<sup>34</sup> shall include (but not be confined to):

1. Establishing and leading a central SIPAM national office for the purpose of collecting national data, information and news on all aspects of aquaculture.
2. Establishing and coordinating a series of SIPAM sub-offices at suitable locations<sup>35</sup> to collect appropriate information for transfer to the SIPAM national office.

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<sup>32</sup> Such as (for example) maps of existing and potential aquaculture production sites, the application of APS (aquaculture project simulator) software, and farm directories.

<sup>33</sup> For example by measuring number of website "hits", time per visit, type and location of information user, frequency of return, etc.

<sup>34</sup> It is assumed that these posts will be part-time (50%).

<sup>35</sup> For example, in local government offices, in universities and other institutes dealing with aquaculture, within national aquaculture producers associations, etc.

3. In conjunction with the SIPAM Regional Centre, preparing annual SIPAM work programmes that provides clear staff time allotment for all current SIPAM activities, for approval by his/her government.
4. Preparing annual draft budgets for all national SIPAM activities, including essential national and international travel, for submission for government funding.
5. Collecting, verifying/validating, collating and analysing the information from the SIPAM sub-offices and transferring it, on a monthly basis, to the SIPAM Regional Centre.
6. Generating, without prompting from the SIPAM Regional Centre, original news items about the current activities and future prospects of the national aquaculture sector.
7. With the approval of his/her supervisor, attending such regional meetings as shall be agreed with the Regional Centre.
8. Assisting the Regional Centre in identifying and soliciting potential non-governmental and private sources of funding to support the SIPAM network.
9. Fully publicising the existence and value of the information contained in the SIPAM web site to the private sector and within his/her government, as well as in relevant institutions such as universities and provide guidance in the use of the SIPAM website.
10. On a continuing basis, suggesting ways in which SIPAM can be improved.
11. Conduct continuous internal evaluation of the efficacy of information dispersal by SIPAM on a national level<sup>36</sup> in order to improve future services.
12. Assisting the promotion and success of SIPAM in any other way as shall be requested, from time to time, by the SIPAM Regional Coordinator.

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<sup>36</sup> For example by measuring number of website “hits”, time per visit, type and location of information user, frequency of return, etc.

## ANNEX 2, APPENDIX 6. - Draft Operational Budget for SIPAM

The following indicative regional budget is suggested, in order for SIPAM to function effectively (Annex 2 Table 8). It assumes that:

- The National Coordination Offices and National Networks, including national and international travel<sup>37</sup> are fully funded by the government of each participating country.
- The Regional Office is relocated within the GFCM Secretariat (i.e. within FAO, Rome).
- Office facilities and computer hardware are provided by FAO at no cost to SIPAM.

**Annex 2, Table 8.** Indicative regional budget for SIPAM.

<b>REGIONAL SIPAM COORDINATION</b>	<b>ESTIMATED ANNUAL COST (US\$)</b>
Regional Coordinator (P3-V) <sup>1</sup>	102,000
Data Manager (P2-III) <sup>2**</sup>	80,000
Secretary/Typist (G4)	50,000
Travel <sup>3</sup>	15,000
Website development and maintenance <sup>5</sup>	20,000
Provision of training for national staff	15,000
Printing	5,000
Miscellaneous	10,000
<b>TOTAL ANNUAL BUDGET</b>	<b>US\$ 297,000</b>

<sup>1</sup> See Annex 2 Appendix 5.

<sup>2</sup> Statistical, analytical and programming work.

<sup>3</sup> Cost of regional coordination travel as well as attendance at SIPAM annual meetings (50%, as they are to be biennial) and CAQ meetings.

<sup>4</sup> Based on US\$ 5,000 per year to 18 National Coordinators.

<sup>5</sup> Could be less after the first year; perhaps US\$ 5,000 for maintenance.

<sup>37</sup> Estimated cost of attendance at biennial SIPAM annual meetings: US\$ 1,500 per participant.

### **ANNEX 3. - THE GFCM COMMITTEE ON AQUACULTURE<sup>38</sup>: TERMS OF REFERENCE**

The proposed Terms of Reference for the Committee on Aquaculture shall be to:

- monitor development and trends of aquacultural practices in the Mediterranean region;
- oversee and guide the work of the four networks created as a result of the activities of MEDRAP II and in particular by monitoring the progress, evaluating the proposed programmes of the various networks, and directing the work of the SIPAM network through the FAO Secretariat;
- seek additional support to complement the contribution of the institutions which support the established networks, namely CIHEAM, MAP-PAP/RAC and FAO, and to potentiate the work of the four networks;
- carry out other duties related to aquaculture promotion and development that may be referred to it by the GFCM.

The regular activities of the GFCM Secretariat related to the function of the Committee on Aquaculture will be:

- the organization of the meetings of the Aquaculture Committee;
- the participation of a member of the Secretariat in the organizational meetings of the EAM, TECAM and SELAM networks;
- the overall coordination, development and supervision of the SIPAM network and the organization of regular meetings of this network;
- the publication of reports of the Aquaculture Committee meetings and of the SIPAM network major meetings in the GFCM/FAO series.

In addition to the regular activities of the proposed Aquaculture Committee, indicated above, there could be additional activities which would require extra-budgetary resources which could take the form of specific projects, or a direct financial coverage of the activities by the countries hosting or participating in them, and which would be discussed by the Aquaculture Committee and the GFCM Executive Committee on a case by case basis. Examples of these extra activities could be:

- special reports on aspects of aquaculture development;
- surveys linked to the development of aquaculture and to the generation of information for the SIPAM network;
- training courses/seminars/workshops not covered in the programmes of the four networks;
- technical consultations on an *ad hoc* basis;
- organization of study tours.

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<sup>38</sup> FAO (1996).

## ANNEX 4. - ATTENTION TO AQUACULTURE IN GFCM FORMAL SESSIONS

Annex 4 Table 1 summarizes the references to aquaculture in the reports of the GFCM from 1997 to date.

**Annex 4, Table 1.** Recorded references to aquaculture activities in GFCM sessions.

GFCM SESSION	Direct references to aquaculture*		Ref
	PARA #	PARAGRAPH NUMBER AND MAIN TOPIC AND/OR DECISION	
22	2 (49) 4%	9. The 4 aquaculture networks should be consolidated and strengthened 30. The 2 <sup>nd</sup> session of CAQ needs external funding	GFCM (1997)
23	4 (72) 6%	30. TECAM, SELAM & SIPAM reports introduced 31. Expert Consultation on Application of CCRF Article 9 to be funded by Italy 32. Role of aquaculture in reconverting fishers noted 49. CIHEAM budget limitations noted	GFCM (1998)
**	2 (27) 7%	14. Inclusion of network activities (including Article 9 follow-up) in budget 20. Clarification of cost of network activities	FAO (1999)
24	9 (72) 13%	20. Expert Consultation on Application of CCRF Article 9 to be funded by Italy 21. SELAM & TECAM (& EAM) network activities presented 22. SIPAM activities presented 23. Details of some TECAM/SELAM activities reported 49-51. Network activities in relation to budget discussed 53. Recommendation*** to restrict CAQ sessions to two languages 61. Request that a significant proportion of the autonomous budget be allocated to aquaculture	GFCM (1999)
25	18 (87) 21%	17. Reported that Expert Consultation on Application of CCRF Article 9 had adopted Plan of Action 18. 2 <sup>nd</sup> session of CAQ reported 19. Network activities reviewed. GFCM endorsed CAQ recommendation that its meetings be held in 4 languages 56. CAQ recommendations presented 57. Systems approach and fisheries-aquaculture interactions suggested 58. Regional considerations to be given higher priority than national 59. Similar to paragraph 57 61. Continuing Tunisian support to SIPAM pledged 62. More resources for SIPAM and greater collaboration with other regional bodies recommended 63. TECAM and SELAM recommended to orient activities more towards systemic analyses 64. Complementarity of capture fisheries and aquaculture noted 65. EC expressed support for CAQ recommendations 66. Japan expressed support for CAQ recommendations 67. GFCM endorsed CAQ recommendations 78. CAQ programme of work accepted 79. Italy and France offered to finance a meeting on sustainability indicators as part of Action Plan 80. Plans for ADRIAMED Expert Consultation on aquaculture/capture fisheries interactions announced but no offers made to complement funding of other activities proposed by CAQ 82. Transfer of CAQ Technical Secretary to other FAO duties reported; thanked and asked to remain involved until new staff appointed	GFCM (2000)
26	13 (71) 18%	13-15. Network activities reported 16. Secretariat thanked by Morocco which offered to support next SIPAM NC meeting 17. Specific SIPAM activities reported 22. Good work by SIPAM with limited budget recognised 42. Relationship of tuna resources to tuna penning/farming noted; agreed to request joint GFCM/ICCAT WG to address concerns about sustainability 55. General CAQ programme and budget 56. Date of next CAQ meeting noted 57. SIPAM programme introduced 58. TECAM and SELAM programme introduced 59. SIPAM reported to need more funding; Japan requested next CAQ session to address the bluefin tuna farming situation 60. Italy and France reiterated willingness to fund workshop on sustainability indicators (budget US\$ 15,000) but no offers made to fund other activities of SIPAM (US\$ 15-20,000) or TECAM/SELAM (US\$ 65-70,000)	GFCM (2001)

GFCM SESSION	Direct references to aquaculture*		Ref
	PARA #	PARAGRAPH NUMBER AND MAIN TOPIC AND/OR DECISION	
27	23 (105) 22%	<p>6. Need for more progress on Action Plan stressed</p> <p>13. Actions of CAQ on GFCM recommendations noted</p> <p>28. Endorsed suggestion to set up <i>Ad Hoc</i> WG of SAC, CAQ and ICCAT-SCRS to develop technical guidelines on sustainable tuna farming practices</p> <p>40. CAQ chair reported on network activities</p> <p>41-43. SIPAM reported to be operating in 16 countries now; participation by 3 more being sought; details of website reported</p> <p>44. TECAM and SELAM activities noted</p> <p>45-46. Plan of Action mentioned and Secretariat requested to review and focus a regional aquaculture project for submission to potential donors, as recommended at the 3<sup>rd</sup> CAQ session</p> <p>47. FAO study on finfish fattening said to be available in 2003 (in fact, not issued until 2004)</p> <p>79. 3<sup>rd</sup> CAQ session recommendations reviewed</p> <p>80. Commission requested delineation between aquaculture output in the Mediterranean versus output by Mediterranean countries in the Atlantic and Red Seas; agreed that trends on volume and value of selected species be published and analysed regularly</p> <p>81. Tuna WG to liaise with EC-funded DOTT project</p> <p>82. Endorsed CAQ invitation to FAO to continue supporting its activities in the transitional period; also agreed that the share of the autonomous budget devoted to aquaculture should be enhanced</p> <p>83. Recommended that SIPAM services be extended to all GFCM members</p> <p>84. Encouraged close participation by national and regional institutions in work of TECAM/SELAM, especially in the for environmental field</p> <p>94. Endorsed activities proposed by CAQ</p> <p>95. Welcomed offer of Egypt to host 4<sup>th</sup> CAQ session in 2004</p> <p>96. Italy &amp; France confirmed funding for two workshops on biosustainability indicators for aquaculture; ADRIAMED reported that Consultation on fisheries-aquaculture interactions would be organized early in 2003</p> <p>97. Regular SIPAM NC meetings supported but member countries urged to fund their own participation</p> <p>98. CIHEAM support for TECAM/SELAM acknowledged; planned activities could be located elsewhere than Zaragoza if other regional/national organizations in members countries would support them</p> <p>99. CAQ meeting programme approved</p>	GFCM (2002)
28	10 (84) 12%	<p>13. Noted action taken by Secretariat and CAQ on its recommendations</p> <p>18. Informed about progress by the <i>Ad Hoc</i> tuna WG</p> <p>42. Network activities reported by GFCM Secretary in absence of CAQ chairperson; regional aquaculture project document had been revised and would be considered at the 4<sup>th</sup> CAQ session; Commission requested an external evaluation of CAQ, in addition to SIPAM</p> <p>43. Several delegations stressed the importance of aquaculture in the Mediterranean and reiterated need to increase support for CAQ activities in relation to forthcoming autonomous budget</p> <p>44. Egypt confirmed willingness to host 4<sup>th</sup> CAQ session</p> <p>70. Reference made to rescheduling some CAQ activities and considering new ones</p> <p>74. Commission welcomed offer noted in Para 44 and the offer from Italy to host the 3<sup>rd</sup> joint GFCM/ICCAT <i>Ad Hoc</i> WG on sustainable tuna farming</p> <p>77. Agreed that the external evaluation of SIPAM should be merged into overall appraisal of CAQ achievements</p> <p>78. Informed that SIPAM needed more support to facilitate its activities</p> <p>79. Meetings (including those of CAQ) agreed</p>	GFCM (2003)

\* Figures in brackets indicate the total number of paragraphs in each report.

\*\* Extraordinary session to discuss scale of contributions and autonomous budget.

\*\*\* No decision possible (no quorum).



**ANNEX 5. - TECAM NETWORK 1995-2003: SUMMARISED ACTIVITIES**

Type*	TECAM topic**	Start date (# of days)	Location	Number of participants	Countries represented
S	Disease control	3/95 (5)	Malta	19	10
W	Finfish species diversification (PI)	6/95 (4)	Cyprus	27	8
AC	Food and feeding	5/96 (12)	Egypt	27	12
W	Fish nutrition (PI)	6/96 (3)	Spain	27	11
SP	Fish health management	1/97 (12)	Italy	19	11
S	Genetics and breeding (PI)	4/97 (3)	Spain	41	12
AC	Off-shore mariculture (PI)	10/97 (5)	Spain	39	12
AC	New hatchery technologies	2/98 (13)	Spain	27	12
W	Aquafeed manufacturing (PI)	3/98 (3)	Spain	17	10
S	Finfish species diversification (PI)	5/99 (4)	Spain	83	17
S	Environmental impact assessment (PI)	1/00 (5)	Spain	51	14
AC	Fish breeding	4/01 (5)	Spain	32	11
AC	Off-shore mariculture†	5/01(6)	Spain	28	13
AC	Management of fish resources in inland water bodies	11/01	Spain	25	8
S	Mollusc production (PIP)	5/02 (5)	Spain	32	15
W	Fish nutrition (PIP)	6/02	Greece	70	11
AC	Broodstock management	2/03	Spain	35	15
S	Drugs and vaccines (PIP)	5/03	Turkey	90	17
AC	Recirculation systems	1/04	France	42	12
			<b>TOTAL</b>	<b>731</b>	<b>Av = 12</b>

† = Repeated course.

\* **AC** = Advanced course; **S** = Seminar; **SP** = Short practical course; **W** = Workshop.

\*\* **PI** = Publication issued in *Options Méditerranéennes*; **PIP** = Publication in preparation.

**ANNEX 6. - SELAM NETWORK 1995-2003: SUMMARISED ACTIVITIES**

<b>Type*</b>	<b>SELAM topic**</b>	<b>Date (# of days)</b>	<b>Location</b>	<b>Number of participants</b>	<b>Countries represented</b>
S	Production economics (PI)	5/95 (3)	France	49	9
S	Marketing (PI)	10/95 (3)	Greece	87	11
AC	Enterprise planning and management	11/96 (5)	Spain	23	8
W	Planning policies (PI)	3/98 (3)	Morocco	16	9
W	Quality assessment (PI)	11/99 (3)	Spain	70	18
S	Marketing of new species (PI)	6/01 (2)	Spain	50	13
<b>TOTAL</b>				<b>295</b>	<b>Av = 11</b>

\* **AC** = Advanced course; **S** = Seminar; **SP** = Short practical course; **W** = Workshop.

\*\* **PI** = Publication issued in *Options Méditerranéennes*.

**ANNEX 7. - OTHER TECAM AND SELAM RELATED ACTIVITIES 1995-2003**

<b>Type*</b>	<b>Topic**</b>	<b>Date</b>	<b>Location</b>	<b>Number of participants</b>	<b>Countries represented</b>
HD	International Master on Aquaculture (16 months)	1997	Spain	19	9
TS	Finfish species diversification (PI)	1997-1998	Regional	n.a.	n.a.
TS	Nutrition experts, groups and projects	1998-2000	Regional	n.a.	n.a.
TS	Hatchery genetics and breeding	1998-1999	Regional	n.a.	n.a.
HD	International Master on Aquaculture (16 months)	2000	Spain	17	8
TS	Disease diagnostic laboratories (PIP)	2001-2002	Regional	n.a.	n.a.
SY	Domestication of bluefin tuna (PI)	2002 (6)	Spain	178	23
HD	International Master on Aquaculture (16 months)	2002-2003	Spain	21	8

\* **H** = Higher degree; **SY** = Symposium; **TS** = Technical survey.

\*\* **PI** = Publication issued in *Options Méditerranéennes*; **PIP** = Publication in preparation.

## ANNEX 8. - BIBLIOGRAPHY<sup>39</sup>

- Coppola, S.R. 1992. SIPAM: an information system for the promotion of aquaculture in the Mediterranean region. MEDRAP II/SIPAM/01. Rome, Italy, FAO. 33p.
- FAO. 1996. Report of the 1<sup>st</sup> Session of the Committee on Aquaculture, Rome, Italy, 9-12 September 1996. FAO Fisheries Report No. 546. Rome, Italy, FAO, 40p.
- FAO. 1997. Review of the state of world aquaculture. FAO Fisheries Circular. No. 886, Rev. 1. Rome, Italy, FAO. 163p.
- FAO. 1999. Report of the Extraordinary Session of the GFCM, Alicante, Spain 1999. FAO Fisheries Report No. 607. Rome, Italy, FAO, 32p.
- FAO. 2000. Report of the 2<sup>nd</sup> Session of the Committee on Aquaculture, Rome, Italy, 13-16 June 2000. FAO Fisheries Report No. 626. Rome, Italy, FAO, 27p.
- FAO. 2002a. Report of the 3<sup>rd</sup> Session of the Committee on Aquaculture, Zaragoza, Spain, 25-27 September 2002. FAO Fisheries Report No. 689. Rome, Italy, FAO, 29p.
- FAO. 2002b. The state of world fisheries and aquaculture, 2002. Rome, Italy, FAO, 150p.
- FAO. 2003. Report of the *ad hoc* meeting of experts on the independent appraisal of the achievements of the Scientific Advisory Committee (1999-2003), Rome, 27-28 August 2003. FAO Fisheries Report No. 717. Rome, Italy, FAO. 50p.
- GFCM. 1996a. Decisions and follow-up on the 21<sup>st</sup> Session of the General Fisheries Council for the Mediterranean on the establishment of the Committee on Aquaculture. GFCM:CAQ/96/2. Rome, Italy, FAO.
- GFCM. 1996b. Progress report on activities carried out under the TECAM and SELAM networks. 1<sup>st</sup> Session of the Committee on Aquaculture, Rome, Italy, 9-12 September 1996. GFCM:CAQ/96/4. Rome, Italy, FAO.
- GFCM. 1997. General Fisheries Commission for the Mediterranean. Report of the 22<sup>nd</sup> Session, Rome, Italy, 13-16 October 1997. GFCM Report No. 22. Rome, Italy, FAO. 52p.
- GFCM. 1998. General Fisheries Commission for the Mediterranean. Report of the 23<sup>rd</sup> Session, Rome, Italy, 7-10 July 1998. GFCM Report No. 23. Rome, Italy, FAO. 25p.
- GFCM. 1999. General Fisheries Commission for the Mediterranean. Report of the 24<sup>th</sup> Session, Alicante, Spain, 12-15 July 1999. GFCM Report No. 24. Rome, Italy, FAO. 27p.
- GFCM. 2000a. General Fisheries Commission for the Mediterranean. Report of the 25<sup>th</sup> Session, Sliema, Malta, 12-15 September 2000. GFCM Report No. 25. Rome, Italy, FAO. 27p.
- GFCM. 2000b. Autonomous budget of GFCM and its implications on the activities of the GFCM Committee on Aquaculture. GFCM:CAQ/2000/5. Rome, Italy, FAO. 3p.
- GFCM. 2001. General Fisheries Commission for the Mediterranean. Report of the 26<sup>th</sup> Session, Lacco Ameno, Ischia, Italy, 10-13 September 2001. GFCM Report No. 26. Rome, Italy, FAO. 27p.
- GFCM. 2002. General Fisheries Commission for the Mediterranean. Report of the 27<sup>th</sup> Session, Rome, Italy, 19-22 November 2002. GFCM Report No. 27. Rome, Italy, FAO. 36p.
- GFCM. 2003. General Fisheries Commission for the Mediterranean. Report of the 28<sup>th</sup> Session, Tangiers, Morocco, 14-17 October 2003. GFCM Report No. 28. Rome, Italy, FAO. [Draft]
- MAP-PAP/RAC. 1995a. Report of the Coordinating Committee of the Network on Environment and Aquaculture in the Mediterranean (EAM). Report No. PAP-10/EAM/1955/EM.2, Split, Yugoslavia, Priority Actions Programme Regional Activity Centre, 8p.
- MAP-PAP/RAC. 1995b. Report on EAM activities (I. Katavic). Split, Yugoslavia, Priority Actions Programme Regional Activity Centre, 5p.
- New, M.B. 1991. Turn of the millennium aquaculture: navigating troubled waters or riding crest of the wave? *World Aquaculture*, 22(3):28-49.
- Pedini, M. 2000. Bridging the gap: can aquaculture meet the additional demand for fishery products? *FAO Aquaculture Newsletter (FAN)* 24:4-9.
- Pedini, M., Coppola, S.R. and Moretti. 1995. The aquaculture planning simulator (APS). *Options Méditerranéennes, Series Cahiers*, 14:195-211. [available online at [www.ciheam.org/util/search/detail\\_numero.php?mot=722&langue=fr](http://www.ciheam.org/util/search/detail_numero.php?mot=722&langue=fr)]
- Pesce, M. & Taconet, M. 2002. Analysis of SIPAM. Rome, Italy, FIGIS, FAO. 16p.
- SIPAM. 1996. Report of the first meeting of the Coordinating Committee of SIPAM, Tunis, Tunisia, 11-12 January 1996. SIPAM/TUN96T. Tunis, Tunisia, SIPAM.
- SIPAM. 1997a. (Report of the) first meeting of the National Coordinators of SIPAM, Bari, Italy, 5-6 March 1997. SIPAM/ITA97B. Tunis, Tunisia, SIPAM.

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<sup>39</sup> This includes documents that have been consulted during the CAQ and SIPAM evaluations but are not necessarily referred to in the text of the report.

- SIPAM. 1997b. (Report of the) second meeting of SIPAM/ICRAM for 1997, Salerno, Italy, 29 October – 2 November 1997. SIPAM/ITA97S. Tunis, Tunisia, SIPAM.
- SIPAM. 1997c. Second SIPAM Steering Committee, Salerno, Italy, October 1997. [office memorandum]
- SIPAM. 1998a. Report of the third meeting of the working group of SIPAM National Coordinators, Olhao, Portugal, 17-19 September 1998. SIPAM/PRT98O. Tunis, Tunisia, SIPAM.
- SIPAM. 1998b. Third SIPAM Steering Committee, Olhao, Portugal, September 1998. [office memorandum]
- SIPAM. 1999. (Report of the) fourth SIPAM annual meeting, Malta, 24-28 November 1999. SIPAM/MLT99M. Tunis, Tunisia, SIPAM.
- SIPAM. 2000a. Report of the fourth meeting of the Coordinating Committee of SIPAM, Tunis, Tunisia, 28-29 February 2000. SIPAM/TUN00T. Tunis, Tunisia, SIPAM.
- SIPAM. 2000b. (Report of the) fifth SIPAM annual meeting, 8-12 November 2000, Istanbul, Turkey. SIPAM/TUR00I. Tunis, Tunisia, SIPAM.
- SIPAM. 2000c. Report of the fifth meeting of the Coordinating Committee of SIPAM, Istanbul, Turkey, 11 November 2000. SIPAM/TUR01S. Tunis, Tunisia, SIPAM.
- SIPAM. 2001. Report of the sixth meeting of the Coordinating Committee of SIPAM, Rome, Italy, 18-19 May 2001. SIPAM/ITA01R. Tunis, Tunisia, SIPAM.
- SIPAM. 2002a. Report of the seventh meeting of the Coordinating Committee of SIPAM, Rome, Italy, 17-18 June 2002. SIPAM/IT02R. Tunis, Tunisia, SIPAM.
- SIPAM. 2002b. (Report of the) sixth SIPAM annual meeting, 10-12 January 2002, Rome, Italy. SIPAM/ITA02R, Tunis, Tunisia, SIPAM.
- SIPAM. 2003. (Report of the) seventh annual meeting, 18-21 September 2003, Casablanca, Morocco. SIPAM/MAR03C. Tunis, Tunisia, SIPAM.
- TECAM/SELAM. 2002. Progress report on activities carried out within the TECAM and SELAM networks for the period 1995 – 2002. Third Meeting of the TECAM and SELAM Networks Coordination Committee, 28 February – 1 March 2002, Zaragoza, Spain, Mediterranean Agronomic Institute of Zaragoza (IAMZ), 15p.