



## ***Eighth International Workshop***

### ***Sustainable Management of Marginal Drylands – Phase 2 (SUMAMAD-2)***

Alexandria, Egypt  
6 - 9 November, 2010

#### ***Workshop Report*** (7.12.2010)

#### **CONTENTS**

#### **Background Objectives Proceedings**

#### **Day 1**

- Opening Session
- Session 1– Country Presentation
  - Introduction*
  - Bolivia*
  - Burkina Faso*
  - Egypt*
  - India*
  - Jordan*
  - Pakistan*
  - Tunisia*
- Expert Presentation
- Session 2 – Administrative and technical issues

#### **Day 2**

- Field Visit

#### **Day 3**

- Session 3 – Training on the use of *New-locClim* and *ETo* software
- Closing

#### **Annex I – Workshop Agenda**

#### **Annex II – List of Participants**

## ***I. Background***

Within the framework of the second phase of the project “Sustainable Management of Marginal Drylands (SUMAMAD-2)”, UNESCO, the University of Alexandria and the Egyptian National Committee for the UNESCO Man and the Biosphere (MAB) Programme have organized the project’s eighth international workshop which has been held in Alexandria (Egypt), from 6 – 9 November 2010. This workshop was the second meeting of the SUMAMAD Project team leaders within the second phase of the SUMAMAD project (2009-2013). The workshop was held in a back-to-back manner with an International Symposium on Biodiversity in Alexandria from 9 – 10 November 2010.

The SUMAMAD Project itself is implemented by UNESCO’s Man and the Biosphere (MAB) Programme in direct collaboration with the United Nations University – Institute for Water, Environment and Health (UNU-INWEH), thanks to funding provided by the Flemish Government of Belgium.

Workshop participants have been invited from the project partner research institutions as follows:

<i>Bolivia:</i>	Universidad Mayor de San Andrés;
<i>Burkina Faso:</i>	Institut de Recherche en Science de la Santé (IRSS) Centre Nationale pour la Recherche Scientifique et Technologique (CNRST);
<i>China:</i>	National Committee for UNESCO-MAB Programme at the Chinese Academy of Sciences;
<i>Egypt:</i>	University of Alexandria and Omayed Biosphere Reserve;
<i>India:</i>	Central Arid Zone Research Institute (CAZRI);
<i>Iran:</i>	Research Society for Sustainable Rehabilitation of Drylands (REaSSURED);
<i>Jordan:</i>	The Royal Society for the Conservation of Nature (RSCN)
<i>Pakistan:</i>	Pakistan Council of Research in Water Resources (National Committee for UNESCO-IHP Programme) and National Committee of UNESCO-MAB Programme;
<i>Tunisia:</i>	Institut des Régions Arides (IRA), Medénine.

Due to visa-related issues, project team leaders from China, Iran and Tunisia were unable to attend the eighth international SUMAMAD Project workshop.

## ***II. Objectives:***

The main objectives of the workshop were to:

- Review the implementation of the SUMAMAD Project and its national field project activities since the 7<sup>th</sup> international SUMAMAD workshop held in Jodhpur in November 2009;
- Discuss specific training needs and project implementation requirements for the SUMAMAD-2 Project in 2011.

The national project coordinators were invited to provide an overview of their SUMAMAD project activities since the 7<sup>th</sup> International SUMAMAD workshop through funding provided by the SUMAMAD Project and following the workplan stipulated in the SUMAMAD-2 Project Document, in particular with regards to activities involving local stakeholders in dryland management. Each presentation was followed by a discussion.

SUMAMAD Project partners also had the opportunity to attend the International Symposium on Biodiversity, held in Alexandria (Egypt) from 9 – 10 November 2010 at which some team leaders presented their work on biodiversity issues in arid zones.

### **III. Proceedings:**

#### ***Opening Speech***

1. Dr. Boshra Salem opened the workshop. In her speech, she stated that the Egyptian National Commission for UNESCO and the Egyptian Man and Biosphere (MAB) National Committee were honoured to organize and host the workshop. She recalled that the first meeting for Phase-1 of the SUMAMAD project took place in the year 2002 in Alexandria, Egypt. She lauded the hard work being done through the SUMAMAD projects, which contributes to the efforts by the scientific and environment community in raising awareness on the realities of biodiversity loss and its consequences such as the decline in ecosystem services. She added that these activities include a compilation of possible sustainable management approaches and technologies, which are indigenous, adaptive and innovative. These approaches are supported by complementary income-generating activities in order to reduce the pressures caused by overdependence on natural resources.

2. Dr. Salem thanked the Flemish Government for the substantial financial support provided to the project from its start till date. She also thanked UNESCO and UNU for their support with the implementation of the project. Finally, she thanked all those who supported and assisted her to organize and host the workshop.

#### ***Introductions***

3. Workshop participants took turns to introduce themselves after which Dr. Salem introduced some members of the NGO – Ecosystem and Human Development Association, who had assisted her in organizing the workshop.

#### ***History of MAB Programme***

4. Prof. Ghabbour, Chairperson of the Egypt MAB National Committee presented briefly the history of UNESCO's Man and Biosphere (MAB) Programme and Egypt's history of collaboration with the programme. Notable among the things he said was that the UNESCO Man and Biosphere Conference organized in 1969 was seen by many as the hope for international cooperation on environmental issues. He added that the launch of the MAB Programme in 1970 was very significant as that period was a crucial turning point in the environmental movement worldwide. In relation to the influence of the MAB Programme in Egypt, he stated that the Omayed Biosphere Reserve was designated as a biosphere reserve before Egypt passed its first law on natural resources. Prof. Ghabbour lauded the contributions of all past and present members of the Egypt MAB National Committee towards its success.

#### ***Welcome Address***

5. Dr. Mohammed Al-Aawah gave the welcome address on behalf of the Dr. Tarek Shawki, Director, UNESCO-Cairo Office. Dr. Al-Aawah welcomed the participants. He highlighted that UNESCO-Cairo Office is the Regional Science Office for Arab States and noted that most of these states are classified as Arid Regions. He stated that two of UNESCO's programmes; the MAB Programme and the International Hydrological Programme (IHP) involve activities that work towards achieving the Millennium Development Goals (MDG), in particular, MDG 7. He noted that a major challenge facing UNESCO is to ensure that the capacity of the public and private sector expands to meet the growing demands of the region in the fields of sustainable development.

#### ***Views expressed on behalf of the Flemish Government of Belgium***

6. Prof. Donald Gabriels gave the inaugural address on behalf of the Flemish Government of Belgium. He recalled the principles of the Flanders UNESCO Science Trust Fund and the cooperation with UNESCO's IHP and MAB programmes, which takes into account the

following guidelines: i) transfer of knowledge and strengthening dissemination of knowledge; ii) development of a policy that takes into account the socio-economic and political context; iii) build up a sustainable strategy; iv) cooperation through common problem solving; v) to stimulate networking. On project appraisal, he mentioned that the first phase of SUMAMAD received an excellent rating. He added that SUMAMAD was a good example of how both South-South and North-South Cooperation can be achieved.

7. In summing up Prof. Gabriels stated that as a funding body, the Flemish Government, the Flemish Community, Institutes and Universities will ensure that contributions now and in the future, shall be utilized for supporting networking, research activities, capacity building and the training of trainers.

#### ***Views expressed by UNU-INWEH***

8. On the contribution of SUMAMAD to the objectives of other UN conventions and programmes, Dr. Richard Thomas (UNU-INWEH) stated that activities being carried out at the various SUMAMAD project sites sit well with the objectives of UNCCD. He lauded the alternative livelihood development components of SUMAMAD projects and advised that some of these activities should be linked to addressing alternative energy issues. He informed participants that UNU-INWEH and the University of Alexandria are working to establish a relationship to pursue activities in the area of capacity building and research.

### **Session 1 - Country Presentations**

#### ***Introduction***

9. Dr. Salem introduced the country presentations. She mentioned that participants from China, Iran and Tunisia were unable to be present for the workshop due to visa issues. She added that Prof. Gabriels will step in for Mr Mohamed Ouessar, representative of SUMAMAD-Tunisia.

#### ***Bolivia – Mr. Jorge Cusicanqui***

10. Bolivia is in its second year of project establishment. The project is on “Managing sustainability of new quinoa production systems through farming systems management and market insertion”.

11. In year 1 of the project, activities were carried out in two communities, Santiago de Callapa and Patacamaya. In year 2, activities are being carried out in Santiago de Callapa and Choquenaira. These communities are located at an altitude of 3800 meters above sea level and record an annual rainfall of 380mm concentrated mostly between December and March. This influences the farming season which is from October – April. It is different from other SUMAMAD projects, and is essential for project planning, implementation, following and reporting.

12. The project activities aim at increasing and sustaining quinoa production levels through capacity building of the farmers in best management practices, in marketing product into the export market and in adapting to climate change. The project has organized trainings and workshops for farmers in soil and water management, drought management and the use of fertilizer. Farmers’ fields have been installed under deficit irrigation. On adaptation to climate change, the project seeks to link local knowledge to new findings to develop alternatives for climate change adaptation. The project has also undertaken a climatic variability study by analyzing 35 years of recorded data on daily precipitation and temperature from fourteen weather stations in the Bolivian Highlands. Results from this analysis will be published at local level as a product from the project. Final draft of publication is ready and a final publication will be carried out this year. A socio-economic survey is being carried out to assess livelihoods and also measure the level of vulnerability of households to risks such as climate change. Results will be analysed against local indicators such as literacy level and

household income and would be presented at the next SUMAMAD workshop. Apart from the scientific and technical evaluation results of activities, a participatory evaluation of all activities will be carried out through workshops.

13. One of the major achievements of the SUMAMAD-Bolivia project was the successful organization of the First National Congress on Irrigation in July 2010. The congress participants included representatives from the relevant ministries, local government and farmers. The workshop report will be published this year.

#### *Discussion*

14. In response to a question posed by Dr. Adhikari (UNU-INWEH) on how fields are selected, Mr. Cusicanqui informed participants that communities are selected in consultation with local government authorities after which the communities decide whether or not they would be working with the project. He also mentioned that community land is mainly used for establishment of plots. He added that farmers have also been trained and given guidelines on when and how to irrigate their plots in order to obtain the best moisture level of soil before planting. Regarding alternative livelihoods apart from quinoa production, it was noted that llamas were reared in some communities and the dung is used as fertilizers on some farms. He added that other crops are also under consideration for deficit irrigation. Mr. Cusicanqui expressed his concern about the rapid spread of quinoa production to other communities and associated challenges such as land degradation. He pointed out that due to increasing demand for quinoa in the export market, most land is being used for quinoa production but yields remain low. Therefore, deficit irrigation is a good alternative for boosting quinoa yield and reducing pressure for land.

#### ***Burkina Faso – Dr Jean-Noel Poda***

15. Burkina Faso is a land locked country which is faced with the challenge of deteriorating climatic conditions. Limits of middle rainfall have shifted more than 200km southwards. The challenge of the SUMAMAD project in Burkina Faso is to manage and sustainably develop the natural resource in the biosphere reserve (BR) in relation to the country's development agenda.

16. The main aim for the second year of the SUMAMAD-Burkina project was to promote alternative activities for sustainable agriculture and conservation in the biosphere reserve. The MAB National Committee through co-funding from the SUMAMAD project brought together stakeholders from NGO's, scientific and research communities, teachers and local technical services to plan activities in the context of the SUMAMAD project. This consultation was done with the aim of building synergies between all relevant stakeholders on all activities. Another objective of the project is to foster scientific research on drylands. Under this objective, land use practices including the local knowledge with respect to selection, monitoring and evaluation will be looked at. With regards to this, experimental fields were visited and selected and the farmers have been trained in water management techniques, crop diversification and use of organic manure. A new demonstration site has been set up. This site has agroforestry pilot farms with fruit bearing trees through improved research. This has helped to reduce the cultivation of cotton, which relies on a lot of chemical fertilizers and pesticides that have adverse impacts on the biodiversity and the ecosystem. Climate change perception and indicators have been documented.

17. The project has been promoting sustainable livelihoods such as shea butter and soumbala production. Dr. Poda noted that field stakeholders needed training in processing and preservation technologies. Most of the income generating activities is initiated by women and these women have become aware of the stakes of preservation to income generation towards poverty alleviation. SUMAMAD also supported some local community members around the BR to attend an International Conference on Tourism held in Ouagadougou. Attendees came back to spread the word on how best to promote their communities and the BR in order to attract tourists.

18. In view of the overall aim of the SUMAMAD Project of Burkina Faso at countering the combined effects of climate conditions, degradation and poor management of land, national workshops are held bringing together all stakeholders to inform them and dialogue with them on creating synergies to mitigate these challenges. The first workshop was held in October 2009. The second will be held in January 2011 using SUMAMAD 2010 project funds.

#### *Discussions*

19. The Chair stated that the activities being undertaken under the SUMAMAD-Burkina Faso Project was a good example of how biosphere reserves can best demonstrate sustainable development. Prof Gabriels requested that in the next report the number of participants at the workshops held both at the national and local level should be indicated. Dr. Adhikari advised that the local knowledge on adaptation techniques should be documented. Dr. Raes advised that farmers should be trained in post harvesting techniques, so that produce can be brought to the market when prices are competitive. Dr. Poda informed that fruit crop prices are mostly competitive all year round as most farmers are into cotton production.

#### ***Egypt - Prof. Salem***

20. Prof. Salem began by recapping previous SUMAMAD Project activities. These activities were on the following: changes in land use and land cover which result in ecosystem degradation and habitat fragmentation; and climate change which leads to inefficiency in the ecosystem's exchange of water, energy and carbon dioxide with the atmosphere. All these lead to a decline in ecosystem services which invariably has a negative impact on local and indigenous communities. The project activities thus target local and indigenous communities.

21. She informed participants that a geodatabase has been established and that since the beginning of the project, maps have been created and analysis of these maps and satellite images show the changing land uses and the changes in land cover. She intimated that work is ongoing to extend the boundaries of the transition zone of the Omayed BR southwards. She expressed concern on the effect on the ecosystem due to development of infrastructure such as road networks. For example, road networks have been constructed linking four villages surrounding the BRs and this has caused fragmentation in the BR ecosystem. Summer resorts have been established in the transition zone of the BR. Although these resorts provide jobs for the local people and bring in more tourists to the BR, the constructions and the horticulture activities such as watering of gardens relies on the use of groundwater which could deplete the ground water stocks.

22. Irrigation from the Nile canal resulted in flooding of some areas and this led to an increase in the rate of infection of water-bourne disease like bilharzia. The types of irrigation practiced on farms are mostly the drop and sprinkler irrigation system. She expressed concern about intensive irrigation in certain areas which could lead to salinity of other areas. She added that irrigation in all forms should be done in a sustainable manner. Communities have experienced changes in their socio-economic status. Northern bedouins have become better off than southern ones because water is now available to them for agriculture purposes and other watering needs. There is intensive agriculture production in that area. This situation has generated some level of rivalry between the two communities.

23. Temperature is a bit warmer than usual and aridity has increased slightly. Analysing climatic data shows that changes in temperature are not so significant such as to affect agriculture production. However, rainfall patterns are changing and they are becoming more unpredictable. The project has worked on projected impacts of climate change on the biodiversity in the vulnerable, sub-regions and types of ecosystems in the BR. Reports from the BR manager on bird migration based on recorded dates of migration indicate changes in

seasonality. This could be attributed to changes in climatic conditions in Europe and Northern Africa.

24. Apart from the vulnerability of the ecosystems, traditional knowledge, innovations and practices are also threatened and therefore vulnerable. The project also seeks to continue working with these communities and to convince them to share their wealth of information and indigenous knowledge on conservation and management of the ecosystem.

25. In terms of alternative income generation, it was noted that some local people who traditionally depend on rearing of livestock have now been trained to undertake farming as an alternative source of livelihood; whereas those who were farmers have also been trained to take up animal rearing as a supplementary income generation activity. Women in some Bedouin communities are involved in handicraft production. The project collaborates with a community based NGO, in reaching out to the members of the community.

26. Prof. Salem informed participants that the water de-salinization plant that was installed in one of the project communities for the provision of fresh drinking water had suffered some damages during a recent misunderstanding that had ensued between some members of the community. Plans are underway to repair the plant and to decide on re-installing it in a manner and in a place which will define ownership and subsequently make it more secure from similar future occurrences.

27. The national workshop of the project was held within the programme of the 'first students' scientific conference', supported by a grant from the NGO that had been established during the first phase of SUMAMAD. This science conference was the first of its kind for university students. The project gained some visibility on this platform. The conference was very interactive and it gave an opportunity to students to publicly present their research for the first time. Statistics of the conference indicated that there were about 100-120 undergraduate students and about 25-30 postgraduates attending the conference. The background of the undergraduate students is in different scientific disciplines sciences, i.e. mathematics, chemistry microbiology, oceanography physics and environmental studies. There were two awards that were offered to the best presentation and the best poster. The presentation award was won by a microbiology student, on her research on the production of new strains of bacteria working on degradation of solid wastes; the award for the poster presentation was won by an oceanography student on his research on Tilapia fishery studies. The internal judges were selected from the nine departments of the Faculty of Sciences, and 2 external judges from the Institute of Graduate Studies and Research, and library of Alexandria. The SUMAMAD Project was presented with keynote presentations to demonstrate an applied environmental and development project.

#### *Discussion*

28. Prof. Ghabbour observed that, unfortunately, research findings do not get to decision makers or policy formulators. He added that even if results get to them they are more concerned about the economic impacts than impacts on social issues. He advised that the only way to get research findings to influence policy making is to get policy makers on board at the onset of any scientific research activity. Participants all agreed that decision makers are being consulted with both at the national and local level. However; the major challenge is that there is a lot of turnover in political posts and information sometimes does not get transferred to the succeeding officer. To allay Dr. Salem's concern about irrigation, Dr. Raes stated that irrigation done with proper training of farmers prevents unwanted incidence. In response to a question on how reliable the data used in determining the projected impacts of climate change was, Dr. Salem stated that the data collected were from reliable institutions and the most accurate of the data was that on the sea level rise.

**India – Dr. R. S. Mertia**

29. The SUMAMAD-India project is a study on a range land and run off farming in a region which receives an annual rainfall level less than 200mm. In view of this, two strategies have been planned for implementation. These are: i) restoration/rehabilitation of marginal rangelands in a participatory mode to attain grass cover; ii) due to acute water shortage/scarcity, runoff farming has been planned.

30. The selected community is the Bharamsar village in the Jaisalmer district. The village has a total geographical area of about 89.05km<sup>2</sup>. It has a total population of 813 which is made up of 134 households. This is a barren rocky terrain with heavy run-off and the elevation ranges from 151 to 255m. Members of the community were consulted with and briefed about SUMAMAD. The project has gained a lot of support from local government authorities.

31. Soils in the area have a coarse to fine loamy texture. Eventhough there is food crop cultivation using the run-off farming system; livestock rearing is the major source of livelihood in this community. Goats and sheep are the most reared animals. Vegetation in the area is sparsely distributed with different species of trees shrubs and grasses. The project has also digitized important features of the study sites such as roads and the surrounding villages. The boundary of the study sites have also been digitized using GIS software.

32. He informed participants that project sites for the experiment have been selected and fencing of the site is in progress. In looking to rehabilitate the marginal rangelands, the projects have outlined the following activities to be undertaken: i) formation of a Village Community Pasture Development Committee; ii) fencing of a 10ha area; iii) reseeding of 5ha land with pelleted seeds and planting of multipurpose fodder trees and medicinal plants on 5ha land.

33. Due to acute water shortage the local government has supported the construction of a community surface water reservoir with a capacity of 3200m<sup>3</sup>. This is for the irrigation on the run-off farms lands. The government also fully supported the project in the installation of the drip irrigation system. Dr. Singh informed participants about other project interventions such as the cultivation of horticulture crops.

35. As the SUMAMAD Project also focuses on livelihood development, the India project is involved in the development of a multi-nutrient feed block (MNFB) for the rearing of livestock. The project trains farmers in the preparation of this feed. He added that farmers noticed an overall improvement in the health of animals that were fed with the MNFB. The materials used in the preparation of the feed blocks are local feed and fodder resources in different ratios of roughages and concentrates feed resources like local grasses. This is a recommended strategy for feeding livestock during droughts. Another recommended method of feed improvement is the urea treated fodder. The initial intake of the feed by the animal is low due to the pungent smell of the ammonia, however, after a few trials the animals adapted to the taste and smell of the urea treated feed. The project observed an increase in milk production of the bovine.

**Pakistan – Engr. Zamir Ahmed Soomro**

36. The SUMAMAD-Pakistan project is focused on the management practices for the rehabilitation of degraded dryland ranges in the Lal Sohanra Biosphere Reserve and Cholistan desert. To achieve this, the objectives set by the project include the rehabilitation of degraded rangelands by the management of the land, water and vegetation resources. The project is also working to halt the degradation of rangelands by adopting protective measures to enhance carrying capacity. Irrigation concepts will be introduced using harvested rain water. Livestock production will be improved by increasing carrying capacity in order to improve and sustain the livelihood of livestock owners.

37. Re-seeding of the degraded land has been undertaken coupled with improved irrigation of the land and its protection from free range grazing livestock. The controlled/rotational grazing system has been introduced to avoid over-grazing. This has resulted in increased biomass production and also improved vegetation cover.

38. A national seminar has been organised and there were 300 participants from local communities, public and private organizations. This served as a platform for SUMAMAD researchers who presented the management strategies for rangelands. Although the local communities were enthusiastic about rangeland development they requested that government would support such activities more rigorously. For promotion of alternate livelihood of the people, an exhibition was arranged during the national seminar. Local products like embroidery, weaving and livestock by-products were kept for sale. Sufficient revenue was generated by the local people and they were encouraged to prepare more of such products.

39. The project's recommendations to the communities is to protect rangelands from free range grazing livestock and also to adopt rotational grazing system.

#### *Discussion*

40. Dr. Schaaf asked about the state of the fish ponds, which were created as an alternative livelihood generating activity during the first phase of SUMAMAD. Engr. Soomro assured participants that the fish ponds were in a good state. Dr. Singh shared his experience on re-seeding and land rehabilitation with Engr. Soomro. He offered to give him additional information should the need arise. On the issue of the zonation status of the BR, Engr. Soomro informed that unfortunately, this is outside the jurisdiction of his institution.

#### ***Jordan – Mr. Ahmad Al-Smadi***

41. SUMAMAD-Jordan Project focuses on the development of a community based grazing management scheme in the Dana Biosphere Reserve. He stated that the Dana BR, which was designated in 1993, is a model not only of conservation but also for the promotion of the integration of nature conservation and socio-economic development. He added that there are seasonal cultivation activities in the BR and currently the project activities are being carried out in the buffer zone. The ultimate goal of the project is to preserve the ecosystem of the area and at the same time to provide substantial amount of forage for livestock owners.

42. Some objectives of the project include conducting a baseline survey on livestock and rangeland use, develop in grazing management scenarios in consultation with the local communities and also regulating and managing grazing in the BR. Scenarios for grazing capacity are required to promote flourishing of perennial plants in the area.

43. At the end of the first year of the project, a consultant who is a rangeland expert was contracted to conduct a full survey of the Al-Barrah area. Questionnaires have been developed for the survey and data have been collected from the livestock owners. Studies were carried out to determine the number of livestock per household, the structure of the flock and its composition. The feeding calendar of the year and the mobility of the flocks were also determined.

44. On outreach mechanisms to local communities, a workshop was held in the BR for livestock owners to meet with the rangeland specialist and the team to discuss the problems and to suggest solutions. A workplan for the following year was also discussed.

45. A full survey was carried out to characterize the local communities using the resources in the BR through questionnaires. Data collected have been analyzed and a full report shall be prepared by the contracted agency for submission to UNESCO and UNU-INWEH in March 2011.

46. A comprehensive grazing management plan for Al-Barrah area will be prepared for the 2<sup>nd</sup> year of the project and will be submitted in the report to UNESCO and UNU-INWEH in March 2011. This will be done based on information obtained during the 1<sup>st</sup> year of the project. Community briefing and discussion will be ensured at all stages of the development of the plan. A full range land survey has already been carried out this year. The survey looked at grazing animals and the grazing plant species in order to determine the carrying capacity of the land. A survey on Livestock owners' practices was also conducted.

47. On the issue of alternative livelihoods development, he intimated that ecotourism was one of the project's theme as data have shown that between 1999 to date, Dana BR receives an average of 6000 visitors annually.

48. The project have proposed the following activities and training needs: i) establishment of cooperatives for the livestock owners of Al Barrah; ii) renovation of water well at Om Laila; iii) controlling of insects and parasites in the cave in Al Barrah area; iv) capacity building of staff of Dana Biosphere Reserve in grazing management; v) selection, design and construction of small scale earth dams at Om Laila; vi) implementation of rest rotational grazing at Al Qanees and Krah.

#### *Discussion*

49. Dr. Schaaf suggested that climate change projections should be included in future activities of the project. In response to whether the project faced any challenges especially at the political level in its implementation, Mr Al-Smadi responded that the Royal Society for the Conservation of Nature is fortunate in the sense that they have been given the mandate to manage and protect all protected areas in the country. He added that they are looking to replicate the SUMAMAD project activities at the national level outside protected areas.

#### ***Tunisia – Mr. Mohamed Ouessar***

50. As Mr. Ouessar was unable to attend the workshop, Prof. Gabriels stood in for him to share his presentation he had provided earlier. The project focuses on the use of the "Local Observation Information System" (LEIS) model in the case of Wadi Oum Zessar watershed.

51. LEIS was developed by ROSELT team in Montpellier (France). This model helps to integrate variable data, such as bio-physical and socio-economic data and to facilitate the processing of this data into products for the interpretation of the causes, consequences and mechanisms of desertification for the monitoring of environmental changes at the local level. The model is implemented within the ROSELT/OSS observatories, and focuses on the spatial integration of the dynamic interactions between populations and the environment.

52. In relation to the Clean Development Mechanism (CDM), the Flemish Government of Belgium invested in a plantation of 50,000 acacia trees at Haddej Bouhedma and Jeffara project sites. Due to the acacia plantation a modified local climate has been created in the area. He added that there is the need to monitor the evolution of the vegetation with respect to the CDM requirements.

53. The main objective is to carry out a monotemporal assessment of the number of acacias (individual and tree groups) and the estimation of crown diameter of *Acacia tortilis*. The field work included the following: i) random sampling of trees: 'natural' vs 'artificial'; ii) measurement of tree basal diameter; iii) estimation of tree height using suunto clinometer; iv) estimation of crown diameter using a measuring tape; v) presence or absence of flora; vi) soil attributes data: rockiness, erosion crust; vii) tree phenology.

54. Consultations have been done using various approaches such as individual contacts, field visits and small meetings. A national workshop was held in June 2010 and participants included 22 of IRA's project partners. Detailed information on the June 2010 national

workshop will be provided in the report to be submitted to UNESCO and UNU-INWEH in March 2011.

### ***Expert Presentation***

55. Dr Richard Thomas from UNU-INWEH presented on the topic “Integrated Indicators to Measure Benefits from Sustainable Land Management at Different Scales”. He started by stating that one of the cross-cutting issues of concern to many researchers is how best to measure impacts of projects to influence national and international policy makers.

56. He touched on some indicators proposed for measuring sustainable land management: land cover/land use, carbon sequestration, land productivity, water availability and human well-being. The interaction of these indicators should be able to fit in the link of environmental and social development.

57. An objective of the project is to develop global and project level indicators to measure global and related local livelihood environmental benefits derived from sustainable land management (SLM) projects. The project also seeks to exchange and disseminate knowledge and practices generated through SLM projects and programmes, through a learning network.

58. The methodological approach of this project will be to develop universal SLM framework in order to understand the interactions and connections between different indicator levels and to provide an integrated impact analysis of SLM interventions. Expert consultations will be carried out. The current use of indicators of ongoing GEF projects under the land degradation focal area will be reviewed.

59. Findings from the pilot testing of project indicators showed that some of the global indicators were difficult to measure due to various reasons, such as the challenge of availability of data, scale (global, national vs. local data) and ready access to such data when they are available. For example, some countries may not be willing to share data on a sub indicator for human well-being such as prenatal-mortality. Some developing countries may also not have baseline data available when it comes to land cover issues.

## **Session 2 - Administrative and Technical Issues – Dr. Thomas Schaaf**

### ***Disbursement of project funds and submission of reports***

60. Dr Schaaf (UNESCO) started by apologizing for the delay in transfer of the project funds to SUMAMAD-Project partners. He noted that this may have resulted in the late start of some country project activities for 2010. He explained that the delay was due to a change in the Cabinet of the Flemish Government of Belgium earlier this year which impacted on the transfer of funds to UNESCO. To make up for this lost time, he informed participants that the deadline for submission of project reports has been extended to 15 March 2011. Reports could also be submitted earlier than the middle of March if they are ready.

62. Prof. Gabriels reminded participants that they should aim to make the project sustainable even without the Flemish funding. He added that partner institutions should support project activities either in kind or in cash to keep the projects running in the case of a delay in the disbursement of project funds from the donor. All SUMAMAD partners agreed that the projects have been receiving support from the national partner institutions. Dr. Schaaf also added that project leaders should work to address the challenge of reconciling the planting season/ agriculture calendar with project financing calendar. He also assured partners that all funds for the second phase of SUMAMAD have been approved, therefore partners should have no doubts about receiving their annual project funds even if disbursement is delayed.

### **Communication**

63. Participants agreed that one of the main reasons for the gaps or delays in the communication between the implementing partners and project partners was the high rate of turn-over in most of the partner institutions. Participants agreed that one of the ways to overcome this challenge is to put deputy team leaders in copy of all correspondence so that they can act in the absence of the team leaders. Dr. Adhikari also requested that project progress reports should be 1-2 pager reports. If SUMAMAD funds are sufficient both the team leaders and their deputies will be invited to attend the 9<sup>th</sup> International SUMAMAD workshop.

### **Visa**

64. To avoid delay in visa issuance, participants agreed on the following suggestions:
- i) As soon as the first workshop announcement is made, leaders and their deputies should check on the requirements, regulations and rules on visa application with respect to the host country.
  - ii) Invitation letters are important requirements for most visa applications and should be sent early enough, at least a couple of months before the workshop date.
  - iii) UNESCO National Commissions should be involved in the issuance of invitation letters to participants.

### **Venue for 9<sup>th</sup> International SUMAMAD Workshop**

65. Dr. Jean Noel-Poda, team leader, SUMAMAD-Burkina Faso, expressed interest and offered to host the next SUMAMAD international workshop in Bobo-Dioulasso, Burkina Faso. The workshop is scheduled for December 2011. Dr. Salem proposed that a training session on “ecological accounting and environmental valuation” using a resource person from Egypt should be conducted during the workshop. Dr. Poda also suggested a second training session on “NGO’s outreaching to local communities” using a resource person from Burkina Faso.

### **Publications**

66. A SUMAMAD multi-lingual and policy brief to enhance project visibility and also to inform policy makers about the positive impacts of SUMAMAD Project activities is being planned. The workshop proceedings shall be published after the submission of project progress reports on 2010 field project activities (deadline for submission: 15 March 2011). All countries are also encouraged to publish their activities in any reliable media. Donors and implementing partners should be acknowledged in such publications.

### **Other issues**

67. Dr. Salem suggested that the structure of the reports should be flexible enough to allow the inclusion of other activities which may not directly be a SUMAMAD Project activity but which may have been carried out by the same partner in the project area.

### **Field Visit**

68. On 7 November 2010, workshop participants visited the Omayed Biosphere Reserve. Participants observed the rapid construction of summer resorts in the transition zone of the BR. Unfortunately, and due for technical reasons it was not possible to visit the biosphere reserve’s core zone. A visit to some parts of the buffer zone where fruit crops have been cultivated was practical evidence that arid lands could be cultivated under the right kind of conditions such as irrigation. Participants had the opportunity to interact with some members of the Bedouin community. The handicrafts made by the Bedouin women were on display for sale. Participants interacted with leaders of the local NGO’s who had collaborated with Dr. Salem in her implementation of community project activities. Participants also visited a household where the water desalinization plant has been installed. Mr. Mohammed, a member of the NGO “Ecosystem and Human Development Association” explained to participants how the desalinization plant works, which cost about US\$ 5,000 each. Unfortunately, 2 of the 3 desalinization plants were no longer functioning due to some conflicts within the community.

### **Training**

69. On 8 November 2010, Prof. Raes took participants through the training on the usage of FAO developed software programmes *New\_locClim* (an abbreviation for “Local Climate”), a software programme and database, which provides estimates of average climatic conditions at locations for which no observations are available. The programme can (i) create climatic maps, (ii) extract data in various formats from the database for further processing and (iii) display graphs showing the annual cycle of monthly climate and the crop calendar.

67. The second software usage participants were trained on was *ETo* calculator, a software developed by the Land and Water Division of FAO. Its main function is to calculate Reference evapotranspiration (ETo) according to FAO standards.

### **Closing Session**

68. Dr Thomas Schaaf invited workshop participants to express their views, comments and or suggestions about the workshop and the field trip to the Omayed BR. All participants lauded Dr. Salem for the success of the 8<sup>th</sup> International SUMAMAD Workshop. Mr. Al Smadi observed during the visit to the BR that the zonation as it currently stands causes fragmentation in the ecosystem of the BR and should therefore be redesigned. Dr. Salem assured him that work was underway to correct this situation. Finally, Dr. Schaaf expressed his appreciation to Dr. Salem, her team of assistants, UNESCO Cairo Office and the staff of Bibliotheca Alexandrina for their excellent work in organizing and hosting the workshop.

### **Follow Up Action (By Whom)**

69. The SUMAMAD workshop proceedings shall be published by UNESCO following the submission of the consolidated project progress reports on 2010 field project activities by 1 March 2011 to UNU-INWEH and UNESCO (M. Ocloo and T. Schaaf, UNESCO, to edit and publish SUMAMAD workshop proceedings).

70. Guidelines for the structural preparation of the reports will be sent to the project team leaders to ensure harmonization of the reports for the workshop proceedings and for reporting to UNU-INWEH and UNESCO (M. Ocloo and T. Schaaf to prepare draft guidelines in consultation with UNU-INWEH).

71. A SUMAMAD multi-lingual poster and a policy brief to enhance the project's visibility is being planned (draft outline to be prepared by Prof. Boshra Salem, Egypt, in consultation with UNESCO and UNU-INWEH).

72. UNESCO will check on the cost of travel to Burkina Faso for the 9<sup>th</sup> International SUMAMAD Workshop, in order to ascertain whether two participants from each country can be supported to attend the next SUMAMAD workshop. SUMAMAD partners are requested to enquire well ahead of the workshop on visa regulations for Burkina Faso.

## **ANNEX I - Workshop Agenda:**

### **Friday, 5 November 2010:**

Arrival of international workshop participants in Cairo, and then transfer to Alexandria

### **Saturday, 6 November 2010:**

**Venue:** Bibliotheca Alexandrina (Alexandria Library), Chatby, Alexandria 21526

#### **10:00–10:45 hrs: Opening session:**

- Prof. Ghabbour, Chairperson of the Egyptian MAB National Committee
- Prof. Boshra Salem, University of Alexandria and team leader of SUMAMAD-Egypt
- Dr Mohamed Al-Aawah, UNESCO-Cairo Office
- Prof. Donald Gabriels, on behalf of Flemish Government of Belgium;
- Dr Richard Thomas, Deputy Director, UNU-INWEH;

#### **10:45 - 11.15 hrs Coffee/tea break**

#### **11:15 – 1:45 hrs: Session 1: Presentation of project activities by national team leaders**

Chair: Dr. Mohamed Al-Aawah

- Mr. Jorge Cusicanqui (Bolivia): Bolivian highlands
- Dr. Jean-Noel Poda (Burkina Faso): Mare aux hippopotames Biosphere Reserve
- Dr. Jiang Gaoming (China): Hunshandake Sand area (unable to attend workshop)
- Dr. Boshra B. Salem (Egypt): Omayed Biosphere Reserve
- Dr. R. S Mertia (India): Arid western plain zone, Thar Desert

#### **1:45 – 14:45 hrs Lunch**

#### **14:45 – 16:15 hrs Session 1 (continued): Presentation of project activities by national team leaders**

Chair: Dr. Boshra B. Salem

- Dr Mansour Esfandiari (I.R. of Iran): Undulating area SW of the Gareh Bygone Plain (unable to attend workshop).
- Mr. Ma'en Ahmad Al-Smadi (Jordan): Dana Biosphere Reserve
- Engr. Zameer Ahmed Soomro (Pakistan): Lal Suhanra Biosphere Reserve and Cholistan Desert
- Dr Mohamed Ouessar (Tunisia): Zeuss-Koutine Watershed (unable to attend workshop)

#### **16:15–16:30 hrs. Coffee/tea break**

#### **16:30– 18:00 hrs: Session 2: Administrative and technical issues**

Chair: Dr. Thomas Schaaf

Open discussion on administrative and technical issues regarding project implementation (including preparation of publications, participation in international events etc.)

**Sunday, 7 November 2010:**

One day field trip to Omayed Biosphere Reserve.

**Monday, 8 November 2010:**

**9:00 – 10:30 hrs.: Session 3: Training on SUMAMAD related aspects**

Prof. Dirk Raes: *New-locClim* software training

Download software from [http://www.fao.org/NR/climpag/pub/en3\\_051002\\_en.asp](http://www.fao.org/NR/climpag/pub/en3_051002_en.asp)

**10:30 – 11:00 hrs.: Coffee/tea break**

Prof. Dirk Raes: *ETo calculator* software training

Download software from <http://www.fao.org/nr/water/eto.html>

**11:00 – 12:30 hrs.: Session 3 (continued)**

**12:30 – 14:00 hrs.: Lunch**

**14:00 – 15:00 hrs.: Closing session**

Group Dinner

**Tuesday, 9 November 2010:**

Some SUMAMAD Project partners returned to their respective homes countries while others attended the International Conference on Biodiversity in Alexandria.

## **Annex II - List of Participants**

### **1) SUMAMAD Country Participants:**

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