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Medcoastland Project

Thematic Network

C.I.H.E.A.M

CIHEAM
Mediterranean Agronomic Institute
Bari-Italy

MEDCOASTLAND PROJECT

Mediterranean coordination and dissemination of land conservation management to combat land degradation for the sustainable use of natural resources in the Mediterranean coastal zones

***Thematic* Network**
October 2002- September 2006

Workshop:

Ecosystem-based assessment of soil degradation to facilitate land users' and land owners' prompt actions

(Adana, Turkey, 2-7 *June 2003*)

Final Report

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This report was prepared based on information provided by the reporters of the scientific sessions and on personal notes taken by P. Zdruli, P. Steduto, S. Kapur and E. Akça. Their support is greatly appreciated.

P. Zdruli wrote the report.

June 2003

The first workshop of the MEDCOASTLAND Thematic Network was held in the marvellous campus of the University of Çukurova in Adana, Turkey in 2-7 June 2003. The coordinating team of the Project as well as all the participants are thankful to the efforts of Prof. Dr. Selim Kapur, Chairman of the Steering Committee and Leader of Work Package 2 and its staff for the great deal of efforts they invested in such endeavour.

Summary of the conclusions of the workshop

1. The theme of the 1st Workshop of MEDCOASTLAND Project was: "Ecosystem-based assessment of soil degradation to facilitate land users' and land owners' prompt actions";
2. The workshop was successfully organised by the Faculty of Agriculture of the University of Çukurova in Adana that made all the necessary arrangements and managed to handle very well the logistics of the workshop;
3. 28 partners representing 22 institutions from 11 countries attended the workshop. In total the workshop was attended by more than 50 people;
4. The following 14 institutions were missing in the workshop:

   - **P02 Institut National Agronomique, Algeria**
   - **P04 Ministry of Agriculture, Jordan**
   - **P08 Ministry of Agriculture, Palestine**[1]
   - **P13 The National Authority for Remote Sensing and Space Sciences, Egypt**
   - **P16 Institute of Agriculture University of Malta, Malta**
   - **P18 Land Research Center, Palestine**
   - **P22 Groupement de Mise en Valeur Salmastre, Algeria**
   - **P23 Halazen Development Association, Egypt**
   - **P24 The Jordanian Society for Desertification Control & Badia Development, Jordan**
   - **P27 Parcelle El Oueslati, Tunisia**
   - **P28 The General Union of Peasants, Syria**
   - **P30 Village Committee/Assoc. Product. Oliv. Nakhla Watershed, Morocco**
   - **P32 Institut National de la Recherche Agronomique, France**
   - **P35 European Commission – General Directorate JRC-IES, Italy**

5. Three invited experts (Dr. Salah Taohun, University of El-Zagazig Egypt, Dr. Francis Turkelboom, ICARDA, Syria, and Drs. Paola Mairota, University of Bari Italy) provided key-note papers. The workshop was attended also by Prof. Franco Previtali, Università degli Studi di Milano-Bicocca, Italy;
6. Greetings to the workshop were sent by Dr. Dirk Pottier, responsible Scientific Officer of the project at the headquarters of the European Commission in Brussels and by the director of the Mediterranean Agronomic Institute of Bari, Dr. Cosimo Lacirignola;
7. Several authorities of the University of Çukurova and the Municipality of Adana greeted the workshop. The Turkish Research Council, the NGO TEMA, and the Adana Regional Directorate of Forestry made oral presentations as well;
8. The objectives of the workshop included discussions, on the Driving forces, Pressures, State, Impact, Response (DPSIR) framework and on practical uses of this methodology, as for example given in the presentations from Italy and Malta;
9. Country reports provided the overall status of land degradation in participating countries of the network. They dealt with main factors, present status, trends and actions to be taken by land users to support sustainable land use and management;

[1] Both Palestinian partners (P08 and P18) were not able to cross the border with Jordan, therefore did not attend the workshop. They provided their reports and posters in time.

10. Full papers for publication of the proceedings of the workshop are due by the end of June 2003;
11. Several posters prepared by the partners and Çukurova University staff were displayed during the workshop;
12. The task to identify and define the natural and human aspects of land/soil degradation with local/regional examples was fully discussed during the field excursion; positive inputs between the top-down and bottom-up participatory approaches in soil conservation and land management were given;
13. The field excursion was devoted also to visit specific sites that raised ecosystem-based discussions on the environmental assessment of land management and income-generating soil conservation;
14. It was decided to initiate the development of the appropriate strategies for land use planning and sustainable management of the natural resources in the countries involved in the network;
15. The information retrieval and the compilation of knowledge base should continue and should lead to the complete creation of the database of the project;
16. Specific objectives of the workshop dealt with the identification of gaps in information and knowledge base for the proper regional understanding of sustainable land management;
17. The following working groups were created at the end of the workshop.

- Soil erosion group (leader P29 Morocco, members Palestine, Turkey, Syria, and other volunteers)
- Salinity group (leader P3 Egypt, members Tunisia, Algeria, Turkey, and others)
- Overgrazing group (leader P9 Syria, members Jordan, Turkey and others)
- Soil sealing (urbanisation) group (leader P11 Turkey, members Spain, Malta, and others)
- Soil resilience/soil quality (leader P9 Morocco, members Turkey, Lebanon and others)
- Desertification group (leader P34 Italy, members Turkey, Egypt, Tunisia and others)
- DPSIR group (leader P11 Turkey, members Malta, Morocco, and others)

18. One significant achievement of the project is the creation of the web page and the WEB-FORUM that via Internet connects all the partners and make available to all of them and beyond, the results of previous research that eventually bring to the creation of the database composed of several layers of information in close relationship with the objectives of the project and more specifically of the work package 2. Partners were encouraged to use more frequently those services.
19. The Steering Committee meeting was held during the workshop. For discussions and decisions taken see Annex 2 of this report (page 34).

WORKSHOP OUTLINE

The workshop was organised in seven sessions. Both invited experts, guests and partners in the project made their presentations according to the schema outlined in the Technical Annex of the Programme of the workshop.

Session 1: Introduction, welcome address, and key-note papers
Invited experts: S. Tahoun, P. Mairota, guests: C. Saydam

Session 2: National and international reports, ACSAD
Specific report: Turkey (S. Ozden) and country report: Algeria (R. Laouhati)

Session 3: Key-note papers and national reports:
Invited experts: F. Turkelboom (ICARDA), Tamer Soylu (TEMA), Adviser to Adana Major: Nurettin Celmeoglu

Session 4: Country reports: Jordan (B. Hattar), Lebanon (T. Darwish), Malta (S. Vella), Morocco (M. Badraoui); specific report Egypt (F. Abdel Kader)
Session 5: Country reports: Syria (L. Habib and I. Waad) Tunisia (H. Hamrouni) and specific reports (C. Zucca, T. Darwish, and I. Alados Lopez)
Session 6: Specific reports (B. Hattar, C. Azzopardi, R. Bouabid, and H. Daghari)
Session 7: Conclusions and recommendations (P. Zdruli, E. Nerilli and S. Kapur)

SESSIONS ORGANISATION

Sessions were organised in a way that gave sufficient time for questions and discussions. Each session was chaired and introduced by a speaker who gave an overview of the major topics to be presented. Several reporters were appointed for each season. All persons who made the presentations used Power Point software, overheads and /or slides. Three participants used videos.

The time allocated for each presentation was 30 minutes. After each presentation, 10 minutes were allocated for questions/comments and discussions. At the end of each session, a thirty minutes period was allocated for final comments, questions and open discussions. Poster presentations were displayed in the entry hall of the workshop meeting room.

Following is a summary of the presentations and discussions made during the workshop.

MONDAY, 2 JUNE 2003

SESSION 1 INTRODUCTION, WELCOME ADDRESS AND KEY-NOTE PAPERS

Chairman: Prof. Dr. Selim Kapur, University of Çukurova, Turkey

Prof. Hunay Evliya provided welcome greetings from the University of Çukurova. She stressed the importance of the MEDCOASTLAND Project for the whole Mediterranean Region and for Turkey in particular. Prof. Evliya emphasised that the University of Çukurova will make every effort to strongly support the project even after this workshop in Adana.

Photo 1. Participants of the Adana workshop

The Coordinator of the Project, **Dr. Pasquale Steduto** read the letter sent to the Workshop by the Scientific Officer of the project at the INCO Programme in Brussels, Dr. Dirk Pottier. Dr. Pottier points out the importance of such a large and diversified network of highly qualified scientists, decision makers and farmer associations that has double benefits both for science and society. If scientists miss their link with realities of the society and especially with the farming communities, their inputs on the status of natural resources is less important and moreover the benefits of scientific research become non relevant. It is with great interest to notice that in the MEDCOASTLAND Project these links are very strong.

Photo 2. Dr. Pasquale Steduto during the speech of the opening ceremony

Dr. Pottier emphasises also the paramount importance of the information system and database information collection included in the web page of the project. However, the efficient use of such information often becomes difficult therefore some thinking has to be devoted towards an organisational framework (e.g. a regional information system) associating existing and future databases and thematic information systems on the basis of core data compatibility, information exchange and comparability.

Dr. Steduto forwarded also the greetings of the director of the CIHEAM-Mediterranean Agronomic Institute of Bari Dr. Cosimo Lacirignola. The advantage that CIHEAM has in the Mediterranean are widely known and recognised. For many years hundreds of students and researchers that have studied at all CIHEAM Institutes constitute a strong basis for future projects and collaboration. The IAM Bari remains committed to continue this collaboration in the future.

The next speaker was **Dr. C. Saydam** that provided the greetings from the Turkish Research Council (TUBITAK). Dr. Sayham informed on the large array of activities that TUBITAK is involved in Turkey. Before 1993 the Council was directed more to the development of Science & Technology and Policy Formulation. After this period the shift was towards national promotion of science with the scope to achieve excellence in scientific research. There are several areas of research that TUBITAK is involved.

Photo 3. Dr. C. Saydam greeting the workshop on behalf of Turkish Research Council

They include basic research, construction, technology, defence, remote sensing, and meteorology and provide Internet service for all academic institutions throughout Turkey. At the end of his talk Dr. Saydam elaborated on specific scientific issues of research including an interesting study on the distribution of Sahara dust throughout the Mediterranean Basin.

Dr. Salah Tohoun asked about the amount of the GDP that is devoted to science and research in Turkey. The answer was that the amount is less than 1 %, far less than the EU regulations on the issue. Other topics of discussion included the Sahara dust distribution and the benefits in soil fertility that the surrounding countries of the Mediterranean have received from this process for thousands of years.

Drs. Paola Mairota represented the team of Drs. Giuliana Trisorio Liuzzi of the University of Bari. Paola elaborated the DPSIR framework and provided some practical examples from the Apulia region where the methodology was used to assess the impact of fresh table grape production on man made soils.

Intensive discussion followed the presentation of Drs. Mairota. The general thinking is that the DPSIR framework could be a good tool to assess the impacts of human interventions on the status of the environment and the way the society reacts to such interventions. Dr. Steduto proposed that each participating country could test the framework. Dr. Kapur proposed to test the impact of single crops or separate land degradation factors (*i.e* erosion, salinity) using DPSIR framework. Dr. Rachid Bouabid (P29) proposed to test the DPSIR in the Nakhla watershed in Morocco. He will be collaborating closely with Paola until the exercise is completed.

In the plenary session the bulk of the discussions was devoted to practical applications of the DPSIR framework and its endorsement as a tool for environmental impact assessments. Despite concerns that often such models are run by mathematicians (or informatics people) that are not so close to the real life (Dr. Tahoun) and moreover the availability or lack of data brings to very discussable results, the overall agreement was that DPSIR framework is accepted by the partners as a good tool and will be used extensively during the lifetime of the project, especially for developing policy guidelines for national and regional development.

Photo 4. Drs. P. Mairota speaking on behalf of the University of Bari and explaining the DPSIR framework and its practical uses in the Apulia region in Italy

Photo 5. Discussions on the DPSIR framework

SESSION 2: NATIONAL AND INTERNATIONAL REPORTS

Chairman: Dr. Pasquale Steduto, CIHEAM-IAMB, Italy
Reporter: Dr. Erhan Akça University of Çukurova, Turkey

Dr. Abdul Rahim Loulou from the Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD) – League of Arab States, discussed in his presentation the dominant factors influencing land degradation in the Arab Medcoast region. He stressed that coastal areas are wetter than the interior lands and therefore more people move to those areas where also the economic opportunities for development are higher. In consequence population pressure is much higher than the remaining areas.

He provided then the typology of soils, climate and vegetation, and the main characteristics of the natural ecosystem. In regard to the factors that threaten this ecosystem (natural or human-induced) he mentioned soil erosion, expansion of cultivation in marginal lands, deforestation and charcoal production, forest fires, tourism pressure, urbanisation, and coastal pollution.

Photo 6. Dr. Abdul Rahim Loulou

In conclusion Dr. Loulou stated that land degradation in the Mediterranean coastal areas has been influenced by environmental factors but has been accelerated strongly by human influence, therefore it is necessary to monitor and establish a system to evaluate these effects. ACSAD has a great experience in the region and will provide continuous inputs to the project to mitigate these negative effects.

The next invited expert was **Prof. Salah Tahoun** from Egypt. He made an over review of commonalities of coastal areas in the Mediterranean basin with emphasis on the management of land and water resources. "*There are so many countries that claim to be Mediterranean*"- said Dr. Tahoun. He analysed then the differences between northern and southern Mediterranean countries. Distinctly, population pressure is increasing at an alarming rate in the south, while the northern countries have stable population increase rates.

Controversially, natural resources (mainly land and water) are far less in the south. He analysed then the problem country by country and arrived at the conclusion that unless drastic measures are taken to achieve good land and water management, the sustainable development of the countries in North Africa and the Middle East could be at risk.

Photo 7. Dr. Salah Tahoun speaking in the quality of invited expert

Following his experience with United Nations Convention to Combat Desertification (UNCCD), Dr. Tahoun elaborated on issues like the Inter-Parliamentary Union (IPU) and the Mediterranean Action Plans (MAP) by pointing out the main areas of cooperation in the region, including scientific research and socio-economics. Desertification remains one of the most threatening menaces for the Mediterranean.

Dr. Tahoun concluded by summarising some of the most important actions needed to effectively enhance the sustainable development of the region:

- Sustainable land use;
- Establishment of national and regional task forces;
- Identification of needs and constraints;
- Provision of information;
- Management plans;
- Enacting legislation;
- Improvement of Governmental support services.

Interesting discussions followed the talk of Dr. Tahoun. Dr. Loulou elaborated on the need for better-defined desertification indicators; Dr. Pandi Zdruli informed the audience that there are several on-going projects funded by the EU dealing with desertification research (i.e. MEDACTION and DESERTLINKS). Participants were asked also to make better use of the existing information retrieval already downloaded in the web page of MEDCOASTLAND Project.

Dr. Badraoui raised the question of differences between north and south of the Mediterranean and concluded that to reduce poverty in the south, northern countries should open their markets, especially for food products.

Other interesting issue of discussion was the creation of the Green Belt in Northern Africa. In other words, this is the establishment of a forest line starting from Morocco and ending in

Egypt that will especially reduce wind erosion and Sahara dust distribution. The idea apparently is not new, however its practical creation is yet only in paper.

Mrs. S. Ozden spoke on behalf of the General Directorate of Rural Services of Turkey. Her major area of expertise is in soil erosion research. She reported on studies performed in Turkey for the estimation of actual and potential soil erosion risks. Discussions then were concentrated on the effectiveness of the Universal Soil Loss Equation (USLE) in the Mediterranean conditions. Several participants raised concern that results often are not real and moreover data availability is often poor to run the models. The need for threshold values for Mediterranean conditions was strongly emphasised.

Photo 8. Mrs. Senay Ozden giving her presentation

Dr. Pandi Zdruli pointed out the need to develop a standard methodology to make possible comparing results. The Euro-Mediterranean soil database at 1:1 Million scale could be the common ground for preparing maps showing the extend of soil erosion in the region. He regretted the fact that INRA France, as partner P32 could not attend the workshop. They are in charge of the compilation of such database and could make these assessments in close collaboration with specialists from each participating country in the network.

Dr. Ramdane Laouhati represented the country report for Algeria. As one of the largest North African countries, obviously Algeria is facing many problems related to land degradation. Soil erosion remains the major one. Side effects are the siltation of the irrigation reservoirs. It is estimated that each year about 20 million km^3 of sediments are deposited in the reservoirs. Desertification is also critical. A total of 6 million hectares are at high risk. Other land degradation factors include overgrazing, salinisation, and soil fertility reduction.

To confront these problems the Government has embarked in many projects trying to reduce these negative effects. The main objective is to transform the land use of hilly areas from cereals to fruit trees, forests, or vineyards. By showing pictures of such landscapes, Dr. Laouhati's presentation became very attractive.

Photo 8. Dr. R. Laouhati (left) and Prof. M. Badraoui (right) interpreting for Laouhati

Other conservation measures taken include terracing, water harvesting, creation of reserved or restricted areas, reforestation, and gully correction. All these actions are being conducted in

close collaboration with local communities. Their participation has been proven to be crucial for the success of these measures. The goal of the Government is to plant trees in 1.2 million hectares of marginal lands. "*Erosion control, soil conservation, rural development, public health and awareness, irrigation management, and participatory approach are not separated*"-concluded Mr. Laouhati. It is worth noticing that national funding was used for all these interventions.

Discussions included a remark from Inma Alados in regard to the role of women in participatory approach, and a question from Dr. Claudio Zucca in regard to future plans of Algeria in soil conservation. Dr. Laouhati responded that the main plans include:

1. Rehabilitation of oasis (about 6 million ha at risk of desertification);
2. Erosion control in mountainous areas; and
3. Forest protection especially *Quercus Suber* plantations

TUESDAY, 3 JUNE 2003

SESSION 3 KEY-NOTE PAPERS AND COUNTRY REPORTS

Chairman: Dr. Fawzi Abdel-Kader Alexandria University, Egypt

Reporter: Dr. Rachid Bouabid, Ecole Nationale d'Agriculture de Meknes, Morocco

The 2nd day opened with a presentation from **Prof. Selim Kapur** that provided the country report for Turkey. This large country possess a total area of 28,054,000 hectares of arable land, however prime fertile lands cover only 17.5 % of the above area. Erosion is estimated to effect 81 % of the total surface area of the country and 73 % of the cultivated land.

Major forms of land use in Turkey include permanent crops, arable land, irrigated land, pastures, forests and shrubs. There are no alarming drought threats in Turkey, even though the country has signed the UNCCD and is working on that issue.

Soil sealing and urbanisation on fertile lands is the major degradation factor.

Photo 9. Prof. Dr. Selim Kapur

The process started in the 1950s and accelerated in the 1960s due to unplanned industrial sprawl on agricultural lands. Prof. Kapur presented several maps showing agricultural misused areas, extraction of raw materials, and salinity distribution.

The conflict between irrigation and salinity build-up is always present in the presentations of Mr. Kapur. He posed the question: "*How to manage irrigation versus salinity?"* In the GAP project in Eastern Turkey secondary salinity caused by irrigation is expanding. There are 1,7 million hectares of land to be irrigated in the GAP area. "*If those lands would become saline,*

the long-term sustainability of the whole project is to be questioned"- concluded Prof. Kapur. It is obvious that the fragile Mediterranean environments are threatened by excess irrigation water.

Dr. Tahoun in his comments agreed that irrigated agriculture is spoiling soils with salinity. In addition he challenged some of the maps shown by Kapur, especially the soil erosion map. If erosion is so high, the productivity of Turkish soils should have decreased drastically. Prof. Kapur was of the opinion that models are overestimating the reality.

Prof. Badraoui asked about wind erosion in Turkey, Prof. Kader elaborated on downscaling, mapping procedures and on the reliability of such processes. Dr. Rachid Bouabid pointed out that maps at 1:1 million scales show only potential risks.

The third invited expert in the workshop was **Dr. Francis Turkelboom** working with ICARDA in Aleppo, Syria, who presented the paper: "An integrated natural resources management (INRM) approach for coping with land degradation in dry areas". Following long-term ICARDA's experience in the management of natural resources and especially in dry areas, Dr. Turkelboom initially made an overview of the land degradation problem in dryland areas where over 1,000 million ha are degraded: 467 million ha by water erosion, 432 m ha by wind erosion, 100 m ha by chemical deterioration and 35 m ha by physical deterioration.

Several scenarios have been presented over the years to predict population growth and the supply (or availability) of food for every one on earth. Two of the most noted scenarios are the *pessimistic* one developed by Malthus and the *optimistic* scenario. According to Malthus population growth would inevitably outpace food production. However by the end of the last century the world's population has reached to 6 billion, and demand for food has grown with it.

Photo 10. Dr. Francis Turkelboom representing ICARDA

Food production has grown even faster, and the number of people who are chronically undernourished has fallen. Growth in food demand has generated incentives to increase resource use and improve technology and efficiency much more rapidly than Malthus anticipated, particularly during the second half of the 20th century.

To cope with the threat of land degradation, several approaches have been used over the last few decades. Most of them can be characterized as mono-disciplinary top-down research. While they generated some successes in better-endowed and more homogenous agricultural production areas; they fell short of expectations in more marginalized and poorer areas. As response, more integrated and participatory approaches have been used, such as cropping systems, farming systems, livelihood analysis and participatory research. As these approaches generally provide only partial solutions, therefore a more holistic framework is being proposed, which is referred to as the 'Integrated Natural Resources Management' (INRM) framework

The INRM is developed as a new tool to integrate research of different types of natural resources into stakeholder-driven processes of adaptive management and innovation to improve livelihoods, agro-ecosystem resilience, agricultural productivity and environmental services at community, ecoregional and global scales of intervention and impact. In conclusion, Dr. Turkelboom gave an example of from the Khanasser valley in Syria where the INRM is being tested.

The following speaker was Mr. **Mr. Tamer Soylu** representing the Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats (TEMA), which is the largest and the fastest growing NGO in Turkey. He presented the paper: "Capacity building for land degradation Awareness in Turkey".

Two prominent Turkish businessmen Hayrettin Karaca and Nihat Gökyiğit, with great interest in preservation of the environment founded the TEMA Foundation in 1992. The primary focus of the foundation is to raise public consciousness over several environmental issues posing great dangers for Turkey's future.

Soil erosion, deforestation, the fall of productivity in the farmlands, and threats to the biodiversity are the chief issues that TEMA have chosen to concentrate its efforts on the development and implementation of demonstration projects aiming at rural development, rangeland rehabilitation, and reforestation. However, education of the public on these matters remains the major focus as well for TEMA.

Photo 11. Mr. Tamer Soylu representing TEMA

TEMA is doing a great job in particular in reforestation projects. The **10 billion oak acorns campaign** is one of the most ambitious reforestation projects ever undertaken by a Turkish non-profit organization. The project started in 1998 when an oak acorn was planted in the gardens of the presidential palace in Ankara. The campaign works along simple lines and there are ample opportunities for both the public and businesses to contribute. Ordinary people are urged to get involved in many ways. A minimum contribution of 3 US dollars secures the planting of nine acorns on the person's behalf. Businesses, contributing with significantly higher figures, will be awarded with certificates of appreciation. Since its official start in 1998, in three planting seasons, around 310 million acorns have been planted on almost 8,000 ha. of land.

TEMA realizes that local land users and stakeholders will only accept and adopt conservation measures if they perceive and accept them as beneficial. It is not enough to plant acorns, look after the seedlings for a few years and leave. The conservation and upkeep of the young forests will need the participation of the local people, who will be urged to understand their importance for their livelihood.

At the end of the presentation a video prepared by TEMA in English was shown on the mixed temperate rain forest of the Camili Forest District of Artvin Province in the northeast Black Sea region adjacent to Georgia.

Prof. Fawzi Abdel-Kader from Alexandria University in Egypt made two presentations in the workshop. The first paper: "Challenges for land and water management in dryland areas: NW Coast of Egypt" dealt with a large zone of Egypt that extends 350 km from west of Alexandria to the Libyan border and houses about 120,000 agropastoralists. Like most semiarid regions, this area possesses a fragile natural resource base.

Almost 95 % of Egypt's territory is desert and only 5 % is arable land. The coastal areas are facing increased problems of drought, scarcity of water, salinisation, and population pressure. Many development projects in the NW coast have been less than successful because they have failed to understand the dynamics of the production systems and have failed to effectively involve inhabitants in the development process.

Photo 12. Prof. Fawzi Abdel-Kader

In conclusion to combat land degradation in the area, the study was successful in developing a methodology by which the potential impact of technological changes in production systems could be evaluated in a more comprehensive manner.

The second paper presented by Prof. Kader was entitled: "Evaluating human-induced land degradation in recently reclaimed areas of the West Nile delta in Egypt".

This presentation dealt with the region of the West Delta lying West of the Nubaria Canal that presents one of the most promising areas for crop production that include land reclaimed with 558,500 feddans. These areas were previously uninhabited deserts, but about 70% have already been reclaimed and are now occupied by investors and joint venture companies, public companies and small enterprise holders. The majority of the settlers have been settled in the area for over 20 years. The productivity, of these recent settlers is limited, their use of water is wasteful, and the institutional services to help them are either weak or under developed.

The agricultural development in the area is facing human-induced degradation mainly as waterlogging and salinity problems, due to seepage from irrigation canals, inadequate drainage systems, conversion of pressurized irrigation systems to surface-flooding irrigation, direct use of low quality drainage water in irrigation, and mixing drainage and wastewater with irrigation water. Also lack of field experience and training in managing the reclaimed calcareous desert fringes increased the existing degradation problems.

SESSION 4 COUNTRY REPORTS

Chairman: Dr. Abul Rahim Loulou. ACSAD, League of Arab States, Syria

Reporter: Dr. Claudio Zucca, University of Sassari; Italy

Mr. Nurettin Celmeoglu greeted the workshop on behalf of the Major of Adana. He spoke on the rich historical values of Adana, emphasising its traditions, archaeological heritage, past

and present economic development and future trends for this enormous city, home of almost 2 million people. He explained also the concerns of the local Government about the environment and its preservation. The concern is that many of the fertile lands surrounding the city are being lost to urbanisation and soil sealing. The consequences are being felt already as far as food supply is concerned. For instance, Turkey, from an exporting country in meat products, relies presently on imports to meet its needs.

Other issues of interest included discussions about the long-term stability of the constructions and buildings of Adana, given the fact that the area is highly susceptible and vulnerable to earthquakes. Mr. Nurettin explained that after the earthquake of 1998, strong regulations were put in place for the construction industry, and the Municipality guarantees the implementation of such regulations.

Photo 13. Mr. Nurettin Celmeoglu speaking on behalf of the Adana Major

Dr. Talal Darwish from the National Council for Scientific Research in Lebanon (P5) presented the country report for Lebanon and another paper on land degradation on the Lebanese coast by urbanisation pressure and mismanagement of water resources.

In regard to the country report, Dr. Darwish mentioned the major factors of land degradation in Lebanon as follows: soil erosion, nitrate pollution, water scarcity and drought, water deficit building at annul rates of 140 MCM, salinity, vulnerability to desertification, and organic matter content to the soils as less than 2 %. The assessment of erosion using remote sensing and GIS in the central Lebanese mountains showed more than 90% of the area having moderate and high soil erosion rates.

More than two thirds of the soil resources in Lebanon are facing other significant stresses like alkalinity, moisture deficit, and urban expansion. In greenhouses, a steady increase in the soil electrical conductivity (ECe) from 0.4 dS.m-1 to 15 dS.m-1 is observed. This is mainly associated with the excess input of fertilizers and use of saline water in irrigation.

Photo 14. Dr. Talal Darwish

The evaluation of soil vulnerability to desertification based on soil parameters like soil depth, texture, organic matter content, water retention capacity and structural stability reveal that more than 75% of the territory is highly prone to desertification. If this figure is intersected with the geomorphology, vegetation, climate and social indexes, the area prone to desertification becomes close to 90% of the total area of the country.

The geomorphology and climatic conditions of Lebanon make the country highly vulnerable to land degradation as well. The significant reduction in the vegetation cover coupled with torrential rainfall cause intensive water erosion. The intensive agricultural practices and mismanagement of water and fertilizer inputs result in increasing risks of soil and groundwater contamination with nitrates and heavy metals. "*The introduction of land use planning and adoption of adequate agricultural practices is essential to protect the soil and groundwater resources*", concluded Dr. Darwish.

The other paper dealt with land degradation on the Lebanese coast. In Lebanon, the use of available water resources is reaching unsustainable levels because of increased consumption as a result of population growth, industrial development, and the expansion of irrigated agricultural land, mainly because of the ever-increasing chaotic exploitation of groundwater resources. In addition, more than 70% of the average yearly precipitation of 8,600 MCM is lost through different processes. These processes account for a loss of about 2,600 MCM of potentially available surface and groundwater resources and only 2,000 MCM are exploitable.

The water withdrawal intended for agriculture was estimated at 68% of the total amount withdrawn of which, 54.3% are irrigated from a surface water source and 45.7% from the groundwater such as artesian wells, recharge wells and springs. In the absence of large-scale irrigation schemes, the amount of groundwater intended for irrigation has seriously increased in the past few years by means of private wells. However, the uncontrolled exploitation of groundwater resources in the coastal regions favoured the saltwater intrusion.

The uncontrolled exploitation of groundwater resources in coastal regions intended for domestic, industrial and agricultural purposes, imbalances the dynamic equilibrium between seawater and the flowing groundwater, favouring the saltwater intrusion. Irrigation with saline water, under low farmers skills, results in serious environmental and economical consequences related to salinity build-up in the soil and crop yield reduction.

Ms. Sonya Vella presented the country report of Malta. She was the only one to have tried to use the DPSIR approach in the assessment of land degradation factors and their impact on the sustainability of agricultural system in Malta.

Malta's population density exceeds 1,200 persons per square kilometre. This makes the sustainable use of land, one of the most pressing priorities for the country, which is very environmentally vulnerable, mainly due to a high population density and limited assimilative and carrying capacity, leading to problems connected with waste management, water storage, and other factors associated with small territorial size. The large number of tourists that visit the Maltese islands aggravates the problem even more. In 2002 this number was as high as 1,215,703.

In addition to population pressure, other factors include nitrogen pollution (excess use of fertilisers), urban expansion (in 2001 about 26,4 % of the territory was covered by urbanisation).

Photo 15. Ms. Sonya Vella

The state of such pressures is reflected in increasing erosion, salinisation, nutrient loading, and translocation of soil. Direct impacts are not yet done, however indirect assessments could

be the eutrophication of coastal waters, with related economic impacts for the tourist sector and the high blood lead level of island's inhabitants.

Responses of the society include adopting indigenousness soil conservation, strengthening legislation and related institution, etc. Environment Impact Assessments (EIA) methodology was introduced in Malta in late 1980s. The step-by-step procedure includes: Proposal-Screening-Scooping- EIA Report preparation-Review-Public hearing-and Decision making. The procedures are laid down in the Environmental Impact Assessment regulations (legal notice 204 of 2001) under the Development Planning Act (Cap, 356).

A good step forward in Malta was the establishment of the National Soil Unit that is in charge of monitoring soil degradation, sewage sludge pollution and the Nitrate Directive. The code of Good Agriculture Practise for the protection of groundwater from nitrate pollution is in the process of being established. The Code will be obligatory for farmers who register for financial assistance under any of the agri-environmental schemes of the rural development programme.

Finally Ms. Vella emphasised the importance of the Maltese Soil Information System (MALSIS) and its practical use especially for establishing the environmentally sensitive areas. "*Soil should take the same importance as water as air*"-was her final conclusion.

Several participants (Zdruli, Tahoun, Alados, etc) congratulated Sonya for her effort to use the DPSIR in her presentation and proposed that the remaining partners in the network could follow such exercises also.

The fourth speaker was **Prof. Mohamed Badraoui** reporting on the status of land degradation and conservation measures in Morocco. He informed that in Morocco there is much of indigenous experience in soil conservation coupled with the intervention of modern techniques, particularly in irrigation techniques. Recently there is a switch from furrow irrigation to drip irrigation. The government subsides 40 % of the costs for this change that in turn increase irrigation efficiency and save water.

Photo 16. Prof. Mohamed Badraoui

Land degradation still remains a major constraint for sustainable development in Morocco. A combination of factors like soils, water, vegetation, and population pressure accelerates the problem. Desertification on the other side is progressing northwards in the country. To confront these problems, the Government is trying to mitigate these negative effects.

One of the most prominent features in soil conservation measures in Morocco is the participatory approach that is widely used throughout the country. Following the liberalization of the agricultural sector and the full autonomy of the farmers to decide on the crops they grow but also on the stewardship for their lands, the above approach becomes even more important. One example was given on cactus cultivation on sloping lands to control erosion and generate income. It was proposed to prepare a paper on this subject for the next workshop to be held in Morocco in February 2004.

Incentives are also a good way to push forward in soil conservation. The Government lately is using subsides for the creation of olive tree plantations in the hilly areas. The farmers cover only 40 % of the cost. Millions of trees are already planted.

WEDNESDAY, 4 JUNE 2003

Field excursion
(See Annex1 at page 29)

THURSDAY, 5 JUNE 2003

SESSION 5 COUNTRY REPORTS AND SPECIFIC REPORTS

Chairman: Dr. Talal Darwish, National Council for Scientific Research, Lebanon
Reporter: Dr. Mohamed Badraoui, IAV Hassan II, Morocco

Drs. Leila Habib (Tishreen University) presented the country report for Syria. Land degradation is due mainly to unsound past policies and mismanagement of natural resources. The immediate causes of land degradation are: inappropriate land use, degradation of soil, water and vegetation cover and loss of both soil and vegetative biological diversity. All of these effect ecosystems structure and interacts together with intensive forms of land use, including over-grazing, and excessive irrigation.

Photo 17. Dr. Leila Habib

Other forms of degradation include extensive wind erosion; increase of cultivated land at the expense of grazing lands, and dust storms. Leila showed several pictures illustrating these realities. In regard to the actions taken to combat land degradation was mentioned among others, the Al-Badia Development Project that has the main following goals:

- Protection of pastures;
- Afforestation.

The Syrian Government has invested so far 196 million USD in reforestation projects.

Discussions were concentrated in aspects of wind erosion and the development of common methodologies to make a proper estimation of the problem (Zucca). The need to coordinate efforts in this respect was again emphasized

The situation in Syria was complemented also by the presentation of **Mr. Ibrahim Waad** representing the Ministry of Agriculture and Agrarian Reform. He re-emphasized that soil erosion (water and wind) remain the main problem in Syria, along with overgrazing and shrub cutting.

Photo 18. Mr. Ibrahim Waad

Dr. Turkelboom expressed concern in regard to the effectiveness of the participatory approach and suggested that both top-down and bottom-up ways are needed to be successful in achieving sustainable land management.

Dr. Hedi Hamrouni presented the last country report. Tunisia is characterized by a diversified climate, dominated by aridity. Areas located in humid and sub humid bio-climatic stages extend approximately to one million hectares. These areas are not concerned by land degradation but represent nearly 6% of the total surface of the country (16,400,000 ha).

Photo 19. Dr. Hedi Hamrouni

The rest of the Tunisia is seriously exposed to land degradation. It is composed of semi-arid (16.4%) and arid (77.6%) regions. These regions include areas completely deserted, formed by permanent and natural deserts (more than 20% of the total surface) and other areas more or less subject to desertification. Three quarters of the country are already threatened by desertification. Almost 23,000 hectares per year of agricultural land are lost due to erosion, saltiness, urbanization, and desertification.

The presentation of Dr. Hamrouni became either more interesting by a simultaneous combination of video presentation and slides. The video prepared in Arabic was showing conservation techniques to combat soil erosion. Participants appreciated the presentation of Hedi and suggested that we should have more of these types in the future workshops.

Dr. Claudio Zucca from the University of Sassari (P34) spoke on ongoing research and concertation activities on desertification in Northern Mediterranean Countries (UNCCD Annex IV). For more than a decade the European Commission has identified Desertification as one of the major problems facing southern Europe.

Photo 20. Dr. Claudio Zucca

The EC ratified the UNCCD in March 1998, reaffirming its commitment in addressing desertification both in Members States (Greece, Italy, Portugal, Spain) and in Developing Countries

In Europe, over 90 multidisciplinary research projects have been co-financed from 1991 to 1998 with a financial support of over 75 million Euros.

These projects have sought to contribute to a thorough understanding of the complex genesis and evolution of desertification in order to provide guidelines for rational management of desertification prone areas and protection or possible rehabilitation of threatened zones. Dr. Zucca concluded by pointing out that as far as participatory approach and conservation

actions are concerned, the Southern Mediterranean countries are better off compared to the European Mediterranean partners.

The last speaker of the season was **Drs. Inma Alados** from Spain representing the Consejo Superior de Investigaciones Cientificas (CSIC) that reported on land degradation in Spain with special reference to coastland areas.

Recent increases in the human population in the coastal area of Spain have placed great concerns, especially the intensive urbanization and tourism expansion.

A rate of increase around 0.3 % was observed between 1900 and 2000. The city of Barcelona alone in 1900 had 1 million people while in 2000 the population has reached as high as 4 million.

Photo 21. Drs. Inma Alados

Other form of degradation includes nitrate pollution resulting from the expansion of greenhouses as it is happening in Almeria for instance. This process posses even greater risks than urbanization.

Grazing of Mediterranean ecosystems is thousands of years old, however overgrazing has created severe problems of land degradation throughout the region.

Another major problem in the Spanish agriculture is the chemical contamination with the use of simazine, which is prohibited in areas that can affect the aquifers. The salinization in Spanish lands is also very high as a consequence of over-fertilization and exploitation of salty aquifers for irrigation. Many studies are underway trying to resolve this problem.

Forest fires are of great concern as well because of their direct impact on soil erosion. The impact of wildfire on the shrub vegetation, which occupies a greater area than forests, and the recovery afterwards, affects a number of other processes, including water erosion. "*Wild fires cause nutrient losses to the ecosystem and require long periods of time for recovering*"- concluded Inma.

SESSION 6: SPECIFIC REPORTS

Chairman: Dr. Pandi Zdruli, Mediterranean Agronomic Institute, Italy

Reporter: Drs. Inma Alados Lopez, CSIC, Spain

Dr. Butros Hattar from the University of Jordan in Amman as partner P14 presented the country report for Jordan. In addition he made a presentation also on a project aiming at the improvement of agricultural productivity in arid and semi arid zones of Jordan (JAZPP Project.

Initially Dr. Hattar identified the major land degradation factors in Jordan: water and wind erosion, overgrazing, over-cultivation, desertification, salinisation, crust formation,

waterlogging, deforestation, and drought, which are accelerated by human-induced activities in agriculture including poor land preparation and ploughing parallel to the slope.

The lack of appropriate legislation with respect to rangelands is causing several consequences that could be summarised as follows:

- Reduction of organic matter, especially accelerated by stable burning;
- Poor aggregate stability;
- Low infiltration rate;
- Accelerated erosion;

Photo 22. Dr. Butros Hattar

As in other countries, land degradation in Jordan is further implicated by several socio-economic factors, however poor farmers are not concerned much about land degradation, as their main concern is to secure the food they need every day.

The second part of the Dr. Hattar's presentation was devoted to the JAZPP Project, which started in the early 1990s.

The overall objective of the project is to contribute to the sustainable development of the Badia lands of Jordan by providing a basis for the optimal use of the region's land and water resources. Its principal contribution will be based on the achievements of earlier work at Muwaqar, to develop and promote improved techniques for producing crops and livestock, to formulate comprehensive land use recommendations aimed at optimising the region's scarce rainfall, and to start the process of technology transfer. The project area is the rainfall zone to the east of the highlands receiving approximately 100 to 200mm annual rainfall and the entire project area is about 12,000 sq km.

The project has investigated ten different potential land use scenarios defined in combination of the three factors below:

- The type of crop to be grown (range/browse, seasonal crop, or perennial crop);
- The way the water is collected (upslope water harvesting, in-field water harvesting, or small earth dams); and
- The way the water is used (basin/furrow irrigation, large water- spreading basins, contour furrows, small run-off basins).

Actions which need to be promoted by Government include promotion of local cooperatives, concessionary loans for environmentally sound techniques, restriction on animal movements over large areas, strengthening of extension services, and promotion of environmental education at local schools, cooperatives, and community level.

In the following discussions Dr. Zdruli emphasised the fact of reduction of organic matter, Dr. Kader asked about water harvesting strategies, Dr. Turkelboom inquired about successful technologies in collecting water. D. Hattar explained that micro catchments and micro dams

were the most preferred by farmers. Dr. Tahoun pointed out that water harvesting is a very important issue in environments with 100-200mm of rain annually. Ms. Ozden asked about the long-term effects of sewage sludge on soil properties and on ground water. The response was that as far as water table is concerned there are no risks because it is too deep.

Mr. Clemente Azzopardi from the Farmers Central Cooperative Society (P26) made a voluntary presentation in the name of the farmer partners in the project. He spoke with a very clear and simple language explaining the operations and activities of their cooperative that can be summarised as follows:

Photo 23. Mr. Clemente Azzopardi

- To survive the competition we have to develop market strategies;
- Keep the democratic system inside the cooperative (all members should have equal rights)
- Implement good and environmentally friendly farming practices.

The constraints of farming in Malta include water shortage, salinity of irrigation water and the farmer's culture that often is difficult to change. Irrigation water is comes from wells as deep as 250 metres.

Finally Mr. Azzopardi recommended that keeping the contact with politicians and decision-makers was very important, but the language of communication should the one farmers use, otherwise results on the ground are little and not relevant. Questions were made (Badraoui) in regard to the Malta's inclusion into the EU and the new prospectives that could open for Maltese farmers. Mr. Azzopardi explained that the only benefits that they can expect would be from rural development.

Dr. Rachid Bouabid presented the paper "*Soil degradation and conservation examples from the Nakhla watershed in Nothwestern Morocco*". This was quite a big project financed mainly by the USAID, the Moroccan Government and other institutions. The Nakhla watershed lies 20 km south of Tetouan, on the road to Chefchouen. It is approximately 10,630 ha in size with elevation ranging from 200 to 1,800 meters.

Photo 24. Dr. Rachid Bouabid

The watershed has a number of physical characteristics that foster soil loss. It is characterized by steep slopes and relatively high rainfall, which accelerates soil erosion.

About 30% of the watershed's total surface area is under cultivation, 46% is covered by vegetation, mainly mattoral, and the remaining 24 % is classified as rock and badlands. The Nakhla watershed has an estimated population of 8,000 inhabitants. The participatory approach has been widely tested for the whole duration of the project.

Indirect interventions included reducing the degradation of the mattoral by introducing energy efficient cookstoves, and by introducing genetically improved breeds of goats combined with rotational grazing techniques. Other indirect actions included introducing beehives into the mattoral, and introducing better cultural practices for dry-land cereals and legumes. Finally, additional income generating activities were proposed such as rehabilitation of the irrigation canal network, fruit tree planting on the irrigated terraces, and raising small animals in domestic households.

The presentation of Rachid become even more interesting and clear by the presentation of a video prepared in English that showed all the phases of the project since its inception until final results.

Dr. Zdruli congratulated the speaker for the presentation and elaborated that the Northern Mediterranean countries should learn from the Southern countries in how to involve local stakeholders in conservation actions. He asked then explanations about the fact that the farmers were supposed to sing agreement with the management team of the project. Dr. Bouabid explained that these were some kind of agreements and compromises with the farmers. Donors of the project were supplying for instance trees and the farmers were responsible for planting and taking care of the plantations.

Dr. Zucca asked about financing the project and cost-benefit analyses. The response was that after the first year of the project, the evaluating commission examined the results. Indeed the sponsors of the project have indicated from the beginning that financing for the whole duration of the project would be subject of results of every year. The fact that the project was successfully concluded indicates that the results were very encouraging.

Prof. Badraoui completed the picture by emphasising that the methodology developed in the Nakhla watershed was so successful that has been transferred to some other 70 projects throughout Morocco. The Ministry of Agriculture supported financially all these projects.

The last speaker of session 6 was **Dr. Hedi Daghari** from the Institut National Agronomique of Tunisia who reported on the salinisation of irrigated areas in Tunisia. These areas cover only 350,000 ha of land nationally with 120,000 ha near the Medjerdah River (the only permanent river in Tunisia) and 40,000 ha in the oasis areas known as fossil water and not a permanent resource.

Photo 25. Dr. Hedi Daghari

The salinity of Medjerdah River can reach more than 3g/l during summer when irrigation is very important. All the soils near the river are heavy textured and the water table is generally high and so is the risk of salinisation. In regard to the deepness of the water table two different situations are encountered in Tunisia:

- If the water table is near the soil surface, sub drainage design is done regularly, however it's necessary to clean continuously the drainage canals. This technique has transformed old aquatic areas in very productive irrigated areas (Utique, Henchir Tobias).

- If the water table is deep enough and the irrigation water is saline, it is necessary to leach the salts by additional amount of water. This technique has been used for example, in the oasis areas where irrigation is done throughout the year and more than 20,000 kg of salts per ha/year are brought. However the oases were not affected by salinity.

Salinisation in Tunisia covers about 10 % of the irrigated area. It derives mainly from the accumulation of residual salts coming from saline irrigation water. The process is monitored regularly. To control and halt salinity build-up, 63 km of main canals are necessary to be cleaned annually in the country. The cost for such operations is about 2$ per 1 meter linear and the cost of irrigation water is around 0,1$/$m^3$.

FRIDAY, 6 JUNE 2003

SESSION 7: CONCLUSIONS AND RECOMMENDATIONS

Chairman: Dr. Pasquale Steduto, Mediterranean Agronomic Institute, Italy

Reporter: Dr. Erhan Akca University of Çukurova, Turkey

Dr. Pandi Zdruli in the quality of the Project Manager of the MEDCOASTLAND Network made a summary of activities of the project since its launch in October 2002. He analysed the performance of every partner in regard to information retrieval, participation at events (Kick-Off Meeting and Adana workshop), preparation of abstracts, papers, country reports and all other related activities of the project. He was critical to all of them that are lacking behind their duties and gave credit to partners that have contributed extensively to the up-to-date good performance of the network.

Photo 26. Dr. Pandi Zdruli, MEDCOASTLAND Project Manager

In particular, Dr. Zdruli informed the partners on the major findings of the information retrieval. Looking carefully at more than 1,000 files downloaded in the web page of the project and more specifically to the files related to Work Package 2, it is clear that land degradation continues to be a great problem in the Mediterranean.

Both natural and human-induced conditions are inter related with each other, however the human impact has accelerated the process.

Dominant factors of land degradation include erosion (water and wind), desertification, salinisation, drought, organic matter reduction, overgrazing, soil sealing (*i.e.* urbanization), chemical pollution of soil and ground water, and high population pressure per unit of productive land.

MEDCOASTLAND Project is not intended to make conventional research, but to collect, harmonize, and disseminate existing research results. This is done through the retrieval of

information and making this available to partners via the web page of the project. The basic document for information retrieval is the Terms of Reference (ToR) prepared by the management and coordinating team of the project.

Analysing the existing retrieved files it becomes clear that extensive research has been carried out in the region in regard to land degradation and soil conservation. Local and international institutions have funded this research. However, retrieving real results and data becomes often difficult, as they are even not reported or reported partially. The same is true for the budget allocated to specific projects. In consequence, there is repetition of similar type of research, duplication of work and land degradation continues to be a problem in the region.

Dr. Zdruli analysed then the major objectives of the project and their performance. In regard to the assistance in planning and management of natural resources with particular regard to land degradation and resource base conservation and management much of the work is still to be done.

The project has been useful however to establish a Mediterranean-wide permanent communication structure between researchers, decision makers, land users (farmers' association) and non-profit organisations involved with combating land degradation. It is assisting in providing and disseminating knowledge from research and practical experience in easy-to use information way. The final goal of providing a framework to assist regional planning and EU-funding in Mediterranean areas is yet at the very early stage.

The workshop in Adana addressed all the objectives of the Work Package 2, including discussion and endorsement of DPSIR framework, taking into account differences among local, national and regional scales and several options to be developed for enhancing sustainable use and management of natural resources. Especially the field visit was quite useful to discus all these objectives.

Finally Dr. Zdruli detailed on goals and targets of the project. He proposed that each partner in the project should submit at least 10 reviews of abstracts of research per month (meaning at least 480 files of retrieval for the whole duration of the project). The MEDCOASTLAND Project provides funding to partners, but the budget spending could be only justified by active participation and fulfilment of duties (writing abstracts, papers, retrieval, participating in workshops, etc).

He urged also partners to be more active and make better use of the facilities provided by the project, especially the WEB FORUM and the information retrieval available in the Reserved Area on web page. Work Package Leaders should be more active and provide guidance in knowledge extraction. The final goal of the project is to make review, synthesis and to harmonise and complete the Knowledge Base. "*In a simplified way this means to avoid previous mistakes and to learn from positive past experiences*", concluded Dr. Zdruli.

Numerous participants participated in the discussions. Dr. Darwish completed the presentation of Dr. Zdruli by pointing out that the brochure and the 1st Newsletter of the project were very useful to show to other people about the project. He then asked about the

continuous functioning of the web page after the life span of the project. "*Who will take care of that?*" -asked Talal Darwish.

Dr. Tahoun proposed to increase the web links and asked about the possibility to open the reserved area of the project to worldwide public. The answer was that this is the real wealth of the project and certainly will be opened to people outside this network. The Steering Committee will take that decision at the appropriate time.

Prof. Badraoui emphasised the fact that all the partners in this network are here on voluntary bases and on their free will, therefore the strict the link between budget and the work to be done should be avoided. The solidarity and friendship in the project was solicited also by the Coordinator of the Project, Dr. Pasquale Steduto, and by Dr. Zdruli, Dr. Darwish, Dr. Bouabid, and Prof. Kader.

Other discussions were related to the fact that collecting all the proposed files of retrieval could be difficult, especially for the Farmer Associations. Dr. Zdruli proposed that following the solidarity approach, partners within each country could work together (as is happening in Turkey) and the scientific institutions should help farmers and others with limited resources (especially PC and Internet connection).

Mr. Enrico Nerilli, the web master of the project presented an update of the web page of the project that predominately is related to the activities of Work Package 1. He explained that the WEB FORUM is available but very few people have used it so far. He also informed on the files that are downloaded and how to use this information.

Photo 27. Mr. Enrico Nerilli, MEDCOASTLAND Web Master

He asked partners to submit him web page addresses of other institutions related with the activities of our project.

Surfing the web page of the MEDCOASTLAND Project, Mr. Nerilli showed practically how to use all the features that are already available.

Many partners congratulated Enrico for the preparation and functioning of the web page. In addition discussions were devoted to the improvement of the practical use of information retrieval using auxiliary search features.

The Leader of the Work Package 2 (WP2), Prof. Kapur concluded the presentations of session 7 and opened the plenary session. The message that he conveyed was that the workshop is over but the work on WP2 goes on.

The topics of discussion for the plenary session were:

- Is still land degradation a serious threat to natural resources in the Mediterranean region?
- What is missing to achieve sustainable land use?
- Is the available knowledge base and existing research results complete?
- What we have learned and where should we extend our knowledge?

- Why implementing positive research results is not always the case?
- What further actions are to be taken?

Prof. Kapur announced also the creation of following working groups within the activities of WP2:

- Soil erosion group (leader P29 Morocco, members Palestine, Turkey, Syria, and others volunteers)
- Salinity group (leader P3 Egypt, members Tunisia, Algeria, Turkey, and others)
- Overgrazing group (leader P9 Syria, members Jordan, Turkey and others)
- Soil sealing (urbanisation) group (leader P11 Turkey, members Spain, Malta, and others)
- Soil resilience/soil quality (leader P9 Morocco, members Turkey, Lebanon and others)
- Desertification group (leader P34 Italy, members Turkey, Egypt, Tunisia and others)
- DPSIR group (leader P11 Turkey, members Malta, Morocco, and others)

Dr. Steduto asked whether the DPSIR framework could be considered as the common methodology for land conservation management and assessment of land degradation. Dr. Kapur informed that the DPSIR framework was discussed thoroughly even though not all the partners have good understanding of it. He proposed to test the system for assessing single crops and their effects on the environment, as Paola Mairota explained it for the case study of table grapes in Apulia, Italy.

The idea was opposed, though by Dr. Turkelboom who suggested that the DPSIR could be good to be tested in watershed level but not at national level and moreover for single crops. Prof. Badraoui stressed that DPSIR is a framework and not a methodology. "*We will give a try to it, but if we do not have the data there is little we can do*"-concluded Badraoui. Dr. Darwish informed that the DPSIR is available at the web page of FAO under the Land Degradation Assessment for the Dry Areas (LADA) subcategory.

Dr. Bouabid was very keen to use DPSIR. He asked for materials and publications. He even suggested using the framework in the Nakhla watershed in Morocco. Rachid and Paola will work together in this exercise. Rachid made also a quick presentation of a similar web page that they will create in Morocco, following the example of MEDCOASTLAND.

Dr. Murat Ozden proposed to include in the WEB FORUM as subcategories the working groups that were created in the workshop. He also asked to open the reserved area of the project to the public.

Dr. Steduto asked the partners to prepare in time their country reports for assuring publishing in time the proceedings of the workshop. He reminded also that at the end of September 2003, which coincides with the end of the first year of the project, balance sheet statements were due. The Coordinating team in Bari will send within July 2003 standard forms to be filled up by all the partners. He concluded the session by pointing out that the workshop was a success for all of us.

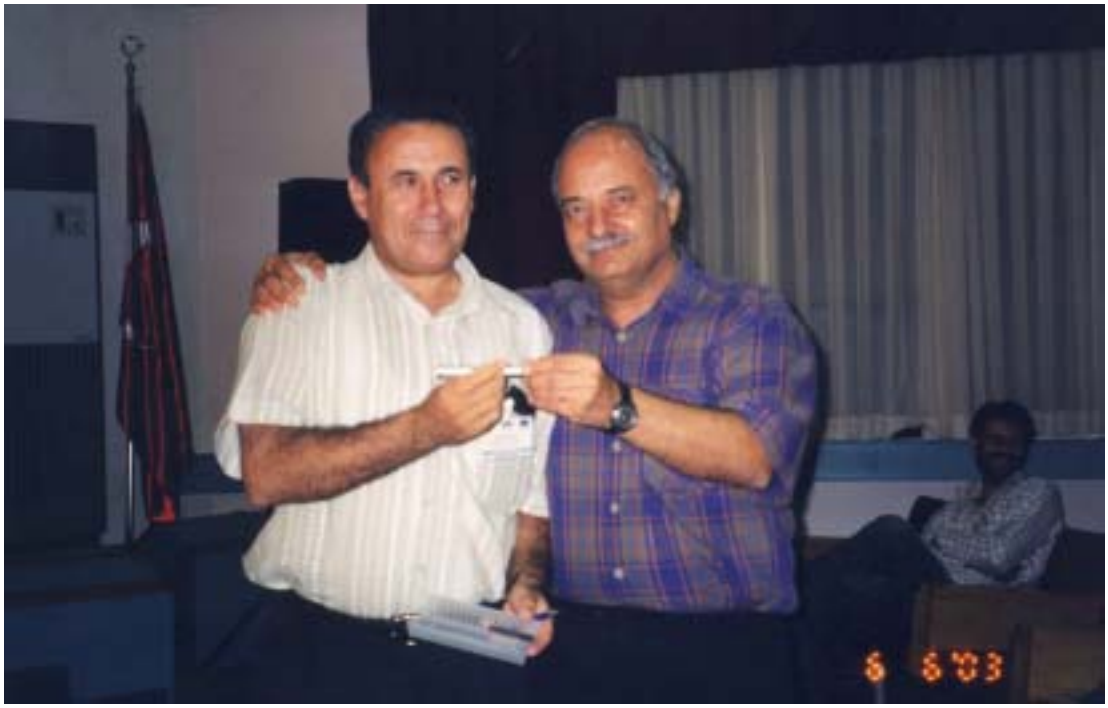


Photo 28. Prof. Kapur handing over the "Chairman's Pen" to Prof. Badraoui

The next workshop will be in Marrakech, Morocco in 2-7 February 2004. Prof. Badraoui invited partners to join them in such a beautiful and historical place for Morocco. In the Kick-Off Meeting held in Bari in October 2002 was decided that the Work Package Leader in charge of organising the workshop becomes Chairman of the Steering Committee. Therefore, Prof. Kapur handed over the chairmanship to Prof. Badraoui by giving him the "Chairman's Pen".

See you all in Morocco in 2004.

Annex 1.

WEDNESDAY, 4 JUNE 2003

Field excursion

Included a short trip to the north of Adana to see from a superb arboretum site behind the University of Çukurova campus the unique olive-carob-vine agroecosystems (environmentally friendly). Later the group moved to the Mediterranean coast *i.e*. the Seyhan Delta to visit an agroforestry area managed by the Adana Regional Directorate of Forestry. Both visits were aimed to address the indigenous agroecosystem based on environmentally friendly land use systems.

The first part of the excursion covered visits on soils and landscapes to study the specific Calcrete surfaces allocated for the olive-carob-vine-stonepine agro-ecosystem. The Adana - Misis area excursion comprised the study of Alfisol / Mollisol profiles developed on Late Pleistocene / Early Holocene calcretes (caliches). These calcrete surfaces have been allocated to very well established agro-ecosystem regions since antiquity. Micromorphologic studies have especially being conducted on these soils to answer the question of irrigated agriculture performed in these agro-ecosystems/agroscapes.

Photo 1. Dr. Erhan Akca explaining the characterizes of the olive-carob-vine, -stone pine agro-ecosystem

After a delicious picnic-type Turkish lunch (prepared under the direct of care of tireless Erhan) the group moved to study the soils, landscapes and agroecosystems of the **southern Adana Basin** that started at the Cineköy location. Dominant soils of the area (Entisols, Fluvisols) have been found to overlie a Hittite Statue (2,900 BP) at recent excavations.

The excursion proceeded with discussions on the recently developed (since 1950) Kapikoy forest covering sand dunes with initial soil formation (Arenosols with accumulation of organic matter) on the southern coastal area of Adana. The area is predominantly covered with plantations of *Pinus pinea*, *Acacia cyanophylla* and *Pinus brutia* with forage crops.

Photo 2. Reforestation of the sand dunes of Adana coastal area

The Forest Management Approach has the following aims:

- Establishment of agencies in forest management;
- Creation of new forest areas;
- Production of by-products from forests;
- Income-generating for local communities;
- Protection and conservation of natural elements of the forest.

Between 1972 and 1987 the Regional Directorate of Adana undertook a project to stabilise the coastal dunes and wind erosion by creation stone pine (*Pinus pinea*) plantations. The project proved to be both beneficial for erosion control and its economical value. It was reported that only one kg of pine seeds is sold to about 30 Euro. It is proposed therefore that a paper could be prepared for the next workshop in Morocco that will be dealing more profoundly with income-generating aspects of soil conservation and management.

An important part of the discussions was devoted to the top-down and bottom-up approach that the Regional Forestry Directorate of Adana applies. The rural communities in the surrounding area of the project were asked to work in the pine plantations for seed collection or other services. The experts of the Directorate however, supervised their work. It was good to notice that many of the participants expressed much interest in the project.

Photo 3. Participants of the field trip in the Mediterranean coast of Adana

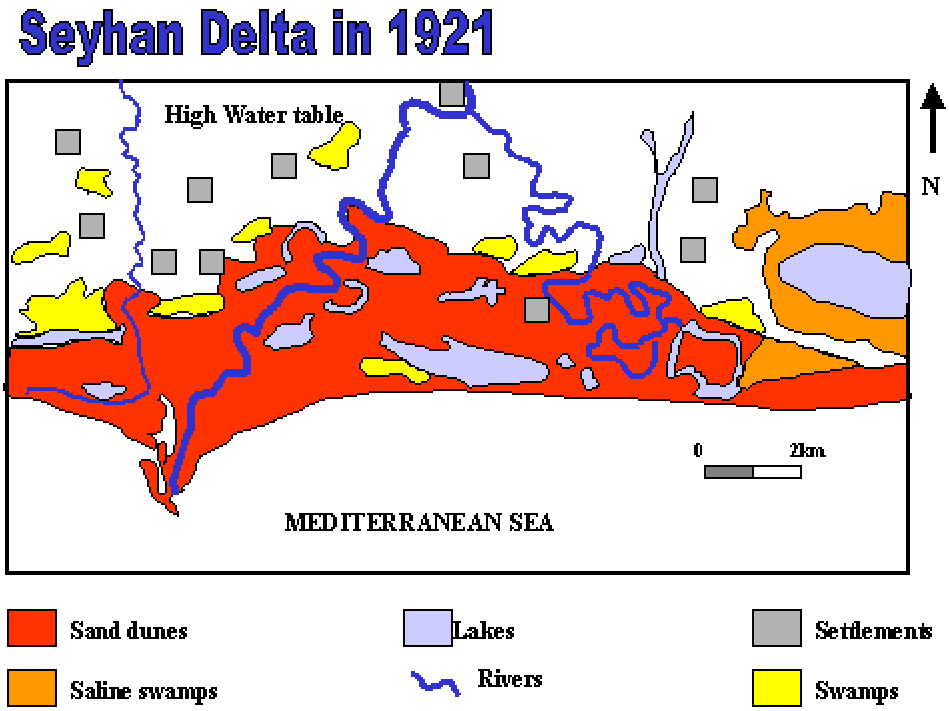
The endangered coastal sand dunes, the wetlands and the productive soils of the Seyhan Delta bare the main concern of the research carried out in this selected pilot zone. The delta was developed by the activity of the Ceyhan and Berdan rivers flowing from Taurids to the Mediterranean. The height of the dunes varies from 5 to 20 m.

These coastal environments are still important in terms of marine turtles and plant biodiversity. Huge degradation of sand dunes and the soils of the area have occurred all over the delta zone, due to agriculture, tourism and urbanisation. Pollution of soil and water is also a big problem due to agriculture expansion. Research has been carried out since 1991 in the area and new monitoring has revealed specific patterns of the various selected indicators (salinity, organic matter, soil structural stability).

An integrated methodological approach has been then carried out to accomplish sustainable management of Seyhan Delta, by using DPSIR framework methodology.[2], [3]. Participants enjoyed visiting the project area and shared experiences gained in the management of this fragile coastal ecosystem through integrated land and soil conservation management.

Development and land use changes in the Seyhan Delta from 1921 until 1996

Figure 1.



[2] Coccossis H., Burt T. & Van der Wiede J. – 1999 – Conceptual Framework and Planning Guidelines for Integrated Coastal Zone and River Basin Management. In (ed. E. Ozhan) Proceedings of MEDCOAST 99 – EMECS 99 Joint Conference, Land-Ocean Interactions: Managing Coastal Ecosystem. 9-13 November 1999, Antalya, Turkey. 1-18.

[3] Kapur S. et al. – 1999 – Agroecological Management of Degrading Coastal Dunes in Southern Anatolia. In: MEDCOAST '99 – EMECS Joint Conference, Land-Ocean Interactions: Managing Coastal Ecosystem. 9-13 Nov. Antalya Turkey (Ed. Erdal Ozhan). Pp. 347 – 360.

Figure 2.

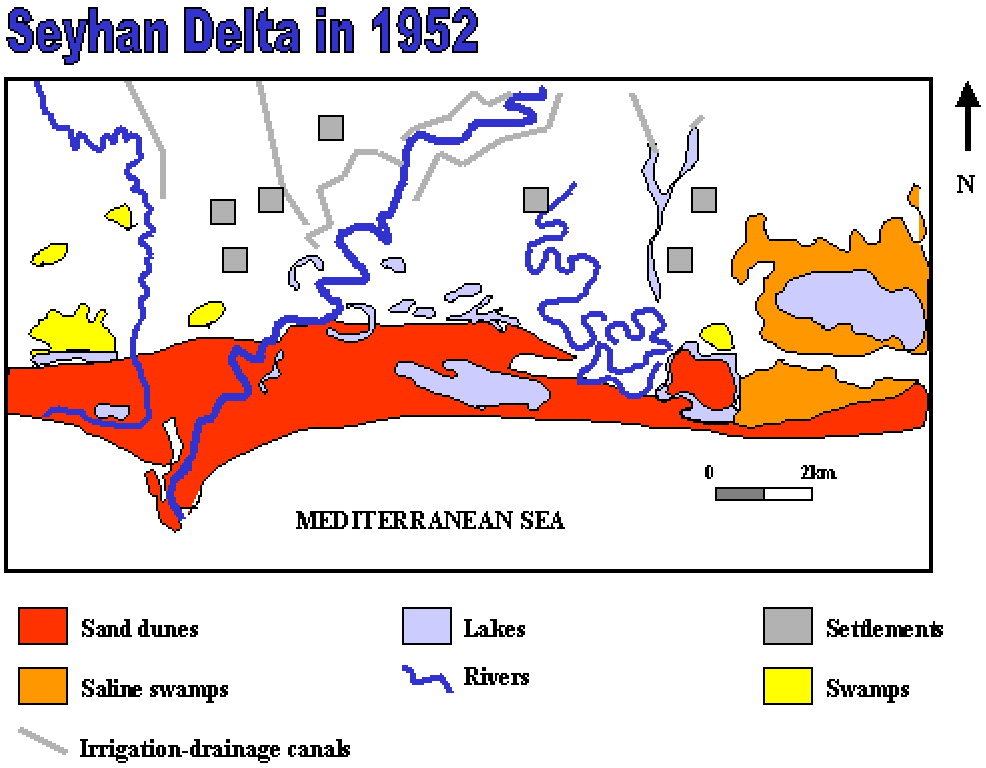


Figure 3.

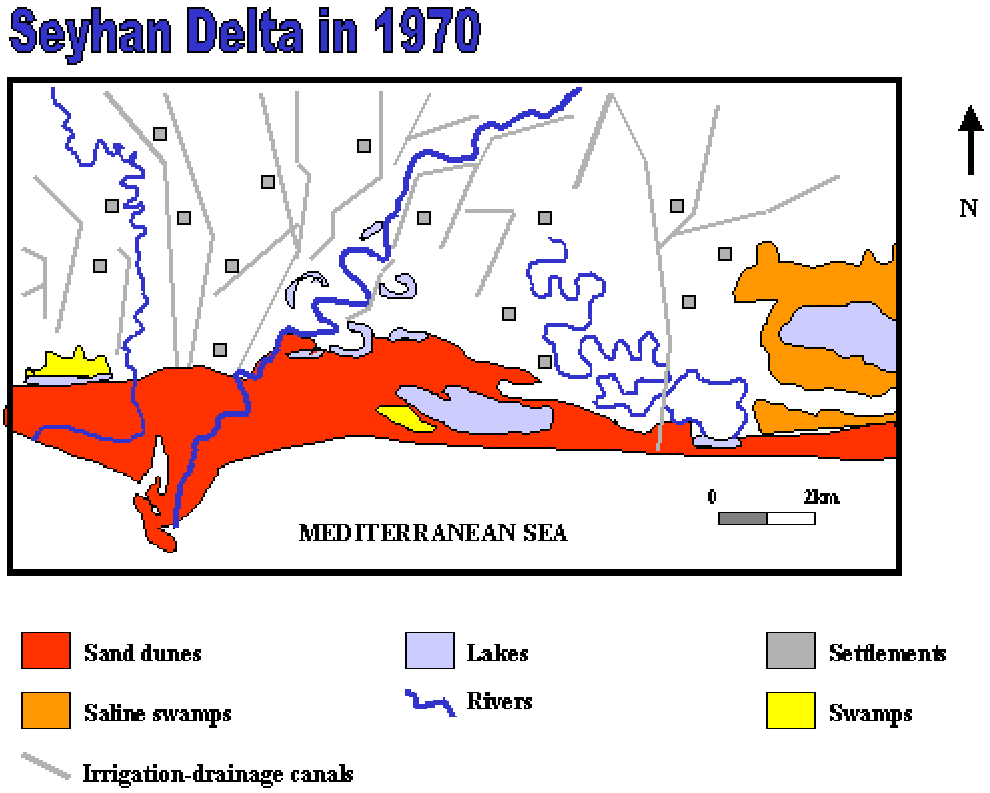
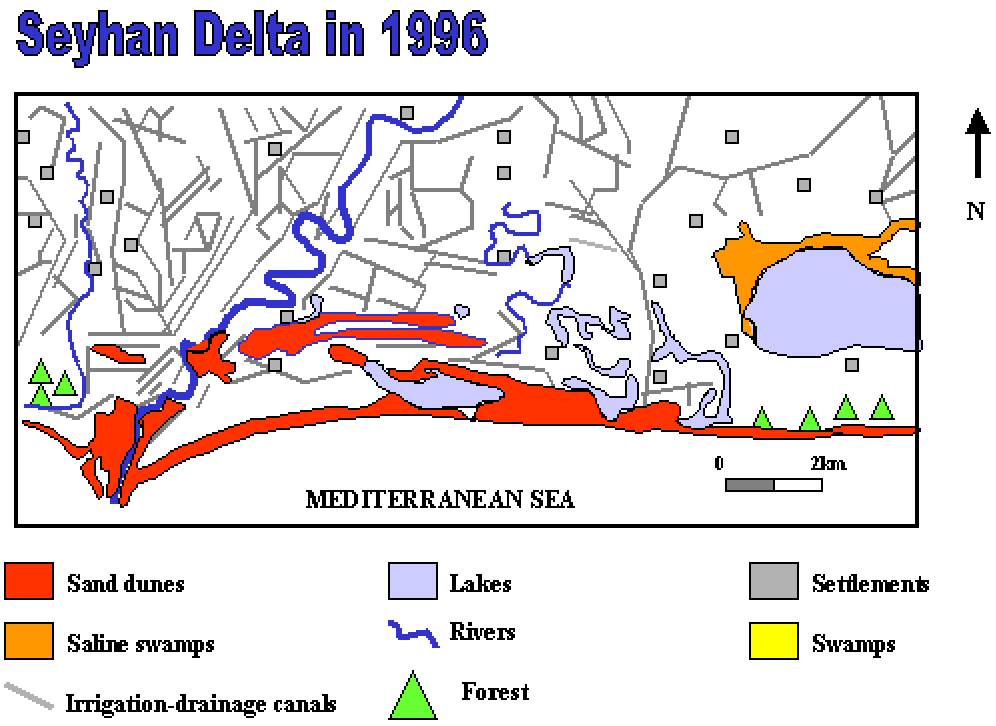


Figure 4.


Seyhan Delta in 1996
N
0
2km
MEDITERRANEAN SEA
Sand dunes
Saline swamps
Irrigation-drainage canals
Lakes
Rivers
Forest
Settlements
Swamps

Annex 2.

Minutes of the Steering Committee

The second meeting of the Steering Committee was held on 5 June 2003 under the leadership of the Chairman Kapur. The following members were present:

P1 P. Zdruli (Italy)
P3 F. Abdel Kader (Egypt)
P5 T. Darwish (Lebanon)
P6 S. Vella (Malta)
P10 M. Badraoui (Morocco)
P11 S. Kapur (Turkey)
P33 I. Alados (Spain)

Absent:

P8 A. Tubeilah (Palestine)
P27 F. El-Oueslati (Tunisia)
P35 L. Montanarella (Italy)

Agenda:

1. Analyses of the performance of the partners;
2. State-of-the-Art in Information Retrieval;
3. Distribution of Adana Workshop presentations;
4. Preparation of full papers for publishing Adana workshop proceedings;
5. Preparation of financial balance sheets;
6. Creation of the Photo Gallery in the web page of the project;
7. Improvement of web links with other related institutions;
8. Preparation for the Marrakech Workshop;
9. Proposals for invited experts for the Marrakech Workshop.

1. Analyses of the performance of the partners

Main concerns were raised for the following partners that for the second time after the Kick-Off meeting missed to participate in the Adana workshop:

P2 Institut National Agronomique, Algeria, Y. Daoud (Algeria)
P22 Groupement de mise en Valeur Salamastre A. Berrached (Algeria)
P23 HALAZEN Development Association, I. Daoud (Egypt)
P24 The Jordanian Society for Desertification and Badia Development, Yasin Al Zu'bi (Jordan)
P28 THE GENERAL UNION OF PEASANTS (G.U.P), Moufak Al-Shaar (Syria)
P30 VILLAGE COMMITTEE FOR WRSP OF NAKHLA WATERSHED, Ahmed Bakkali (Morocco)

The Steering Committee was of the opinion to give to these partners a last chance until the Marrakech workshop. If they will not show up again in the next workshop, they may be eliminated from the project.

The following partners were missing in Adana workshop:

- P02 Institut National Agronomique, Algeria

- P04 Ministry of Agriculture, Jordan
- P08 Ministry of Agriculture, Palestine[4]
- P13 The National Authority for Remote Sensing and Space Sciences, Egypt
- P16 Institute of Agriculture University of Malta, Malta
- P18 Land Research Center, Palestine
- P22 Groupement de Mise en Valeur Salmatre, Algeria
- P23 Halazen Development Association, Egypt
- P24 The Jordanian Society for Desertification Control & Badia Development, Jordan
- P27 Parcelle El Oueslati, Tunisia
- P28 The General Union of Peasants, Syria
- P30 Village Committee/Assoc. Product. Oliv. Nakhla Watershed, Morocco
- P32 Institut National de la Recherche Agronomique, France
- P35 European Commission – General Directorate JRC-ESB, Italy

With the exclusion of the Palestinian partners, the Steering Committee expressed concern for all the partners that did not attend the workshop. It is clear that there are many obligations for everybody; however, the planning of the MEDCOASTLAND workshops is done well in advance therefore it is possible for all to make the necessary arrangements for participation. In addition, if the focal points of each institution are not available to attend, they could nominate other persons within the same institution to participate in the workshops.

2. State-of-the-Art in Information Retrieval

The following partners have provided data in Information Retrieval:

P21 General Directorate of Rural Services, Turkey, M. Ozden
P5 National Council for Scientific Research, Lebanon, T. Darwish
P33 Consejo Superior de Investigaciones Cientificas, Spain, I. Alados
P19 University of Tishreen, Syria, L. Habib
P3 Alexandria University, Egypt, F. Abdel-Kader
P2 Institut National Agronomique, Algeria, Y. Daoud
P18 Land Research Centre, Palestine, B. Dudeen
P11 University of Cukurova, Turkey, S. Kapur
P14 University of Jordan, Jordan, B. Hattar
P16 University of Malta, Malta, G. Attard
P36 ACSAD, Syria, A. Loulou
P8 Ministry of Agriculture, Palestine, K. Abdo

All the remaining partners have not contributed at all in information retrieval.

It was discussed also about the possibility of making retrieval of information in French and in Arabic. The Committee decided that French abstracts could be accepted, but Arabic abstracts without a summary in English or French are not accepted.

3. Distribution of Adana Workshop presentations

The Committee discussed about the distribution of presentations (mainly Power Point) to all the participants. It was decided, however, that this should be a voluntary decision of each

[4] Both Palestinian partners (P08 and P18) were not able to cross the border with Jordan, therefore did not attend the workshop. They provided their reports and posters in time.

speaker. Prof. Kapur will compile everything on a CD Rom and will send to the Project Manager for distribution.

4. Preparation of full papers for publishing Adana workshop proceedings

All speakers in the workshop are asked to prepare full papers for their presentations to be sent to Prof. Kapur and Dr. Zdruli within June 2003. Instructions for authors were given Announcement of the workshop, however a page limit between 10-15 is required. Papers should be prepared following standard format including Introduction, Materials and Methods, Results and Discussions, Conclusions, and References. Soon after, the editorial board will edit the papers and the Coordinators will arrange for publishing the proceedings that will be part of the MEDCOASTLAND publications series.

5. Preparation of financial balance sheets

By the end of September 2003, financial statements are due for every partner. The Coordinator will send within July 2003, standard forms explaining the way forms should be completed. For travel and subsistence expenses the situation is clear. Discussions were opened in regard to use of budget for the item "personnel cost". In this respect the Coordinator will provide explanations within July.

6. Creation of the Photo Gallery in the web page of the project

It was proposed to create a Photo Gallery in the MEDCOASTLAND web page arranged by country. Therefore partners are asked to provide to the Coordinator pictures of land degradation and soil conservation measures, actions, and participatory approaches. The gallery will be opened to public and will have primarily educational value.

7. Improvement of web links with other related institutions

It was proposed that whomever has information on other web pages of institutions engaged with land degradation and soil conservation should inform the web master in order that such links could be introduced in the MEDCOASTLAND site. There is no specific deadline for such action.

8. Preparation for the Marrakech Workshop

The next workshop will be held in Marrakech, Morocco on 2-7 February 2004. The theme of the workshop will be: "Income-product generating land conservation and sustainable use and management of natural resources". The socio-economic aspects of land degradation will be the main focus of the workshop. Obviously, this is an area not well known to many partners bur every effort should be done to address well the topic.

It was proposed also, that in Marrakech the need for simultaneous translation in French could be essential, therefore the organisers will make the necessary arrangements. The organisers within their budget should cover the costs for such translation. However, the official language in the workshop will remain English.

9. Proposals for invited experts for the Marrakech Workshop

All the partners that are aware of experts with good background in socio economic analyses of land degradation are asked to provide their names. A total of five experts could be invited to attend. The project will cover travel and subsistence expenses for the invited experts.