# Scientific Report for Output Step

## *For deliverable D7.4*

**SSA16 – Thermaikos gulf**

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5th of October 2010

# General information

The presentation plan designed for the Output Step of SSA 16 – Thermaikos gulf is divided into four major activities:

1. The preliminary presentation to a group of students treated as a "peer" group, serving both education and preparation purposes (see § wt 6.5).

2. The *1st Common Stakeholder Meeting for the sustainable management of the mussel farming area of Chalastra*, held in the 28th of April 2010 in the presentation hall of City hotel in Thessaloniki, organised by the SPICOSA SSA16 team (see § wt 6.7).

3. The *2nd Common Stakeholder Meeting for the sustainable management of the mussel farming area of Chalastra*, held in the 10th of June 2010 in the presentation hall of the municipality of Chalastra co-organised by the SPICOSA SSA 16 team, the Municipality of Chalastra and the Authority for the Protection and Management of Axios – Loudias – Aliakmonas Estuaries (see § wt 6.7).

4. The *1st meeting of the Chalastra's stakeholder's communication and collaboration group*, hosted in the meeting hall of the Department of Hydraulics and Environmental Engineering, School of Civil Engineering, Aristotle University of Thessaloniki, co-organised by the Authority for the Protection and Management of Axios – Loudias – Aliakmonas Estuaries and the SPICOSA SSA 16 team (see § wt 6.7).

# WT 6.1 Prepare Presentation

Scenarios selection

During the Appraisal Step (see document "Thermaikos-AS_DocRpt-7.4.16") two basic scenarios were discussed among the team and the core group of stakeholders, the one linked with the influence of *different external agricultural*

*inputs* and the other *conducting an investigation between the present cultivation environment - taking under account environmental, economical and social parameters – and a hypothetical one where the institutional management status was altered, affecting all of those parameters*.

During the preparations of the Output step the team realized that although the aforementioned scenarios structure is the optimum in order to gain maximum scientific knowledge, it is rather difficult to use it for presentational reasons, especially to stakeholders, as a variety of different altering parameters have to be presented, creating a need to keep track of the systemic changes that these alterations cause at all times. This procedure can lead to confusion even when presented by the most gifted presenter. For that reason the team decided to "break down" the scenarios in smaller ones, trying to keep altering variables low in number and relative in sense and thus to highlight better the influence in the system, but also to make it easier for us to monitor the stakeholders response to each scenario. In Table 1 the chosen scenarios are demonstrated.

**Table 1: Chosen scenarios for the presentation**

| |
|---|
| **1. Mussel farm unit level management**<br>How and how much is the productivity of an individual long-line mussel farm unit affected from the layout and the characteristics of the farm? |
| **2. Mussel farm area level management**<br>How and how much is the productivity of the whole long-line mussel farming area is affected from the characteristics of the units? |
| **3. Legal framework and social prosperity**<br>In which way is the economical robustness and retributive benefits of the local community going to be affected from the maintenance and from the improvement of the present legal framework? |
| **4. Environmental constraints and mussel farm unit economy**<br>How much are the costs of a unit being affected from the increase of the days where environmental constraints are imposed in the area (days of HAB's occurrence)? |

## WT 6.1a. Important preparation tasks

Methods, best practices & procedures

When planning the Output step activities, the first priority was to identify the people that should be invited and the extent in which we should go with these meetings. Some of the most important questions that came up are:

- Who are the stakeholders that the team should invite in these meetings? Have there been communication with all of them in the past? What was the feedback from their private interviews?
- Should there be a "peer" group? Who are the people that should participate in that if so?
- Is the first meeting going to be open for the local community? Will this serve any communication purposes or is it going to create problems in the deliberations?
- Where is the right place for the organization of the first meeting? What kind of material we need to prepare except the main presentation?

Initially and using the work done during the Design Step of the SAF implementation the team listed the authorities and bodies that were required to be present to the procedures. In the majority of the cases there was already a contact person and previous discussions about the organization of an event near the end of the project, but there were also some authorities as the Ministry for Environment and Climate Change (central governance in Athens) that during DS were not interviewed but their participation to the meetings was necessary.

It was decided that the first meeting - forum should be addressed only to the most crucial representatives of the implicated stakeholder groups. These people are approximately 20-25 persons, heads of implicated public authorities, representatives of the mussel farmers associations and others holding key positions (see Table 2), that are more familiar with meetings, most of them know each other and at the end of the day, they are the ones advising, leading and taking decisions. Most of them were the ones interviewed during the Design and Formulation Step

and some of them were the core group that was kept informed about the evolution of the project from the beginning until now. The team decided not to use stakeholders from this group as "peer" audience as there were considerations if this would make them loose interest during the formal meeting and also if it would cause misunderstandings among them ("Why was this person invited to the former event and I wasn't?", etc). For more information about the alternative solution the team used for the "peer" group please see § WT 6.5.1.

**Table 2: Participant list of the 1st Common Stakeholder meeting**

| **Attribute** | **Number of participants** |
|---|---|
| Representative of the 4 Mussel farming associations of Chalastra | 4 (1 from every association) |
| Representative from the Authority for the Management of the Protection Area of Axios – Loudias – Aliakmonas estuaries | 4 (president and 3 other employees) |
| Representative of the Municipality of Chalastra | 1 (the mayor) |
| Representative of the Region of Central Macedonia - Directorate of Environment and Land Planning | 2 |
| Representative of the Organization for the Protection and Management of Thermaikos Gulf | 2 (former and present head of office) |
| Representative of the Ministry of Energy and Climate Change – Directorate of Land Planning | 1 |
| Representative of the Corporation of Water Supply and Drainage | 0 |
| Representative of the Organisation of Master Planning and Environmental Protection of Thessaloniki | 1 |
| Representative of the Prefecture of Thessaloniki – Directorate of Fisheries – Department of Ostracea | 1 (head of office) |
| Representative of the Prefecture of Thessaloniki – Directorate of Veterinarian - Department of Ostracea | 0 |
| Representative of the Prefecture of Thessaloniki – Directorate of Environment Protection | 1 |
| Representative of the Prefecture of Thessaloniki – Directorate of Management Planning | 1 (head of office) |
| Representative of the Prefecture of Thessaloniki – Directorate of Development | 0 |
| Representative of the private company GREEK PETRELEUM | 1 |
| Representative of the Biological department of AUTH, responsible for the water and mussels sampling in Chalastra. | 1 |
| Representative of the Alexandrian Technological Institution – Department of Fisheries and Aquaculture | 1 |
| Representative of the private consulting company responsible for the land planning study of the project "Area of Organised Development of Aquaculture" | 2 |
| **Total participants** | **23** |

It was also decided that it was better to give to the 1st Common Stakeholder Meeting an air of formality in order to draw as much attention as possible. The place chosen for the meeting was a central hotel of Thessaloniki. Three weeks prior to the meeting the first contact was made with the participants either by phone or in most cases and where it was possible by face to face information. An invitation, addressed personally to the head of the authority or representative invited was delivered, accompanied with a leaflet in Greek, designed in the logic of the SPICOSA leaflet, giving general information for the project in the outside and specific information about the work done in SSA 16 Thermaikos gulf in the inside (figures 1 & 2). In the invitation the participants were asked to inform the organization team if they are willing to participate or not by making a phone call to the organization committee. During the last three days before the meeting a reminding phone call was made to all the people invited, explaining the importance of their participation for the successful outcome of the meeting and informing who else have confirmed participation.

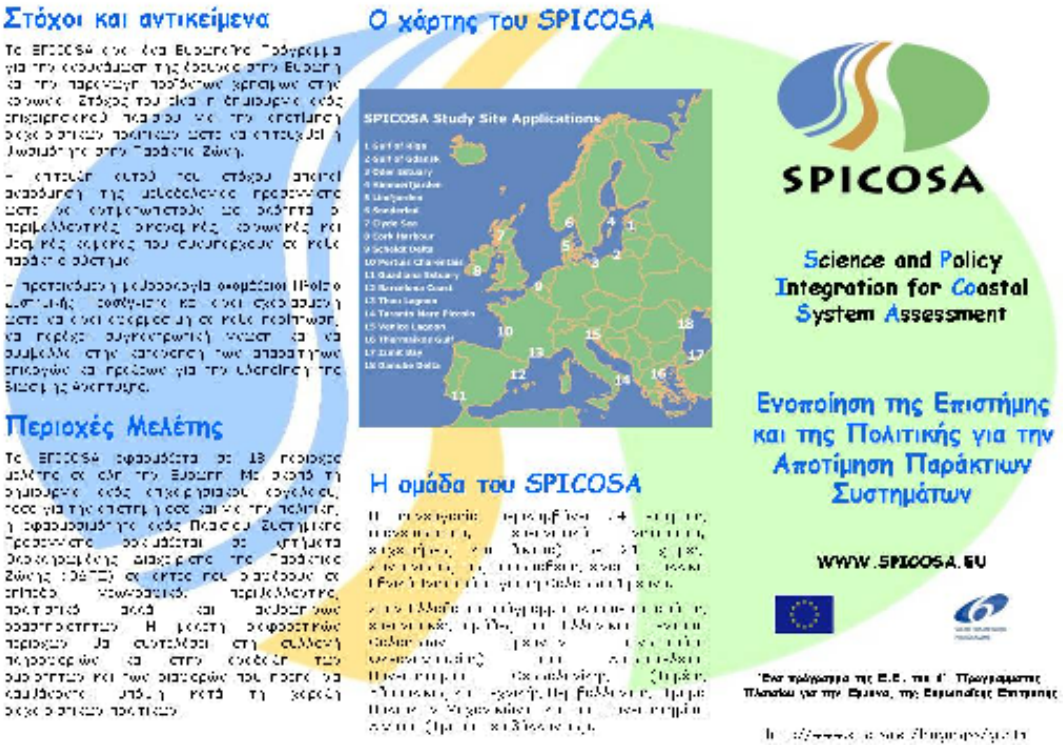


**Figure 1: Outside of the Greek SPICOSA leaflet**

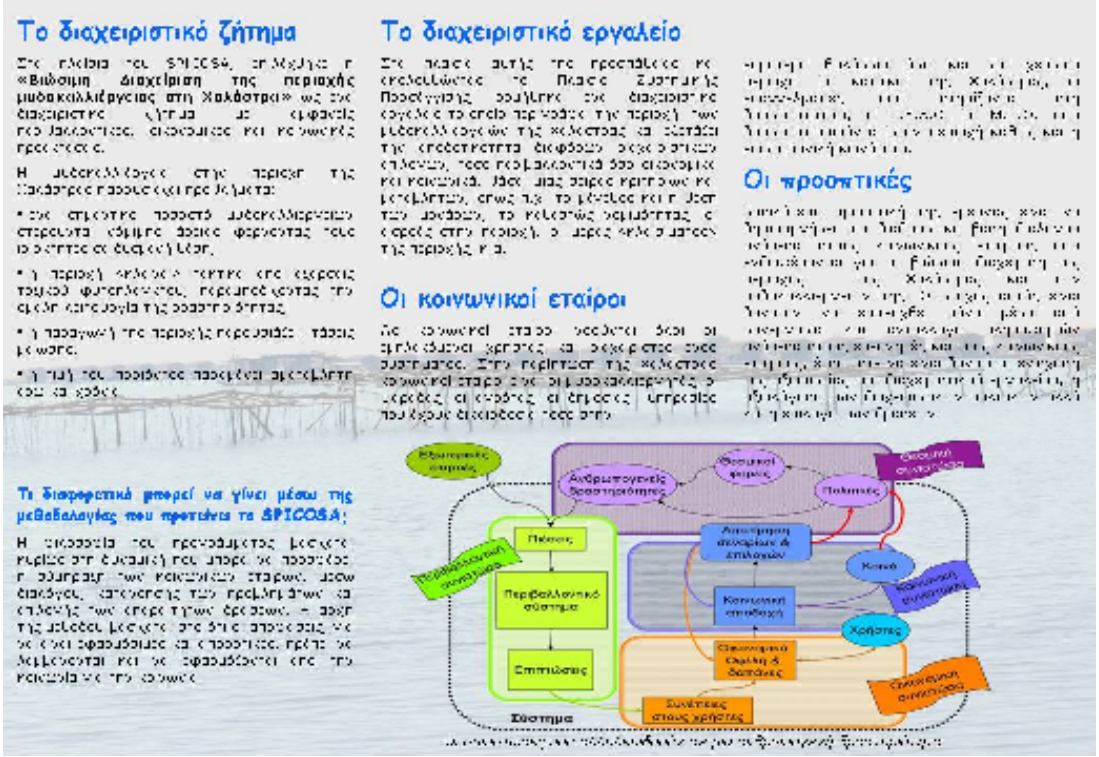


**Figure 2: Inside of the Greek SPICOSA leaflet**

The team also decided that the 2nd meeting would be organized only if the outcomes of the 1st meeting were considered successful and if at least two (2) of the authorities participating agree on co-organizing the event, that would be a presentation open to the local community. For the outcomes of the 1st Common Stakeholder Meeting please refer to § wt 6.7 and to ANNEXES 1& 2.

The 2nd meeting – forum was organized with the contribution of the Municipality of Chalastra and the Authority for the Protection and Management of Axios – Loudias – Aliakmonas Estuaries, in the presentation hall of the village of Chalastra. For more information about the 2nd event please refer to § wt 6.7.

For the preparation of the 2nd meeting – forum invitations were send via mail and the major participants were also informed via phone call. In addition most of the participants were asked to inform other people, especially from the local community, that would be interested in attending the event and participate to the deliberations. Joint invitations were sent from the SSA team and the two co-

organizing authorities. After both of the meetings press releases were sent to local newspaper in order to give extra publicity to the events and their outcomes.

Considerations when preparing the scenarios – Uncertainties, assumptions & data gaps

A reason that influenced importantly the content of the chosen scenarios, in addition to those stated in § wt 6.1, was the interest that most of the stakeholders have for them, i.e. through the scenarios the team tried to underline the willingness to deal now and in the future with issues that are of high interest for most of the participants, as the farming techniques used, the legal status implemented and the occurrence of Harmful Algal Blooms in the area. During the last years, in certain occasions these people, the Chalastra area stakeholders, were invited to participate in events dedicated in presenting scientific works that were taking place in the greater area of Thermaikos gulf, but never before in an event trying to confront their problems as straightforwardly as possible aiming at an integrated management effort. That fact was used as the most powerful argument in order to ensure participation and retain interest.

During the preparation process the team discussed how to face the uncertainties, assumptions and data gaps of the model during the presentation. The decision supported an effort to be as honest as possible towards the audience trying to highlight both the strengths and the weaknesses of the management tool. Turning the audience attention towards the fact that this is the first effort in creating a integrated management tool, especially for the area of Chalastra, the team decided it would be best to familiarize them with the data and information that were used in order to extract certain conclusions and then explain exactly what could be done in addition to that if certain missing data and information become available. This was considered as a good way both to present what is done until now and also to demonstrate what can be done in the future if the stakeholders are willing to support the development of the management tool. As it will be further explained later this approach is considered a rather successful one, especially taking under

account that in the beginning of the project several stakeholders – mainly representatives of public authorities – were reluctant to participate to the project.

## 6.1b Reflect possible extend of presentation

Audience diversity – Approach tactics

The expected audience was quite diverse, mainly separated into three categories:

- The mussel farmers (representatives and professionals at the sector). Mainly people with elementary general education but with excellent knowledge of the mussel farming sector.
- The representatives of the public authorities implicated to the activity. Mostly educated people deriving from very diverse fields of expertise (biologists, engineers, social scientists, land planners, etc). Most of them are familiar with the part of the activity that they are in charge of, and do not have a very deep knowledge of the general aspects of the area and the activity.
- The scientists deriving from Institutes and University departments that at a certain point in the past have worked on the mussel farming area or at the greater area of Thermaikos gulf, having knowledge and experience in several aspects concerning the activity.

While preparing the presentation the challenge of getting through to all the levels of stakeholders came up very quickly. From former experience it was known that stakeholders do not enjoy being lectured, especially when the lesson concerns their work, so attention was given in order to open the presentation underlining the importance of their participation to the procedure. A great deal of attention was also given in emphasizing in the economic and social components of the effort, as those are aspects of high importance for them and would stimulate their interest.

The presentation of the model was kept in a simple, conceptual level, were without implicating any equations, it was demonstrated which information was used and complied in order to extract certain results. During that part of the presentation, the data gaps were also mentioned, using that opportunity to demonstrate what

else could be developed if these data existed. In case that someone from the audience wanted to have more details for the model and its functionality an extra computer was set-up and the SSA modeler was available to offer details and a visual tour (see also § wt 6.7).

Approximately 25 people were the important target group for the first presentation. The important task was to stimulate the interest of most of the public authorities, by highlighting how important is the policy issue for the local community, doing that without examining who is to be blamed for the present situation but by listing what has to be done in the future to resolve the problems and manage the area in a sustainable way.

## WT 6.2 Use Multivision format for presentation

Organization of the presentation

The format used for presentation was classic Power Point slides, as the team decided that the time and human resources available were not enough for more multivision "experiments" and, as there was no former knowledge of other presentational software, it would be better to create a high quality standard PPT presentation, than create a moderate presentation of other type.

As stated earlier, the scenarios were "broken down" to smaller ones in order to be easier to digest them and to create comparisons between different situations. The model in the EXTEND environment was altered in a way that could provide information about different management choices in the upper layer, without having to enter into details of the structure (figure 3), although the major drawback for any presentation efforts in EXTEND is that the software does not support Greek characters, making it very time consuming to create alternative formats.

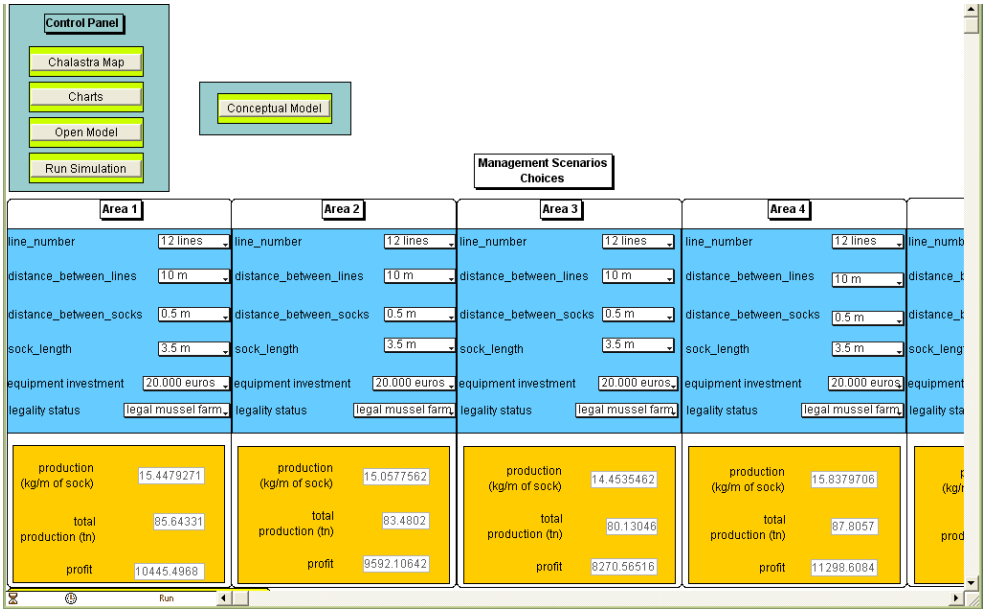


**Figure 3: SSA 16 model layout.**

The scenarios results were extracted in Excel MS, where graphs were created when necessary, as the graphs produced from EXTEND, besides the problem with the language, are not very good for presentations (small letters, not clear scales, etc). Most of the results were presented as tables (figure 4) as this was the form allowing better visualization and comparisons between different management situations. The files of the two presentations created for the stakeholder meetings can be found in the ftp server, folder: SSA/SSA16/Output_step. The first presentation was used for the creation of the SSA 16 Output package (see § wt 6.8).

**Figure 4: Example of the templates used in order to provide scenario comparison during the presentation.**

## WT 6.3 Structure and design of visualization

Presentation visualization

Please refer to § WT 6.6 for the parts and the content of the presentation.

Regarding the scenarios, the team decided to present the results in simple and understandable tables, were it was very clearly defined both the alteration of the crucial parameters and the response of the crucial variables. Units were attached to all the parameters and variables. Critical results and mean values were presented as extra pop-up boxes next to the main tables. In some cases, especially regarding the mussel production under different conditions and different farming areas, multicolour graphs were created in order to represent the evolution of the production under alternative cultivation conditions.

Presentation organization concerning the speakers

*1st forum:* Please refer to APPENDIX 1 – Report of the 1st CSM.

The facilitator (please refer to § wt 6.4) opened the meeting by giving a small history and some introductive points. It was also decided to give a time plan of the whole event, by marking how much time will the presentation take and how much time will be devoted in questions, conversation and deliberations, in order to create to the participants the filling that their time is respected and to let them know that the conversation part will be more extended than the presentation.

The small history part, presented by Dr. Pagou of HCMR was necessary to remind or acquaint the participants with the former experience of the SPICOSA team in the area of Thermaikos gulf.

The main part, containing the SAF methodology, the policy issue analysis, the chosen scenarios and the results, was presented from Professor Yannis Krestenitis, the AUTH SSA team leader. The small part devoted to the details of the model was presented from the modeller of the SSA, Zoi Konstantinou.

*2nd forum:*

The main SPICOSA presentation, that was much shorter than the one in the 1st forum and was devoted mainly to underline the results of the scenarios chosen. Before this short presentation, two others took place. As the 2nd forum was co-organised in collaboration with two of the major stakeholders, the team decided that it would be interesting and useful to introduce the audience to extra information about issues concerning mussel farming, deriving from the two co-organising authorities, as this demonstrates and promotes collaboration between scientists and stakeholders.

The first presentation, introduced by Mrs. Stella Vareltzidou, representative of the Authority for the Protection and Management of the Estuary area, dealt with the problem of the management of the mussel shells. The small industries of the area occupied with the opening of mussels and packing of the flesh are dumping the shells near the estuary area and sometime even burn it in order to get rid of them. These actions are causing pollution and degradation and the presentation was devoted into the problems caused, the proper disposal methods but also and most importantly into alternative uses of the biological material (forage, road making, etc).

The second presentation, introduced by Mr. Stratos Kambouris, consultant of the Municipality of Chalastra in issues concerning the Area of Organised Development of Aquaculture, dealt with the legislation framework around the AODA, pointing out issues and gaps that are sources of future management problems and that should be kept in mind during an effort of integrated management of the area.

Both presentations can be found in the ftp server under the folder SSA/SSA16/Output_step.

The presentation of the SSA16 team, introduced by Prof. Yannis Krestenitis, dealt with the results of the scenarios, especially by underlining points that raised questions or confusion (see § wt 6.7 for more details) during the first meeting.

Additionally the weak points and the points that need further development were also highlighted, using them as opportunities for further collaboration and exchange of information.

## WT 6.4 Build facilitator scientist tandem

The facilitator of the first meeting was Mrs. Xenia Louzidou, a civil engineer - MSc and PhD candidate in Aristotle University of Thessaloniki (in the field of participatory coastal management), that has a long experience in working with stakeholders as a project and company consultant. Several meetings were contacted between the facilitator and the SSA 16 team during the course of the SPICOSA project so she was familiar with the goals and the progress, in particular with the work done for SSA 16 - Thermaikos gulf. She was also familiarized with the area of Chalastra, the policy issue and the management problems encountered.

The team discussed with the facilitator about the organizational details of the meeting, as the venue, the reception and the timings of the different parts of the event and co-decided about them. The main role that the facilitator should play was thoroughly discussed also and it was decided that she was to deal with the general introduction and welcome to the participants and also inform them about the timetable of the forum, highlighting the importance of the questions and deliberations part at the end of the presentations. An extra responsibility would be to present the presenters and give some brief information for each of them and also make sure to keep the deliberations civilized and on schedule. She received a list with the participants and information, including their basic stakes, opinions and level of implication in the policy issue, for most of them in order to get familiarised with the audience she had to confront. The information was based on the experience the team had with the stakeholders from the previous private interviews contacted.

The facilitator asked not to get familiarized with the actual presentation prepared for this particular meeting and the presentation of the scenarios, in order for her to be able to react objectively towards the presentation and the following deliberations

and to provide an accurate feedback for the results of the forum. The report that Mrs. Louizidou contacted after the end of the meeting can be found in APPENDIX 2 of this report.

## WT 6.5 Meet with a peer group

When the need of testing the presentation came forward, the team decided to also serve some educational goals and present it to a group of students attending the MSc program "Environmental protection and Sustainable development" of the Department of Hydraulics and Environmental Engineering of the School of Civil Engineering, Aristotle University of Thessaloniki. These students derive from different backgrounds giving important audience variability and they are not all familiarized with the concepts of Integrated Coastal Zone Management.

The logic that was followed was similar to the one followed to "character game" designed and implemented in Istanbul's SAF meeting: the participants were given a role and some general attributes characterizing that role (table 3). After the presentation they had to indicate the questions that they had but also the ones that they thought their role would have. They were also asked their opinion about the scenarios and received answers in their questions. The outcome of these activity highlighted important points, as the fact that there was a need for a more extended introductory part than the one planned at the beginning and at the same time there was a need for extra highlighting of the key points of the scenarios in the presentation.

**Table 2: Role playing game with the alternative "peer" group of students**

| Role | Stakes and attributes |
|---|---|
| Representatives of the Direction for land planning of the Region of Central Macedonia | Responsible for the release of the business licenses for the activity – Because of the legislation gaps they refuse to renew the licenses |
| Representatives of the Ministry of | Creation of the legal framework of the Area of |

| | |
|---|---|
| Energy & Climatic change – Direction of land planning | Organised Development of Aquaculture – evaluation of multiple criteria (geographical, spatial, economical, etc) |
| Representatives of the multiple Directions of the Prefecture of Thessaloniki (Veterinarian – Fisheries – Development – Environment Protection – Land planning) | Creation of the AODA but if the Prefecture is the leading partner – Daily collection of samples – cooperation with the local university – certification of the quality of the production – control of the realize of the product to the local & foreign markets |
| Representatives of the Municipality of Chalastra | Creation of the AODA but if the Municipality is the leading partner – defense of the rights of the local citizens: most of them are without license, the most powerful are legal |
| Mussel farmers holding activity license | Creation of the AODA – Priority in the release of their licenses and to the selection of place – maintenance of oligopoly – solution for the HAB problem |
| Mussel farmers not holding activity license | Creation of the AODA – equal opportunities in the licenses relies, selection of place and in the local or foreign market – remission from the fines - better working conditions – solution for the HAB problem |
| Chalastra inhabitant | Financial & social welfare for the area – good conditions of the sea environment and the coastal zone |

The procedure turned to be also a good educational method as the students were very interested both in the presentation and the role game and received it as an example of what they could face in the future in careers as environmental managers.

## WT 6.6 Structure and duration of the presentation

Structure of presentation

*Explanation of the objectives of the meeting and general introductive remarks* made by the facilitator of the event, Xenia Louizidou. For more details, see § WT 6.4 and related documents.

*History*: A small presentation was prepared from the Hellenic Center of Marine Research in order to remind to the audience the scientific work done in the greater area of Thermaikos gulf during the last fifteen years. Presented by Kalliopi Pagou, from the Hellenic Center of Marine Research team (info: popi@ath.hcmr.gr).

*Introduction*: Three (3) introductive slides, opening the presentation with general information about the meaning and importance of ICZM, why it can not be achieved without the participation of the implicated stakeholders and general information about the project SPICOSA and its goals. Presented by Professor Yannis Krestenitis, leader of the Aristotle University of Thessaloniki team (info: ynkrest@civil.auth.gr).

*Methodology*: Four (4) slides that are very shortly presenting the sequence and the key points of the SAF methodology, by describing the work done during Design, Formulation, Appraisal and Output Steps. A reformed conceptual model, built as a simple replica of the actual EXTEND model is presented as part of the DS. Presented by Professor Yannis Krestenitis.

*Policy Issue*: Five (5) slides presenting the key features of the selected policy issue. Evolution of the mussel farming activity, general statistics, main environmental, social and legislation problems, all presented very shortly and simply in order to be understandable and digested. Although most of the key stakeholders were familiar with this information (some data were provided by public authorities or by the mussel farmers) it was considered necessary to make a recapitulation of all the available knowledge. Presented by Professor Yannis Krestenitis.

*Management Tool*: Seven (7) slides presenting shortly the model. The first two slides are devoted in the explaining what is the management tool and what is its usefulness. The rest five slides are using parts of the conceptual model to explain how the model was structured, which information was used and what data are missing in order for the model to be expanded further. Presented by Zoi Konstantinou, member of the Aristotle University of Thessaloniki team / modeller of the SSA (info: zkon@civil.auth.gr).

*Management Scenarios*: Eleven (11) slides presenting the chosen scenarios and the comparative results. The first two slides are presenting analytically the scenarios, by demonstrating which management parameters are being affected, and why those scenarios were chosen. The rest of the slides are presenting comparative graphs and tables of the results. The key points and crucial differences between scenarios are being highlighted or circled. Presented by Professor Yannis Krestenitis.

*Conclusion*: Two (2) slides, the first devoted in marking again the future perspectives of the management tool and what could be accomplished if data from organised and regular monitoring were available. The second slide was devoted to the importance of the evaluation of the presentation procedure from the stakeholders and kindly asked them to fulfil the questionnaire prepared for that. Presented by Professor Yannis Krestenitis.

The full duration of the presentation under rehearsal was kept to 1 hour and 15 minutes.

The team chose not to present the scenarios live (i.e. not to run the model at meeting) but to highlight the possibility to do so if asked from the audience, in order to avoid any problems and delays that could occur by using multiple software (see also §wt 6.7).

## WT 6.7 Conduct the Stakeholder Forum

Duration

The presentation during the 1st forum lasted about 1 hour and 30 minutes, including the gaps during the changes between speakers and the small introductions from the facilitator. During the 2nd forum, all of the three presentations lasted about 50 minutes.

Presentation of scenarios

Official running of the scenarios in the modelling software was not a part of the presentation procedure, as explained earlier. The team decided that it was better to present the structure of the model, the layout and the results using conceptual models, diagrams and tables than using the original model. One of the most important reasons for that is that the software (EXTENDSim7) does not support the Greek language and most of our stakeholders are not familiar with the English language. It was decided that being as clear as possible was the better way to communicate with our stakeholders. At the same time it was decided that the possibility of running the model should be available for anyone interested exploring it, so in both stakeholders' forums a second computer was loaded with the EXTENDSim7 software and the model and the modeler of the SSA was available for demonstration, guidance and answering questions related to its function. Despite that, the stakeholders were not very enthusiastic in exploring the model. Even the most educated and familiar with computers and technology tended to believe that the models or management tools should be handled by the scientific team and they just wanted a way to get their questions answered in an efficient way.

Feedback

As mentioned earlier the participants of the first forum were very specific, as the forum was kept in a close circle comprising of the heads of the implicated authorities, the main representatives of the professionals and some of the scientists that have previous experience in the area. During the invitation process all the participants were analytically informed about the value and importance of their feedback and opinion.

The team decided to use an alternative DST (see §wt.6.9) with the form of a questionnaire (end of APPENDIX 1). The same questionnaire was also including some questions about the organization, usefulness and results of the forum. In the end of the document there was free space left for additional comments and remarks.

Most of the participants answered the second part of the questionnaire referring to the organization of the meeting and made constructive and supporting comments. There was a general positive feeling about the outcome of the meeting, mainly connected both to the multidisciplinary character of the forum and with the fact that the higher level of public authority, i.e. the ministry, participated in the event. For the first part of the questionnaire please refer to § wt 6.9.

2nd Forum

During the second forum, that was open to the local community, the team decided to restructure the presentation in order to focus to the scenarios results in a very analytical way in an effort to avoid any confusions created during the first presentation. During this event there wasn't any questionnaire distributed and the only effort into receiving feedback was through private conversations with the participants after the end of the forum.

Although some of the mussel farmers were reluctant to participate and in general demonstrated a lack of trust to this kind of procedures, the representatives of the sector were positive towards the whole process, something that was mainly expressed from their willingness to participate to the formulation of the "stakeholder communication group". Although the open character of the second event and the fact that most of the time was invested into deliberations supported a more vivid conversation, sometimes even direct & indirect accusations between mussel farmers and public authorities, a civilized atmosphere was maintained during the whole event.

Communication group

During the 2nd stakeholder forum the SSA team, pointing out the fact that it is highly important to benefit from the good collaboration base that was created during the two events, proposed the creation of a "stakeholder communication group". The idea was to create a small group of stakeholders – mussel farmers, managers and scientists – willing to participate in a consortium that will meet often in order to discuss about crucial maters regarding the area and the activity. The true character of the group will be communicative and informative: the participating members will have the obligation to transfer any news to the rest of their group. The goal is not to create a group that will take decisions but will exchange experiences and opinions and try to maintain communication and collaboration between the different stakeholders groups. That way in any future management effort, the base for a stakeholder consortium will already exist.

## WT 6.8 Preparation of an Output Package

The preparation of the Output Package was a task that was very much discussed among the SSA team. Previous experience in the preparation of similar documents has shown that most of the stakeholders will not bother to read a document that would seem to them as technical or difficult to get through. The need to create an information package easy to manage and read and at the same time carrying all the necessary information along with the rather good feedback the team received for the presentation prepared for the 1st Common Stakeholder meeting gave the idea for a multicolour document that would constitute mainly from the slides prepared for the presentation, accompanied with comments, remarks and additions when the slides were not self – explaining enough. Additionally, to the end of this document, a table with the basic conclusions of the forum was added as also some crucial feedback points and a list of the participants.

A challenging part was how to translate the way that the management tool is formulated and working. It was considered useless to include any technical information concerning the model, i.e. equations, formulation tips or literature, but

at the same time it was necessary to avoid presenting the model as a black box where you ask the questions and you get the answers without knowing anything about the interior process. Keeping the same structure as the presentations proved convenient, as special conceptual representations were created in order to explain in a more transparent way what kind of data and information were combined to produce certain results. Those conceptual models along with more detailed comments and explanations were used in order to familiarize the reader with the function of the model. In succession this information was used so the scenarios could be more understandable.

## WT 6.9 Conduct Deliberations

The team, for reasons explained many times previously and as many stakeholders do not speak English and are not familiar with pc use and additionally because it is rather difficult to contact a stakeholder forum in a room with 25 computers, chose not to use the Ker Coast DS Tool.

## [WT 6.9 Conduct Deliberations]- Alternative

Deliberations were contacted with the use of questionnaires that was used as "alternative Decision Support Tool" in which the stakeholders were asked to rate the scenarios in the bases of their opinion about the proposed management decisions and the outcomes according to the management tool. A translate version of the questionnaire along with the aggregated answers from the participants of the 1$^{st}$ stakeholder forum can be found in the last pages of APPENDIX 1.

During the process of the questionnaires it was soon realized that the first part, referring to the scenarios presented, was quite confusing for the stakeholders as several forms was left blank and in others there were comments that suggested that either the results of the scenarios were not clear enough or that the questions were not stated in an understandable way (I don't know – I don't understand). In order to clarify that and as the organization of a second forum was under planning

the team contacted several of the participants and tried through several questions to understand what went wrong. The outcome of that process was that although most of the stakeholders understood the scenarios as presented, they found the "alternative DST" confusing or meaningless. In order to avoid similar confusions during the 2nd event that would host even more people, especially mussel farmers, a questionnaire was not used again but the team tried to invest in promoting the dialog at the end of the meeting.

## WT 6.11 Documentation for the Output Package

Please refer to § WT 6.8.

## WT 6.12 Continuous interactive dialogues

- Does the scenario work and systems approach produce an adequately credible link between a Human Activities and an impact?

The scenario work and system approach produces a credible that is referring to an important human activity for the area. The impact was related to the activity from the beginning as it connected with the reduction of the mussel production connected mainly with the cultivation techniques used for the mussel farming activity.

- Did the scenario work and systems approach produce adequately and credible information to the stakeholders about impacts for them?

Yes, as the scenarios were designed in a way that would address impacts and quantify impacts for the stakeholders, connected to the annual production of the mussel farms, the socio-economic impact of different legislation framework and the economic impact of HAB's.

- What were the scope, limitations, and results of the scenario presentation, as well as the SAF application?

Please refer to the main text of this report, the ANNEXES and all the previous material produced by the SSA 16 team.

- Has the SAF application resulted in a better view of complexity?

The SAF application resulted in acknowledgment of the great challenges of an integrated approach in the area of Chalastra and Thermaikos gulf. Questions are risen for the amount of complexity achieved, first of which is "what complexity stands for?". Do we refer to the fool representation of a broad coastal zone, taking under account multiple human activities? Do we speak about the simultaneous confrontation of the ecological, economical and social aspects of a policy issue or maybe do we refer to the complexity that accompanies the managing efforts in collaboration with multiple stakeholders? Or, latterly do we refer to the model complexity? "Complexity" was not achieved, at least not in the magnitude it was designed at the first place. Major identified gaps in data both environmental and socio-economic, along with poor SSA team internal organization and lack of experience and human resources created obstacles. The SSA 16 application of the SAF confronts a policy issue related to only one activity, but we have tried to comprehend – although simply – all the 3 aforementioned components. Yet at the moment there is a better view of complexity as the experience gained from the SAF application contributed to a better understanding of the system, of the actors (stakeholders) and of the future developments that are necessary in order to create a more complete and more credible management tool.

- Which are the main conclusions of the Output Step application?

A basic conclusion of the Output Step was that stakeholders' participation and deliberation can be achieved even without a very "complex" management tool: when the SSA 16 began the application of the SAF with the DS and approached the main stakeholders in order to convince them participate in the procedure, most of them were reluctant towards the effort, expressed the opinion that nothing would be achieved as the financial interests in the area are very important or that this would be an other approach that would be left unfinished and without results. Yet when the team managed to organize the 1$^{st}$ forum, although it was very clearly presented that there is a lot of work yet to done and that the presented results are just a small part what could and should be done, they seemed more eager to participate, to offer data they previously denied to give and to enter into

deliberation procedures. Highlighting the policy issue from an angle close to their stakes combined with a demonstration of what can be done even when data and info are missing, created this effect.

*Please describe the plans for the future after one full SAF application and with regard to possible continuous interactive dialogues and /or a new SAF loop and how you plan to use the lessons learnt – explicitly also those learnt about certain communication rules for a SAF application.*

Although the exercise of the SAF application is now complete the SSA 16 team believes that there should be further development of the management tool in a more integrated way that will be the objective of a PhD thesis. As explained earlier the team used the stakeholder's forums to demonstrate to the many reluctant stakeholders what kind of added value can be produced if the available data and information exist and in which ways scientists can assist sustainable management. This, although at the beginning seemed difficult, at the end it was achieved as most of the stakeholders have now created a good relationship with the team.

The attention thrown at the mussel farming activity and the accumulative results of the deliberations at the forums, created pressure to the central managers of the activity and at the moment (end of September 2010) they proceeded in the undersign of the law for the Area of Organized Aquaculture Development, that was postponed for nine years, thus changing very rapidly the institutional status at the area and creating totally new conditions referring to the management of the area.

The SSA 16 team is planning to accumulate these institutional changes to the management tool as well as aspects that during the first application were left outside the Virtual System, i.e. the connected human activities (small industries, restaurants, etc.). More over we plan to expand the application in order to include spatial distribution for the policy issue, something that was indicated from our stakeholders.

# APPENDIX 1

## 1st Common SPICOSA Stakeholder Meeting for the policy issue of "Sustainable development of mussel farming area of Chalastra"
## April 28th 2010 City Hotel, Thessaloniki

Yannis Krestenitis, Zoi Konstantinou

Purpose of the meeting

As stated in previous SPICOSA reports, the SSA 16 team have pre decided the policy issue for the area of Chalastra, based in extended former experience. The stakeholders were approached individually in private interviews at least two or more times. At the present state of the evolution of the project, during the Output Step, the team decided that it was the right time to organize the 1st Common Stakeholders meeting that would involve representatives of all the main categories of stakeholders, in order to present to them the management tool and several results of management scenarios. The team decided that in order to have a successful meeting it was important to a) demonstrate scenarios presenting increased interest for the stakeholders and b) to give them the chance to contribute to the dialogue after the presentation either or commentating the scenarios or not.

Meeting preparations

**Invitation and leaflet**

An individual personal invitation was send to every one of the "mend to be" participants of the 1st Common Stakeholder Meeting. The list of participants included the representatives of the four (4) mussel farmers associations of Chalastra, the heads of all the municipality, prefecture and regional offices implicated in the mussel farming activity, other public bodies, NGO's and selected scientists working in Chalastra extensively. The list of the participants and their attendance status it is presented in the appendix of this report.

The team also prepared a Greek leaflet for the demonstration of the project and the work done in SSA 16. The outside of the leaflet was devoted to the whole project,

the SAF and the other study sites. The inside was devoted to SSA 16, the policy issue, the stakeholders and the management tool. A picture of the leaflet can be found in the Appendix of this report and the pdf file (in Greek) can be found here and in the ftp server (SSA16/deliverables/1st CSM).

**The meeting place**

The team decided that it was best to choose a conference room outside the University as the meeting place. Previous experience in similar meetings has proven that many stakeholders are reluctant in coming inside the University, feeling that scientists are louring them into boring "lesson structured" lectures, were they listen but not participating. In order to avoid this "bad history" the team choose a hotel conference room in the center of Thessaloniki. Coffee and cakes were offered in the beginning of the meeting and light dinner buffet was offered after the end of the meeting.

**The facilitator**

The facilitator of the meeting was Mrs. Xenia Louzidou, a civil engineer - MSc that has a long experience in working with stakeholders as a project consultant. She is familiar with the goals and progress of the SPICOSA project and in particular with the work done for SSA 16 - Thermaikos gulf. She is also familiarized with the area of Chalastra and all the problems encountered there. At the same time she wasn't familiarized entirely with the presentation prepared for this particular meeting and the presentation of the scenarios, in order for her to be able to react objectively at the meeting. A brief CV of Mrs. Louizidou along with the report she contacted after the end of the meeting can be found here at the ftp server (SSA16/deliverables/1st CSM).

**The presentation**

The presentation was separated into four parts:

1. The first part included a small overview of the previous scientific works done in the area: their results and conclusions, the scientific experience that lead

the SSA 16 team to choose the "Sustainable development of the mussel farming area of Chalastra" as the policy issue during the project SPICOSA. For more information please contact Dr. Popi Pagou (popi@ath.hcmr.gr).

2. The second part of the presentation included a brief overview of the goals and principals of SPICOSA and the SAF methodology as an introduction. Mainly this part demonstrated an overview of the situation (environmentally, socioeconomically and institutionally) in Chalastra during the last 10 years and an overview of the problems encountered there. Finally the last two slides were devoted in discussing what the management is and aims at. You can access the pdf file of the presentation (Greek) here.
3. The third part was a small virtual tour inside the management tool. This part of the presentation aimed in familiarizing the audience with the tool and in explaining what kind of data and information were used in order to extract what results. You can access the pdf file of the presentation (Greek) here.
4. The final part was devoted in presenting the five chosen scenarios and their results to the stakeholders. You can access the pdf file of the presentation (Greek) here.

The program of the meeting can be found in English and in Greek. The pdf file of the whole presentation (Greek) can be found in the ftp server (SSA16/deliverables/1st CSM).

**The DST "alternative"**

Using the KerCoast DST prepared from SPICOSA partners was not a feasible solution for us as a) we are not in a position to provide a room with 25-35 computers in order for every stakeholder to have his own and b) most of our stakeholders do not speak English or know how to use a computer. In order to overcome that difficult we structured a "questionnaire" in which we asked the stakeholders to value the scenarios we've presented in the same way it is proposed from the KerCoast DST. At the same questionnaire we also added three questions related to the potential use of a management tool, the importance of the dialogue between stakeholders and the effectuality of the current meeting.

The pdf file of the questionnaire (Greek) can be found here and in the ftp server (SSA16/deliverables/1st CSM). The translated in English questionnaire and the results can be found in the Appendix of this report.

The meeting

Before the main presentation body, the facilitator made an introduction of the procedure that we would follow and set an end of the meeting at approximately 2 and a half hours later. The presentation of the SSA team had duration of 45' approximately, structured that way in order to give time and space to the stakeholders to express their opinions.

The conversation that followed the presentation was very vivid. Many of the stakeholders reacted positively to the management tool and the potential use of it, one of them being the Ministry representative that is the higher authority taking management decisions for the area of Chalastra. The conversation soon moved to the institutional and legal issues that cause great problems in the area and how can those be confronted. The mussel farmers' representatives' statements were very crucial, as they gave a very concrete idea of the magnitude of the problems in the area and also supported the idea of stakeholders' dialogue in order to achieve solutions and sustainability.

The conversation revealed several issues that are of high importance for the area of Chalastra:

- Institutional and legislation problems.
- Quality of mussels connected to the farm's characteristics and placing.
- Occurrence of Harmful Algae Blooms.
- Importance of mussel farming activity.
- Stakeholder participation in all the stages of decision making procedure.

During the dialogue the President of the Authority for the Management of the Protected Area of Axios – Loudias – Aliakmonas estuaries asked for a repetition of the meeting with more detailed scenarios presentation and more structured dialogue, especially refereeing to the highlighted issues, this time in the area of

Chalastra. Although we haven’t yet made any formal arrangements about the next meeting we hope we will be able to materialize it soon.

Scenarios presented and evaluation

**Scenario 1: Mussel farm unit level management**

How and how much is the productivity of an individual long-line mussel farm unit affected from the layout and the characteristics of the farm?

{Four different cases were presented in order to demonstrate the way that the productivity of an individual unit is affected from the unit's characteristics.}

| Positively | Negatively | I am not interested | I don' t know |
|---|---|---|---|
| | | | |

**Scenario 2: Mussel farm area level management**

How and how much is the productivity of the whole long-line mussel farming area is affected from the characteristics of the units?

{Three alternatives of the scenario were presented i) a random = different characteristics in every farm, simulating the present situation ii) a very dense = all the farms following the same excessive farming characteristics and iii) a normal = all the farms following the characteristics provided by the legal framework. In each scenario 4 different sub –areas of mussel farming were presented.}

| Positively | Negatively | I am not interested | I don' t know |
|---|---|---|---|
| | | | |

**Scenario 3: Agricultural inputs and mussel farming activity.**

How much will the change in agricultural inputs (double and half inputs) affect the phytoplankton concentration in the mussel farming area (hence affecting the mussel farm).

{The two alternatives of the scenario presented so no significant difference. We wanted to evaluate the importance of this kind of information for the stakeholders.}

| Positively | Negatively | I am not interested | I don' t know |
|---|---|---|---|
| | | | |

**Scenario 4: Legal framework and social prosperity**

In which way is the economical robustness and retributive benefits of the local community going to be affected from the maintenance and from the improvement of the present legal framework.

{We presented two cases i) more than half of the establishments illegal = similar to the present situation and ii) all the establishments legal. We demonstrated estimations of the farm's profit, the whole areas profit, the retributive benefits and the estimation of money spend in fines.}

| Positively | Negatively | I am not interested | I don' t know |
|---|---|---|---|
| | | | |

**Scenario 5: Environmental constraints and mussel farm unit economy**

How much are the costs of a unit being affected from the increase of the days were environmental constraints are imposed in the area (days of HAB's occurrence).

{We presented the estimation of the cost of 5 different cases of yearly HAB occurrence in the area to the average farm.}

| Positively | Negatively | I am not interested | I don' t know |
|---|---|---|---|
| | | | |

19 of the stakeholders participating answered the "questionnaire"

| **Scenario No** | **Positively** | **Negatively** | **I am not interested** | **I don' t know** | **No answer** |
|---|---|---|---|---|---|
| **1st** | 7 | 1 | 2 | 5 | 4 |
| **2nd** | 9 | 1 | 2 | 4 | 3 |
| **3rd** | 9 | 1 | 0 | 4 | 5 |
| **4th** | 9 | 5 | 0 | 3 | 2 |
| **5th** | 9 | 6 | 0 | 2 | 2 |

| Evaluation | Positively | Negatively | I am not interested | I don' t know | No answer |
|---|---|---|---|---|---|
| **Management tool** | 19 | 0 | 0 | 0 | 0 |
| **Stakeholder dialogue procedures** | 19 | 0 | 0 | 0 | 0 |
| **Specific meeting** | 18 | 1 | 0 | 0 | 0 |

# APPENDIX 2

**Report for the**
**SPICOSA STAKEHOLDER MEETING**
**Thessaloniki, 28 April 2010**
**by Xenia I. Loizidou**
**Independent facilitator**

The meeting took place at the CITY HOTEL in Thessaloniki, at 17:30 PM the 28th of May 2010.

About 30 stakeholders were invited and participated in the meeting, representing the major key actors: central, regional and local administration, local authorities, mussel-farmers organizations, NGOs, consultants, Management Authorities.

The facilitator did a short introduction explaining the objectives of the meeting, the process-structure of the meeting and the role of the independent facilitator.

**THE PRESENTATION**

The presentation part included:

- A general description of the Greek SPICOSA Pilot area, by Dr K. Pagou from the Hellenic Centre for Marine Research.
- Prof. Y. Krestenitis, from Aristotle University of Thessaloniki who presented "SPICOSA and System Approach Framework"
- Ms Z. Konstantinou (researcher in Aristotle University of Thessaloniki) presented the Management Tool and
- Prof. Krestenitis did a very comprehensive description of the scenarios, which included:
    1. The description of the policy option on which the scenario is based
    2. The explanation of the assumptions on which the scenario / the different parts of the model are based

3. A sequence of presentation of the modelling results (to have a look at a suggestion for this sequence,
4. A summarizing comparison of the presented scenarios will then lead to a wrap-up of the presentation.

The presentation part was short (50 minutes) and comprehensive. The descriptions and presentations focus on the possible consequences for the stakeholders and not only on scientific data and detail, i.e. they were in line with the SAF protocole on Coastal Zone System output. The presentations were understandable and feed the stakeholders with material for discussion.

**DISCUSSION**

The discussion was very vivid. All the stakeholders had something to comment, felt strongly the need to express their views and raise their issues. The discussion was planned to be structured on the scenarios. However, although the scenarios were the major issue, it was obvious that the stakeholders wanted to have a more "free" discussion. So, the process was slightly modified on the spot and according to the "needs" of the audience: the discussion was left to "run" free, with the scenarios shown permanently on the screen. The facilitator made frequent references to the scenarios, asking and suggesting which of the issues or problems and difficulties mentioned by the stakeholders were accommodated in which scenario. This process was more vivid and contributed to the feeling of the stakeholders that they were really part of the process, not just audience.

Some important comments of the stakeholders, concerning SAF and the scenarios have been:

- meetings like this are very useful, provided that all competent authorities participate (especially the ones who provide the licenses)
- Management Tool of SPICOSA seems to be very efficient
- The scenarios are quite realistic.

The facilitator "isolated" and wrote 5 major problems on the board, according to what the stakeholders were saying:

- Institutional problems, mainly licensing of mussel farms. This is considered on of the major problems. Proper Management of the area can not be implemented as long as the licence process is a pending issue for the last 9 years!
- Quality of mussel in connection with the characteristics of the mussel farms (eg distance between the lines etc). The issue of the growing process of the mussels should be taken strongly into consideration.
- Environmental quality of the water (toxic blooms)
- Land uses, prioritisation of uses around Thermaikos Gulf (i.e. tourism and agriculture can not have the same weight of importance. Mussel farming is actually non-existence. It should be included as an economic activity with high export value for Greece.
- Participation in all stages of decision making.

Prof. Krestenitis stated that within the next one month another stakeholder meeting will be held in Chalastra. The problems that have been identified as major will be treated as scenarios and the fruitful discussion will continue.

**EVALUATION QUESTIONNAIRE**

The evaluation of the scenarios questionnaire was efficient, "light" and well structured. It would be interesting to have a process to show the results during the meeting, and discuss on them. This could be done in the next meeting. The discussion could start from this point.

**EVALUATION OF THE MEETING/ COMMENTS**

The meeting was interesting and useful.

**The presentations** were well structured, each one interrelated and sequential to the other and on time. For example Dr Pagou finished her presentation with two major questions, which worked as food for thought:

- Are there problems with mussel production?
- Could mussel farming in Chalastra become a sustainable activity?
- She provided "Yes" as the answer in both questions.

And this was an excellent "pass" for prof. Krestenitis to present the SAF.

One of the problems is to build trust among the key actors. Usually, scientists are faced with reservation and doubt by the users of the coast. This time, the presentation of the scenarios as a "hands-on" approach, helped in building trust. And this trust of the key actors to the scientists was very clear throughout the process (although it was also very clear that there was not at all trust among the users i.e. the farmers and the administration of all levels, i.e. the farmers do not trust at all the administration).

The open character of the **discussion** I believe that gave the chance to all key actors to present their points, not deteriorating them to a more "technical" structure of discussion, i.e. discuss strictly the scenarios. This process also contributed to the building of trust, since it gave the chance for a more "free" and "honest" discussion.

**SUGGESTIONS**

I believe that a systematic process is needed for the involvement of the key actors: establish regular communication among them and support (i.e. if farmers need basic scientific support then provide them).

If there is not a follow up and if there is not a process that can be continued and after the end of SPICOSA, then this powerful potential of the stakeholders of the area will be lost. And most important, if the stakeholders do not see results and sustainability in the approach, then their disappointment will last for years and it will be an obstacle to future efforts for implementing an integrate approach.

So, it is important:

- to promise realistic targets

- be honest with the stakeholders
- be committed to the effort
- set a regular communication platform (ie a method of communication e.g. through sms?), regular visits of the scientists in the area. Structure a communication strategy.

This interface of science with policy and users, i.e. this interrelation of key actors is an important issue, a sine-qua-non for achieving the implementation of an integrated approach. This meeting was a successful step towards this direction.

Xenia I. Loizidou

Thessaloniki, 29 April 2010

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