Regional Workshop to Present PAP/RAC - FAO Experiences in Combating Land Degradation in Mediterranean Coastal Areas

(Rome, October 10 - 12, 2005)

REPORT

PAP-FAO Soil Erosion RW/1
PAP/RAC and FAO
Split, Rome, November 2005

REPORT
of the Regional Workshop to Present PAP/RAC - FAO Experiences in Combating Land Degradation in Mediterranean Coastal Areas

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Background information

1. From its very beginnings, the Contracting Parties to the Barcelona Convention entrusted PAP/RAC with the implementation of activities aimed at contributing to the mitigation of soil erosion processes in Mediterranean coastal areas. After a thorough survey of the needs and priorities of the countries in this field, PAP/RAC decided to design and implement a Mediterranean co-operative project on mapping and measurement of rainfall-induced erosion processes in coastal areas.

2. Realising that a contribution of UN and other specialised agencies and organisations would be necessary to achieve good results, PAP/RAC sought and developed a close co-operation with the Land and Water Development Division of FAO already in the design phase of the co-operative project whose implementation started in early 1990s. The project was implemented in two components: the first one, dedicated to mapping, was implemented during the 1991-1992 period in selected pilot watersheds of Spain, Tunisia and Turkey. The measurement component, implemented in 1993-1996, was supported by pilot measurements in the same three countries.

3. On the basis of the results of those pilot experiences, a team of PAP and FAO experts prepared the "Guidelines for Mapping and Measurement of Rainfall-Induced Erosion Processes in the Mediterranean Coastal Areas" published by PAP/RAC in 1997 and the "Guidelines for Erosion and Desertification Control Management", published in 2000. Both sets of guidelines give instructions how to design erosion/desertification control programmes taking as a basis previously elaborated consolidated erosion maps, and explain the role and place of these programmes within the process of Integrated Coastal Area Management (ICAM). In 2002, the "Photolibrary on Soil Erosion Processes: Pictorial Annex to the Guidelines for Mapping of Erosion Processes" was prepared, and converted to a digital form by FAO in 2004 and made available through the Internet.

4. Erosion is only one of a complex set of processes that lead to the impairment of land productivity, or land degradation. Therefore, erosion should not be considered in isolation, but together with other biophysical and socio-economic processes which cause land degradation around the world. In order to avoid further deterioration of ecosystems and people's livelihoods, it is important to identify the extent and degree of land degradation from the local to global scale, including its causes, impacts and the best options to manage currently and potentially affected areas.

5. Dryland ecosystems are particularly prone to land degradation. They are found in all continents - including in some Mediterranean countries - and they are the habitat and sustain of almost 40% of the world's population. Recognising the importance of drylands, and as a response to the UNCCD need for information on land degradation in drylands, FAO in partnership with the Global Environment Facility (GEF), UNEP and others, has initiated the Land Degradation Assessment in Drylands (LADA) project. This project, fully approved by the GEF council in September 2004, aims to develop and apply a methodology to assess and quantify the nature, extent, severity, impact and root causes of land degradation in drylands. LADA considers both biophysical factors and socio-economic driving forces.

6. The LADA project is developing a methodological framework that provides the methods and procedures to carry out the assessment of land degradation in drylands; including the causes and impacts of such degradation. The LADA framework leaves ample room for flexibility and adaptation to particular geographic, socio-economic, cultural and technological circumstances. The flexible nature of the LADA framework implies that it can also be adapted to other countries with land degradation problems which are not necessarily part of the drylands, but want to undertake an assessment of the extent or potential of degradation to identify best practices for natural resources management.

7. LADA will generate up-to-date and country driven information that will contribute to identify hot spots and bright spots. This will serve to identify priorities for action at local, country, regional and global levels, including best land management practices. LADA information will also constitute an authoritative and internationally accepted baseline, which will allow to monitor the progress and effectiveness of measures to combat land degradation, desertification and climate change (at local, country, regional and global level). LADA in this way will serve several purposes relying in lower investments in data collection and analysis.

8. An extensive history of co-operation between FAO and PAP/RAC has already resulted in a number of methodological documents, projects, publications and similar outputs. In order to streamline international and regional efforts to combat land degradation, harmonise methodologies for data collection and analysis, and to better utilise potential available funds to combat land degradation PAP/RAC and FAO decided to organise a joint workshop on this issue. The main objective would be to find the best way to harmonise land degradation assessment methodologies and to disseminate the experience accumulated jointly by PAP and FAO during almost 15 years of co-operation. These experiences should be regarded as a capital to develop further and to build upon. Therefore, the Regional Workshop to Present PAP/RAC - FAO Experiences in Combating Land Degradation in Mediterranean Coastal Areas was proposed as a step forward.

9. The organisers were FAO - Land and Water Development Division, and the Priority Actions Programme Regional Activity Centre (PAP/RAC) of the Mediterranean Action Plan (UNEP-MAP).

10. The meeting was held in the premises of FAO in Rome, Italy, from October 10 to 12, 2005.

Participation

11. The workshop was attended by 41 participants from 13 Mediterranean countries and the EU. These were the following: Croatia, Cyprus, France, Italy, Lebanon, Malta, Morocco, Serbia and Montenegro, Slovenia, Spain, Syria, Tunisia and Turkey. Present were also representatives of GTZ, CIHEAM, IAMB, SMAP/RMSU, IAEA, WOCAT, ERS/RAC, EC, and FAO. A complete list of participants is attached as Annex I to this report.

Agenda item 1: Opening of the meeting and introduction to the workshop

12. On behalf of Ms. L. Fresco, the ADG of the Agriculture Department, the OIC of the Land and Water Division, Mr. S. Pasquale welcomed the participants to the joint FAO/PAP-RAC meeting. Mr. Pasquale recalled that the past decade had marked the evolution of views and thinking about agriculture development, and today's challenge of preservation of ecosystems functionality as we cover food demand of the increasing world population. Mr Pasquale stressed the need for a harmonised methodology and approach in order to gather significant information for land degradation. He mentioned the global project funded by GEF, the Land Degradation Assessments in Drylands (LADA), implemented by UNEP and executed by FAO. Mr. Pasquale stated further that the LADA project would integrate the existing methodologies and propose a

harmonised methodological framework of assessments. Recognising the importance of exploring possibilities for integrating methodologies and work, like in the Mediterranean region, Mr. Pasquale acknowledged the initiative and effort of Mr. Trumbic and his colleagues from the PAP/RAC for the Mediterranean; the former chief of the Land and Plant Nutrition Management Service, Mr. P. Koohafkan; and the core LADA team, Mr. F. Nachtergaele, Ms. C. Licona Manzur and Mr. H. George, based in the same service. Finally, he thanked everyone for their interest and contribution to the success of the workshop, particularly Mr. M. Prem, the main organiser of the event.

13. Mr. M. Prem, Deputy Director of PAP/RAC, warmly welcomed the participants on behalf of Mr. P. Mifsud, Co-ordinator of MAP, and on behalf of PAP, one of RACs in the MAP framework. He excused Mr. I. Trumbic, PAP/RAC Director, who had not been able to participate at the opening to the workshop. He explained the reasons for the joint, FAO and PAP, organisation of this workshop, and specifically the long history of co-operation between the two institutions. He stressed the fact that since its establishment PAP had been entrusted by the Contracting Parties to the Barcelona Convention to focus on priority issues, and soil erosion had been recognised as one of the ten priority actions for PAP. And, as an institution focused on Integrated Coastal Area Management (ICAM), where the main characteristics of this approach are co-ordination and integration at various levels, PAP established close contacts with FAO-Land and Water Development Division, in particular. He sincerely thanked FAO, especially the Land and Water Development Division, for accepting the idea to jointly organise the present workshop, for hosting it and for all the support provided. He concluded by inviting the participants to contribute with their experiences to the success of the workshop in an informal way and in an open atmosphere.

14. Mr. Prem introduced the main objectives of the workshop, which were the following: to present and exchange the experience gained by implementing projects on land degradation and soil erosion; to find the best way to harmonise land degradation assessment methodologies and terminology; and to propose new projects related to land degradation and ways for future co-operation. He elaborated on the structure of the workshop as proposed in the Agenda. Generally, the workshop was divided into three main components: land degradation terminology and assessment methodologies for combating land degradation in the Mediterranean area; presentation of projects and experiences; and international topics related to land degradation. The Agenda was adopted by the meeting, as presented in Annex II of this report.

Agenda item 2: Towards harmonised land degradation terminology and assessment methodologies

15. Ms. C. Licona Manzur, FAO, presented "Land degradation, the need for harmonised and multidisciplinary assessment methodologies". She started her presentation by quoting UNCED 1992 which calls for “major adjustments in agricultural, environmental and macroeconomic policy... to create conditions for sustainable agricultural and rural development... maintain and improve capacity of higher potential agricultural lands... conserving and rehabilitating lands of lower potential... to maintain sustainable man/land ratios”. She recalled that land degradation had received widespread debate globally, and that the concept of land degradation had evolved. She also pointed out that efforts had been done to assess land degradation, but that the assessments had often been based on the risks of degradation rather that the actual state of the land. She also added that the past assessments had used different scales and parameters in quantifying land degradation, which makes the results often not comparable. She stressed the need to work towards harmonisation of methodologies and tools in land degradation assessments. This refers to a new generation of land degradation assessments that will use harmonised definitions and methods; consider not only biophysical but also include socio-economic aspects; address different scales, use of several disciplines to address the

complexity of land degradation. She finished her presentation by talking about the LADA approach and its harmonised methodology of assessing land degradation.

16. PAP/RAC Guidelines (Guidelines for Mapping and Measurement of Rainfall-induced Erosion Processes in the Mediterranean Coastal Areas, including the Photo-Library on Soil Erosion Processes as a pictorial annex; and Guidelines for Erosion and Desertification Control Management with Particular Reference to Mediterranean Coastal Areas) to assess soil erosion and desertification in Mediterranean coastal areas were presented by Messrs. J.-C. Griesbach and G. Englisch.

17. Mr. Griesbach presented the consolidated methodology for mapping of erosion processes, detailed in the first Guidelines published by PAP/RAC in 1997. Having pointed out the reasons which motivated the development of such a methodology that allows to present on a single map both the erosion status and erosion risk, he presented three main phases of the methodology, namely predictive, descriptive and integration phases. While describing the legend used to obtain descriptive/predictive erosion maps, he presented several slides from the Photolibray published by PAP/RAC as a photographic annex to the Guidelines. He ended his presentation by emphasising the flexibility and applicability of the presented methodology in various conditions.

18. Mr. Englisch presented the second Guidelines, published by PAP/RAC in 2000. He started by pointing out that the mapping methodology was to be considered as a tool for identifying the erosion processes and only a stage of a complex procedure of erosion/desertification management leading to the formulation and implementation of measures and strategies of soil protection. He than presented the spiral of the degradation of resources, the objectives of the Guidelines and their specific application in coastal zones. Finally, he presented and commented the six phases of the procedure, as well as a scheme for the application of integrated measures for combating soil erosion and desertification.

19. Mr. M.-L. Nguyen, from the Soil and Water Management and Crop Nutrition Section at International Atomic Energy Agency (IAEA), presented "The use of isotopic and associated techniques to investigate land degradation and integrated soil-plant-nutrient water management issues for enhancing soil productivity and quality". He presented some commonly used stable isotopes in many studies dealing with on-farm water and irrigation management technologies that increase water use efficiency by crops; improve fertilizer use efficiency and sustainability of soil fertility; soil quality and water quantity and quality for adjacent or downstream communities; develop water and nutrient-efficient crop varieties (high yield and tolerance to drought and salt); and in the promotion of integrated natural resource management within agricultural catchments. He continued his presentation by citing causes and factors of land degradation. He also presented some of the IAEA isotopes-related studies in Africa, Latin America, and China.

20. Mr. L. Mabit, from the Soil and Water Management and Crop Nutrition Section at International Atomic Energy Agency (IAEA), presented "The use of fallout radio-nuclides to investigate soil erosion at different scales and complement conventional approaches". In his presentation, he gave an overview of the different types of erosion and methods of measurement. This was followed by the advantages and principles of using the radio-isotope techniques for erosion studies: the fallout coverage is universal, strongly fixed on soil particles, only one sampling is required to estimate erosion processes. The use of ^{137}Cs method is a very common method and is being widely used not only for soil erosion but for sediment dating as well. He also presented preliminary tests done in the Mediterranean countries wherein ^{137}Cs was validated. Based on the validation of the technique under different agro-environmental conditions all over the world, the use of radio-isotope can complement efficiently the conventional measurements. Also, through radio-isotope techniques, potential linkages to other soil quality factors and the possibility to localise risk sectors for the optimisation of conservation activities can be established. A question of affordability and scales of nuclear technique

assessment was raised. Mr Mabit responded that the measurement was not so expensive and what they only needed was to have a gamma detector. With issues concerning different scales, he suggested to establish a sampling strategy for each scale i.e. watershed, which can be done easily through GIS.

21. The LADA project was introduced by Mr. F. Nachtergaele (FAO). He started by giving a brief summary of the LADA project goals and scope, which is the development and widespread application of a methodology to assess driving forces and quantify the nature, extent, severity, impacts and root causes of land degradation, particularly in the drylands. The project is aimed to build local, national and global capacities to assess and monitor land degradation and enable the design and planning of interventions to mitigate its impact. He then followed by the work and activities related to the conceptualisation and development of a methodological approach for LADA; work in progress on global land degradation assessment; national and local assessments including pilot studies and case studies. Before ending his brief introduction to the LADA project, Mr. Nachtergaele showed the internet link to LADA information platform, information products and websites created for LADA.

22. Ms. J. Brandt gave a presentation on "DESERTLINK; A Desertification Indicator System for Mediterranean Europe". Desertlinks is a 'European, international and interdisciplinary research project funded by the European Commission'. The project ran from 1 December 2001 until 30 November 2004 (although the site was last updated on 30 June 2005). It aims to contribute to the work of the United Nations Convention to Combat Desertification by developing a desertification indicator system for Mediterranean Europe. DESERTLINKS involves eleven research groups from universities and institutes in Portugal, Spain, Italy, Greece, the Netherlands and the United Kingdom. The desertification indicators system for Mediterranean Europe has been developed by the DESERTLINKS project. It gives access to around 150 indicators of relevance to Mediterranean desertification. It has been designed to provide a tool to enable users from a wide range of backgrounds (including scientists, policymakers and farmers) . Ms Brandt showed the functionality of the system and the list of indicators that are currently available.

23. Mr. H. George (FAO) presented "An approach to agricultural land use/ farming systems characterisation and mapping at subnational scales and its potential application to LADA". He presented what is called a framework for district-level land use/farming systems characterisation and its potential application to land degradation assessments in drylands. Mr George talked about the capability of the framework to relate findings as to causes and remedial actions at different spatial scales of the hot spots and bright spots of land degradation. He particularly emphasised that detailed land-use/FS maps were potential information sources of agricultural practices that contributed to land degradation and could provide insights into needed remedial measures to regional GLADA hot spots. It is because the framework uses the most detailed and relevant information that is internally available at the country level; flexible; fairly rapid; uses judicious combination of spatial analysis and expert knowledge; and is scale independent or applicable at various scales. Mr. George also gave details of the framework flow by using Senegal as a case study. The flow of the methodological framework for development of district-level land-use/FS characterisation consists of data processing, analysis of parameters ranging from resource base, socio-economic context and other relevant parameters, and then integration will follow to produce a district-level farming systems map. He closed his presentation by inviting everyone to give their feedback (as the framework is still subject to further refinement) and welcomed collaboration of work.

24. Mr. F. Nachtergaele (FAO) presented “Reflections on Indicators for Monitoring and Assessment of Land Degradation in Drylands (LADA Project)". He started by presenting the goal of the project which is development of an assessment tool that will be able to collect up-to-date information on the status of land at local, national and global levels. Particularly considered in the process is the identification and selection of possible indicators for land degradation. The

project bears a flexible methodological framework which relies on traditional and digitally assisted methods of data collection. The LADA project will produce an overview of the global status, pressures and causes of land degradation, indicating hot spots and bright spots. The project is planned to be implemented in six pilot countries, where it will produce higher-resolution assessments that will allow further refinement of the methodological framework. Finally, he shared the preliminary list of the LADA indicators (positioned within the DPSIR framework), which can serve as a starting point for assessing land degradation in dry lands.

25. Each presentation was followed by a short discussion to let the participants give their opinions, ask questions and comment on various aspects. A CD with all the PowerPoint presentations was distributed to the participants at the end of the meeting.

26. Regarding the presentation of Ms. L. Manzur, the discussion revolved around the fact that the validity of the methodology of LADA relied on the use of scientifically sound and modern science data collection together with more traditional data. She pointed out that LADA worked with several stakeholders who ahd approved the proposed methodologies and indicators.

27. In relation to the presentation of PAP/RAC Guidelines, the participants stressed that the method was comprehensive, that it provided instructions on how to map and measure the soil erosion process, how to include socio-economic parameters, work with the stakeholders and policy makers, as well as that it proposed draft management plans as instruments for the implementation of the proposed remedial measures. They proposed to use various dissemination means and tools to make the Guidelines widely used and to exchange experiences gained within the implemented pilot projects. However, some participants raised some questions related to clarification or gave proposals for the improvement of the Guidelines. Such was a question of quantitative methods for assessing soil erosion, as the methodology was based on qualitative, mainly visual, approach. Some other pointed out that the level of inclusion of socio-economic factors was not high enough. The possibility and difficulty of applying the methodology at local or national levels were discussed, and some participants sugegsted that more exercises were needed in order to adopt the methodology at national level. Some participants wanted more explanations on how previous measures against erosion were taken into account in the mapping methodology. Another participant asked if the flood potential, wetlands and biodiversity were taken into account. Also, potential use of satellite images through remote sensing, GPS and GIS was recommended.

28. Regarding the two presentations of from the IAEA, the usefulness of the use of isotopes to investigate erosion was discussed. The main concern expressed by the audience was the fact that the techonologies and equipment could be expensive, to which Mr. Nguyen replied that normally at the regional level there already exist facilities to carry out the studies.

29. Due to limited time available for working groups, the participants agreed to continue the discussion at plenary. Various issues were discussed, such as how all the methodologies presented could become a decision tool in a larger context of coastal zone management, or why coastal erosion was not mentioned in the methodology. It was underlined that it had been very important to bring together the users (farmers) and policy makers and to show them the evidence of soil degradation problems. With regard to LADA, a participant asked about the possibility of regional assessments in LADA methodology. The role of countries in spreading the methodologies presented was underlined, and Tunisia, which was one of the pilot countries and a leader in the Mediterranean in this field, was mentioned as a good example. However, there is the problem of lack of financial resources.

Agenda item 3: Combating land degradation in the Mediterranean area

30. Mr. I. Trumbic, PAP/RAC Director, chaired the second day of the workshop. In his introduction he underlined the very fruitful co-operation between the FAO and the Centre on the

land degradation topics and specifically on the soil erosion processes. From the very beginning of MAP soil erosion has been recognised as a priority for the region, and PAP/RAC was entrusted to deal with this activity. He was convinced, he said, that due to the negative trends related to climate change and pressures on land from human activities the co-operation and collaboration among the relevant international organisations and other actors, in particular the Mediterranean governments, on these processes would have to be close and well co-ordinated. He stressed that this joint event was very much on this line and wished all success to the workshop. In his conclusion, Mr. Trumbic introduced the agenda items of the day and invited the speakers to take the floor.

31. Ms. Z. Skaricic, Project Officer at PAP/RAC, presented an introduction to the activities of PAP/RAC in the Mediterranean area. She pointed out that the main activity of PAP/RAC was Integrated Coastal Zone Management (ICAM), i.e. the development of methods, tools and techniques applied in practice within Coastal Area Management Programmes (CAMPs) implemented in Mediterranean countries. PAP/RAC also has the mandate to work in some other specific fields, one of them being soil protection against erosion. She gave an overview of the PAP/RAC activities related to soil protection, pointing out that the results obtained showed the continuity of PAP/RAC efforts in this field.

32. Mr. Prem introduced the CoLD project: Improving Coastal Land Degradation Monitoring in Lebanon and Syria, which was co-financed by EU LIFE Third Countries instrument and implemented between 2002 and 2004. He pointed out the partnership structure and the roles of each partner in the project. He stressed the main objectives and the main project components and the outputs. In addition to more technical part of the activities on the ground, he underlined the project components such as training and capacity building, involvement of stakeholders and public participatory programme. In conclusion, he invited the participants to order hard copies of the country reports and to visit the exhibition of maps produced set up in the corridor.

33. Mr. M. Khawlie, Director of NCRS Lebanon and National Project Manager, continued the presentation of CoLD as implemented in Lebanon. He introduced the erosion dynamics in coastal areas of Lebanon and the remote sensing and field observation as a tool for assessing land degradation. The erosion risk map for the whole Lebanese coastal areas was produced and on its basis two pilot areas were selected as the most characteristic soil erosion effected areas, namely Zahrani and Damour. After that, a detailed mapping of erosion processes and definition of priority areas were conducted, which permitted the national team to prepare a set of remedial measures in close co-operation with stakeholders and main actors influencing soil erosion, either farmers or institutions responsible for interventions. All these were elaborated in a draft management plan, where socio-economic parameters and involvement of relevant public through extensive participatory programme were taken into account. He concluded by saying that responsible authorities/institutions had been identified, as well as funding sources and indicators to allow the monitoring defined as very important elements of these draft management plans.

34. Mr. M. Al-Abed, National Project Manager from GORS, Syria, presented the implementation of CoLD in his country. He started with the elaboration of the method used to prepare the erosion risk map for the whole coastal area of Syria. Similarly as in Lebanon, two pilot areas were defined, namely Sheikh Bader and Kurdaha. For both the same procedures were applied as in Lebanon, which resulted with the elaboration of draft management plans. Detailed remedial measures were recommended, including institutional arrangements, monitoring indicators and prerequisites for the implementation of the management plans.

35. In the absence of the Algerian delegate, the study on the lower valley of the Isser wadi in the wilaya of Boumerdes in Algeria was presented by Mr. Englisch. After presenting the main features of the zone, where the soil occupation by agricultural activities and cattle breeding is almost total, he presented the results of the descriptive/predictive mapping and the socio-

economic data of the zone, the two elements whose integration has allowed to show in one map the intervention priorities which, in turn, served as a basis for the proposal of the most adequate technological packages and a management plan. Speaking of the prerequisites for the implementation of the proposed management plan, he mentioned that the authors had pointed out its dependence on the National Strategy for Coastal Management and Conservation (where one must particularly take into consideration the fact that the study zone is part of the area of tourism development of the wilaya), as well as the need that it be supported by capacity building activities, participative approach, follow-up procedure and adequate financial sources.

36. The Moroccan case study was presented by Mr. A. Aboulabbes who started with the physical and socio-economic characteristics of the watershed of the Beni Boufrah wadi which was the object of the study. Further on, he mentioned some specific conditions that had affected the work on the study: natural (an earthquake that had struck the zone and floods that had caused damage to the agricultural lands and infrastructure), working conditions (distance of the site, attitude of the population, insufficient financing), methodological (lack of aerial photographs and high-resolution satellite images). Having illustrated the results of the predictive/descriptive mapping and the prioritisation procedure, he presented the recommended technological packages and the proposal of a management plan articulated around four axes: technical aspects, institutional arrangements, follow-up procedure, and recommendations for financing. Finally, he presented some conclusions that could have been made regarding the perception of the methodology, critical evaluation of the reliability of the results, and follow-up activities.

37. Ms. Rafla Attia presented the Tunisian case study. She pointed out that due to the too large surface area of the Ermel wadi watershed chosen for the study, the PAP/RAC methodology had only been applied to two representative sub-watersheds, namely: watershed of Shaihia upstream (6,500 ha) and the plain of Bouficha downstream (3,000 ha). She presented the main physical characteristics of each of the sites, as well as the results of the descriptive/prescriptive mapping, the socio-economic data taken into consideration, the prioritisation map, and a diagnostic analysis (human, social and physical constraints). All that has enabled the Tunisian team to propose for each site recommended measures for the various priority situations identified (technological packages) and to draft management plan. Concluding her presentation, Ms. Attia pointed out that the work had allowed the analysis of two sites representing productive systems typical of upstream and downstream parts of the large watershed, different from one another with regard to hydrology, topography, exploitation rate, type of culture, cattle stock and population. That contributed to a better understanding of problems at the scale of a large watershed related to erosion risk, use of the land, and interaction of biophysical and human factors.

38. Soil erosion mapping in Malta was presented by Ms. C. Tanti. The project was implemented in the framework of the Coastal Area Management Programme (CAMP) Malta project from 1999 to 2002. She introduced the geographical and environmental characteristics of the island, as well as physical processes and main pressures as causative agents for soil erosion in Malta. She showed a series of maps produced by implementing the descriptive mapping methodology and prioritisation procedure for the definition of priority areas. For these, draft management plans, recommendations for remedial measures and prerequisites for implementation of management plans were prepared, she concluded. She also mentioned that the exercise had been carried out by a small group which could not get further support after the government change, and therefore the results of the project were not being used currently.

39. Mr. E. Cuccilato and Ms. F. Masouri presented the “Experience of the application of the PAP/RAC methodology in the gouvernorates of Kairouan, Siliana and Zaghouan under the framework of the project FAO GCP/TUN/028/ITA”. They briefly discussed the objectives of the project, which is aimed on integrating rural development and soil and water conservation. He said that the project used a multi-scale approach: intervenes at national and sub-national levels through support to planning of natural resource management; capacity building and

methodological development; and, at local level through the establishment and execution in partnership with the local population through participatory development and resource conservation planning. He described that under the framework of the capacity building programme, the PAP/RAC methodology had been applied to develop an erosion risk map. This mapping exercise was aimed at covering the majority of the territory of the three regions where the project was implemented, Kairouan, Siliana and Zaghouan, and was focused on the predictive phase of the PAP/RAC methodology. He elaborated further that the project had maximised the use of the already existing data (Digital Regional Agricultural Map of Tunisia and SRTM digital elevation model) and of widely recognised mapping standards and tools (FAO LCCS and Geovis for the development of the land cover map). Also, a field work had been organised to develop the conversion matrices required to apply the PAP/RAC modelling guidelines. Mr. Cuccilato informed that all the work had been carried out by Tunisian officers during extensive on-the-job training organised in collaboration with the "Instituto Agronomico per l'Oltremare", with approximately 1,000,000 ha mapped. He added that the use of alternative sources of data had allowed them to carry out the exercise in a limited time and had opened possible ways to develop erosion risk maps at the national level. The development of national capacities and the results obtained so far could facilitate the extension of this mapping exercise to the entire Tunisia.

40. Mr. G. Englisch presented the Synthesis of national experiences in implementing PAP/RAC Guidelines in Mediterranean coastal areas. Among the main achievements of the national teams in eight case studies in the Mediterranean he stressed the importance of the selection of representative pilot areas for the region, relevance of the Guidelines to the national contexts, importance of integration of socio-economic factors, definition of priority areas, development of remedial measures and management plans, as well as the importance of capacity building and promotion of good practices at national and regional levels. He made a comparison of all eight case studies and the related management plans that needed to be verified/approved at the national level in order to be implemented. In his conclusion, he underlined that the Guidelines were commonly accepted, practical and robust, and could easily be transferred to different national situations. What was a future challenge, he stressed, was how to find financial resources for the implementation of draft management plans.

41. After each presentation a short discussion took place. The participants were satisfied with the number of pilot projects implemented following the PAP/RAC methodology. This showed that the method could be easily applied, and the number of projects allowed for assessment of experiences, as well as for exchange of strengths and weaknesses. The main questions were related to the implementation phase, as a follow-up after the management plans have been prepared. In spite of the involvement of the general public and the relevant stakeholders, and the identification of the responsible institutions/authorities there is still a need for a push to start the implementation of the remedial measures proposed. Concerning the responsibility to implement the proposed plans, it was stressed that all the products had been submitted to the national authorities and they had become national property; therefore, their implementation depended on decisions that had to be taken at the national level. Participants agreed that the approach should involve various disciplines in the elaboration of the management plans. The importance of integration of socio-economic parameters in the methodology was also discussed. Some participants noted the need for introducing some objective criteria when analysing the erosion process, as well as the relative importance of different options, time frame and funding opportunities. The question was also raised about the feasibility of this kind of work for a whole the country starting from pilot projects. When defining the priority areas, the whole national territory should be taken into account. The Moroccan representatives asked some more information concerning the application of the PAP methodology within the future CAMP Morocco, which concerns the erosion-prone region of the central Rif. Clarifications were also given concerning the rating and value of the options proposed in the management plans and the time frame needed to mitigate the erosion phenomenon (with regard to financing).

42. Another question that was raised tackled the definition of coastal zone and the related Guidelines. It was clarified that coastal zones are the territorial scope of the Barcelona Convention, which is a legal frame for MAP and consequently for the PAP/RAC mandate. However, countries define their coastal zones differently so that the coastal zones vary between the countries from a narrow strip to the whole watersheds, sometimes including coastal municipalities or counties. The new ICZM Protocol, which is in a draft version and is expected to be adopted by all Mediterranean countries, will give a more uniform definition of the coastal zone. With respect to soil erosion, the Guidelines allow for enough flexibility and can also be used for hinterland areas. In order to reduce subjectivity in the method it was suggested to use some other methods. Also, it was stressed that it was necessary to understand differences between the methodologies presented at the workshop, and to use the most suitable one to solve a specific problem. Land degradation comprises complex processes and soil erosion is only one of its aspects. That is why it is necessary to understand the differences between methodologies and to harmonise the terminology in order to understand better land degradation issues

43. After the presentations, the participants were divided into working groups to evaluatie the country projects and discuss possibilities of further work, including suggestions and recommendations for the revision of the PAP Guidelines. Introduction was made by Mr. Englisch who explained the participants what was expected of them. Three working groups were established, facilitated by Mr. Englisch, Mr. Prem and Mr. Griesbach, respectively. The results of the working group discussions were presented at the plenary. Their results are presented in the continuation.

44. Working Group1

Positive features

The method:

- has filled in a gap at the national level (normalisation),
- is flexible and has adaptation capacity,
- is complementary with other methods,
- is usable outside the coastal zone as well,
- integrates the human dimension,
- is complementary with other national plans (for example, the National Plan of Desertification Combating, ...).

Negative features:

The method:

- has not yet been fully mastered,
- does not offer enough information for those concerned about the cost-benefit aspect,
- is too sectoral in appearance (at the interpretation level),
- pays too little attention to other development projects (such as tourism projects, roads, etc.),
- presents certain degree of subjectivity in the integration of factors from the human dimension,
- does not take enough care of the problems of coastal erosion.

Recommendations

- Present the work results on the covered sites;
- Improve the knowledge of the procedure (training, workshops ...);
- Reduce the level of subjectivity improve the integration mechanisms for socio-economic factors;
- Consider the method as a tool of decision making within ICAM;
- Integrate the method in the interministerial institutional procedure (e.g. equipment, tourism, internal affairs);
- Adapt the method for use at different scales;

- Get the method adopted at national level after an evaluation;
- Standardise codification;
- In order to improve the procedure application, take duly into account the existing conservation works on the site;
- Inform/communicate, distribute and conserve the information;
- Achieve project concretisation in the field.

45. Working Group 2

Strengths

- Harmonised and comprehensive methodology;
- Flexibility, covers all conditions related to soil erosion;
- Co-operation / collaboration;
- Involvement of public and stakeholders through participatory programmes;
- Integrating socio-economic factors;
- Social and political acceptance;
- Multidisciplinary;
- Clear / easy to understand;
- Adaptable to local conditions.

Weaknesses

- No clear link between eroded areas and accumulation areas;
- The method is only applicable after the rainy season and is highly dependent on climatic variability;
- Should consider the cost-benefit aspect;
- Verification / promotion of the methodology;
- Broader acceptance;
- Follow-up, implementation of the remedial measures;
- Link to quantitative measurements;
- Improving presentation of the results to decision makers;
- Long title of the Guidelines.

As far as the recommendations are concerned the rapporteur pointed out that they could easily be derived from the 'weaknesses'.

46. Working Group 3

Strengths

Consolidated approach

- Very similar approach as « eastern » school methods;
- GIS approach, mapping the land, identification of erosive zones;

Sound methodology

- Easy to accept, simple to apply, standardised procedure;
- Easy adaptation with the existing field findings related to the « erosion » subject;
- Consistent approach;
- Reflects actual case;
- Provides some objectivity;
- Includes socio-economic aspects;
- Well defined steps;
- Multisectoral approach;

Comprehensive procedure

- Use of new technologies likes GIS, remote sensing, etc.:
- Combines various influencing components;
- Integrated, participatory, environmental-social focus;
- Mapping outputs to be used for land-use planning/management.

Weaknesses

Resource-intensive intervention

- Complex and time consuming;
- Human resources (limited) to apply GIS;
- GIS could be a problem to apply in undeveloped countries (some layers are not prepared);

Missing procedural steps at project inception

- Project ownership not ensured;
- Checked all methodological approaches before methodology establishment;

Inadequate procedure for follow-up of draft management plans

- Need to secure financing to implement;
- Follow-up not clear;
- Unclear/uncertain future;

Weak socio-economic part

- Economic parameters are not satisfied;
- Link with national priorities not always clear;
- Socio-economic factors are not taken seriously;
- Policy implementation;

Further methodological shortcomings

- Classification system for priority areas not transparent;
- Elevation of the nomenclature (1-5 ⇔ 1-6) ;
- « Recovery » of indicators? Methodology? Quantify?;
- Does not consider coastal specificity, does not consider quantitative aspects, erosion has not the same « meaning » in land and human contexts, the methods have not value in comparative aspects, spatially and temporally, only « technical » aspect –socio-economic and governance aspects not considered adequately;
- Environmentally friendly interventions not promoted;
- Only assessment of degradation, but not of the applied conservation measures;
- Lack of communications in the erosion mapping studies;
- Proposal of measures / management plan not based on proper assessment + evaluation of existing measures;
- Erosion estimates (low, medium, high) – quantification?;
- Role of land users and extension workers;
- Qualitatively not quantitatively, remedial measures, cost-benefit actions, relative importance.

Recommendations

- Cover the whole watershed in a project ToR;
- Ensure project ownership/follow-up (co-funding, participatory approach, requirements at institutional level, select appropriately the ministries to be involved – e.g. Ministry of Finance);
- Make clear linkages between physical and socio-economic aspects + governance + production systems (focus more on land use, use better indigenous knowledge, criteria);
- Include cost-benefit analysis for decision making (degradation, measures, impact of options);
- Focus on integrated coastal management;
- Be clear of the focus of the methodology (soil erosion) ;
- Put a link between soil erosion analysis with other priority areas (e.g. biodiversity);
- Link to other approaches (e.g. Corinne land classification);
- Choose appropriate measures « procedure »;
- Sharing of experiences;
- Sub-division of priority classes;
- Establish monitoring system.

Agenda item 4: International Topics

47. The current development of the Soil Protection Policy in the EU was presented by Ms. C. Olazábal from the European Commission. She elaborated on the preparation of the EU Directive, which identifies the main soil threats that will be tackled in the directive. These are the following: contamination, sealing, erosion, organic matter decline, salinisation, compaction and landslides. For each of these threats possible measures for risk areas, to be identified by the member states, were presented. However, she stressed that it would be up to countries to make an inventory/identify risk areas and to prepare national action programmes that should include targets, measures, monitoring and all these in consultation with the public. The draft directive proposes a request from the countries to report on the progress and efficiency.

48. Ms. G. Schwilch, Centre for Development and Environment, Switzerland, presented the World Conservation Approaches and Technologies (WOCAT). Ms. Schwilch began her presentation by giving a brief history of WOCAT, which was initiated at the ISCO Conference 1992 in Australia, with the aim to develop a quick overview on conservation achievements as an answer to the GLASOD map. WOCAT is supported by a management group consisting of CDE, FAO and ISRIC. The WOCAT's vision is that the knowledge on sustainable land management is shared and used globally to improve livelihoods and the environment. She continued to explain WOCAT's methodology that aims to document, evaluate and share experiences in conservation measures. Looking back at the GLASOD study – a high investment for assessing land degradation. According to what she said, one can get the impression that nothing has been done so far but we are not too late for interventions. At this point, she started recalling some technologies in the field, traditional practices, citing examples from Morocco and France, and many more conservation experiences around the world that are rarely documented, evaluated or shared. She added that land users were already doing a lot to sustain land management, the knowledge was already available and just has to be tapped. Ms. Schwilch informed that WOCAT tried to fill that gap by providing a standardised methodology as well as an international network for sharing knowledge of bright spots/good practices in sustainable land management. Also, she did mention of the existing WOCAT activities and institutions in the Mediterranean region. For further information and updates on WOCAT activities, she invited the group to visit their website and view the poster outside the room.

49. Mr. J. Bonnal, Sustainable Development Department, FAO, presented the Lebannon Agriculture Atlas that had been produced by the Agriculture Ministry of Lebanon in collaboration with FAO. This Atlas comprises a series of georeferenced and tabular data including socio-economic aspects. He stressed that the format of the Atlas was useful for different audiences and that statistics were included in a user friendly format.

50. Experience from the EU-funded MEDCOASTLAND Thematic Network in enhancing dissemination of information in the Mediterranean Region was presented by Mr. P. Zdruli of the Mediterranean Agronomic Institure, Italy. He introduced the MEADCOASTLAND Project which is under the management of the CIHEAM. The MEDCOASTLAND's goal is to coordinate and disseminate land conservation management, to combat land degradation for the sustainable use of natural resources in the region, with special emphasis on coastal areas. Mr. Zdruli presented the diagram of the project approach and their members. The project was able to identify land degradation hot spots, which include different forms of erosion, and the bright spots or achievements in combating land degradation. It was followed by sharing the list of accomplishments, the findings and the progress of the project. He acknowledged the active involvement of the majority of the partners, and the role played by the Coordinator. Mr. Zdruli also pointed out that combating land degradation was a long struggle requiring the support of all stakeholders. Although they had many accomplishments, they also identified weakness. He particularly cited the case typical of many Mediterranean countries, where the link between qualified professionals/scientists/decision or policy makers and local communities are often

weak or missing. Mr. Zdruli concluded his presentation by expressing their commitment to continue knowledge dissemination and sharing the link to MEDCOASTLAND website.

51. In the short discussion following each of the presentations the participants raised a number of questions, such as the responsibility for the implementation of the EU Directive if adopted. It was explained that this would be left to the countries and that there was a rather weak legal competence at the European Commission to push countries to implement the Directive. Protection of soil is the only natural resource not yet covered by a legal instrument in EU, like water, air or biodiversity.

52. In the continuation of work, two working groups were formed, one facilitated by Mr. Prem, and the other by Mr. Griesbach and Ms. Skaricic, which discussed the following topics:

- Proposals for testing the harmonised methodologies in Mediterranean countries, and
- Integration of collected data, including mapping, in regional/international database.

The outputs of the WGs were presented at the plenary. These are as presented in the following points.

53. Working Group 1

- Link between the NAP requested by the UNCCD and the possibility of using the Guidelines and management plans prepared in that framework could be explored.
- Financing possibilities should be included in the management plans in order to implement the management plans.
- Technical support from PAP/RAC could be explored at the initial stages of the implementation of the management plans.
- A project at the Mediterranean level to assess the soil erosion processes in all Mediterranean countries in order to define priority areas/countries was proposed. This would require some up-scaling of the existing methodology.
- Elaboration of erosion risk map at the national level, to cover the whole country, is also needed so as to define priority areas at the national scale. This would allow an update of the existing soil erosion risk maps. A concrete project to elaborate this was proposed by Tunisia.
- Integration of the WOCAT methodology with the PAP/RAC Guidelines was suggested in the part on the management plan where remedial measures are proposed. WOCAT could bring in local conservation methods, which are easy to understand for farmers.
- Dissemination/exchange of experiences of the implemented projects to other sources was proposed, including the dissemination of funding possibilities and mechanisms.
- Methodology could be used for monitoring and assessment to what extent the proposed measures are useful and if the results are positive.
- A project to revise/improve the PAP/RAC Guidelines with the inputs from the workshop was proposed, such as to include the assessment of soil erosion risk at national level by using satellite images and other methods; to include some objectivity to assess the extent of soil erosion processes; to include some cost-benefit analysis for the remedial measures proposed; how to integrate WOCAT, and alike.
- A possibility to merge both documents that form the PAP/RAC Guidelines should be explored. It was also proposed to give the methodology a simple and attractive name to replace the very long titles of the existing Guidelines.
- Closer links should be established with other existing institutions/projects, such as MEDCOASTLAND, LADA, WOCAT.
- A network of institutions/projects/experts should be established in order to better disseminate the results, to inform about the on-going projects or those under preparation so as to achieve synergies and complementarities.
- Data, GIS and maps produced in various projects should be made publicly available.

54. Working Group 2

- Make an inventory of the methodologies of soil erosion calculation (USDA, « eastern » school, « autochthonous », modern methodologies, PAP/RAC);
- Test the integrated PAP/RAC methodology with quantified measures in different geographical areas (coastal zones of Turkey, Montenegro, France, and Morocco). Several concrete proposals were made in this sense:
  - Apply the PAP/RAC methodology in the coastal area of Serbia and Montenegro (pilot examples for comparison, including quality parameters and coastal specificity, validation, verification);
  - Test the PAP/RAC methodology on a regional basis (Mediterranean coast of Morocco) and come up with quantifying erosion data for major erosion processes;
  - Apply PAP/RAC methodology *via* pilot projects in the coastal areas of Turkey;
  - Contribute to the project of elaborating the erosion risk map of Tunisia.
- PAP and FAO should search external sources of financing (EU member states twining programmes, World Bank, USDA, USAID, European Commission / EAR, WOCAT, etc.);
- Through the request from member states to the Technical Co-operation Department of IAEA, funding can be available for member states to conduct experiments + measures;
- Re-establish technical collaboration between PAP/RAC and Spanish administration;
- Include WOCAT methodology in future national/regional programmes within PAP/RAC.

55. In the discussion that followed the meeting proposed the following, in addition to the outputs of the WGs reports:

- APAL would be ready to put money in an erosion management project within an ICAM project;
- Proposal to elaborate a regional map and identify hot spots in which PAP/RAC could intervene with its methodology;
- Explore the possibilities of cooperation with ongoing projects (e.g. in Tunisia) and promote stronger interaction with other projects;
- Promote the incorporation of the guidelines into national procedures and standards, and support the widespread application at national level;
- Establish a system for follow-up of country experiences in the application of the guidelines;
- Proposal to organise a workshop at the national level in Tunisia;
- To obtain EU funding it has to be proven that all stakeholders are involved in the project, that the project results will be largely disseminated and that the project is applicable in other areas.

<u>Agenda item 5: Conclusions and recommendations</u>

56. Mr. Prem thanked the working groups for precious discussions and proposals for concrete activities within this priority action of PAP/RAC. All the recommendations and proposals will be put in a report that will serve both PAP/RAC and FAO, as well as to all the participants in the workshop, to improve their performance in dealing with land degradation in the future. He stressed the fact that the workshop had been positive, successful for PAP/RAC, and had fulfilled the expectations, i.e. to get to know other methodologies that focus on various land degradation/soil erosion issues which will assist PAP/RAC to plan future interventions. It was a good opportunity to share experiences from concrete pilot projects, and to get concrete ideas for further work on this urgent topic. From the PAP/RAC point of view, the methodology has proved to be interesting, with potentials to be improved with the ideas from this workshop. Therefore, efforts should be made to popularise the methodology and make all attempts to establish it as a commonly accepted one. He was sure that FAO had also profited from the workshop to the same extent as PAP/RAC gaining ideas for their future projects.

Agenda item 6: Closure of the workshop

57. Mr. Prem thanked all the participants for their valuable inputs, especially to those who contributed with presentations, as well as for the fruitful work in the working groups, which provided very useful comments and suggestions for the future work. He expressed his gratitude to FAO for their support in co-organising and hosting this very important workshop.

58. The workshop was closed on October 12, 2005 at 15:00 hours.

ANNEX I

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ANNEX II

Agenda

Monday, October 10

08:30 - 9:45
- Registration of participants
- Opening of the meeting (P. Steduto, FAO)
- Introduction to the workshop (M. Prem, PAP/RAC)

10:10 - 15:00
- Towards harmonised land degradation terminology and assessment methodologies

- Land degradation, the need for harmonised and multidisciplinary assessment methodologies
- PAP/RAC Guidelines to assess soil erosion and desertification in Mediterranean coastal areas
- The use of isotopic and associated techniques to investigate land degradation and integrated soil-plant-nutrient water management issues for enhancing soil productivity and quality
- The use of fallout radio-nuclides to investigate soil erosion at different scales and complement conventional approaches
- The LADA project: Introduction
- DESERTLINK: A Desertification Indicator System For Mediterranean Europe
- An approach to agricultural land use/ farming systems characterization and mapping at subnational scales and its potential application to LADA
- Biophysical and socio-economic indicators for land degradation in LADA

15:30 - 17:00
- Discussion at Plenary

Tuesday, October 11

09:00 - 12:30
- Combating Land degradation in the Mediterranean area

- Activities of PAP/RAC in the Mediterranean area; Introduction
- The CoLD project: Improving Coastal Land Degradation Monitoring in Lebanon and Syria
- Country report Algeria
- Country report Morocco
- Country report Tunisia
- Mapping soil erosion in Malta
- Experience in the application of PAP/RAC Guidelines in the gouvernorates of Kairouan, Siliana and Zaghouan in Tunisa in the framework of the FAO project GCP/TUN/028/ITA
- Synthesis of national experiences

14:30 - 17:00
- Working groups on evaluation of country projects and possibilities of further work, including suggestions and recommendations for the revision of PAP Guidelines
- Plenary

Wednesday, October 12

09:00 - 12:00 - International Topics

- Current development of the Soil Protection Policy in the EU
- World Conservation Approaches and Technologies (WOCAT)
- Agricultural Atlas of Lebanon, FAO Lebanon Project
- Experience from the EU-funded MEDCOASTLAND Thematic Network in enhancing Dissemination of information in the Mediterranean Region

13:00 - 14:00 - Working groups

- Proposals for testing the harmonised methodologies in Mediterranean countries
- Integration of collected data, including mapping, in regional/international database

14:00 - 15:00 - Discussion at Plenary
- Conclusions and Recommendations
- Closure of the Workshop