



**EUROPEAN AND MEDITERRANEAN  
MAJOR HAZARDS AGREEMENT (EUR-OPA)**

Biskra 15 June 2006

AP/CAT(2006) 30

OPEN PARTIAL AGREEMENT ON THE PREVENTION OF, PROTECTION AGAINST, AND  
ORGANISATION OF RELIEF IN MAJOR NATURAL AND TECHNOLOGICAL DISASTERS

***NETWORK OF SPECIALISED EURO-MEDITERRANEAN CENTRES  
OF THE EUR-OPA MAJOR HAZARDS AGREEMENT***

**International Study Days on Desertification and Sustainable  
Development**

**General Recommendations**

Euro-Mediterranean Centre for research in arid zones (CRSTRA), Biskra, Algeria

The International Study Days on Desertification and Sustainable Development, held at the University of Biskra from 10 to 12 June 2006, brought together over 150 participants at international level. They were organised by CRSTRA and the Med Kheider University of Biskra.

The participants made the following recommendations:

**1. The processes of aridification and desertification must be regarded as “major hazards” and taken into account in all risk prevention programmes devised at national, Euro-Mediterranean and international level.**

As Mr Hama Arba Diallo, Executive Secretary of the United Nations Convention to Combat Desertification (UNCCD) has pointed out, “*environmental deterioration has an influence both on national security affairs and on international stability*”. Desertification is one of the most alarming processes of environmental deterioration; it increases the risks of food insecurity, famine and poverty and can give rise to social, economic and political tensions liable to degenerate into conflict. Every year, desertification and drought cause an estimated loss of some 42 billion dollars in the farming sector. Some 41% of the earth’s landmass consists of arid zones inhabited by over two billion people. 10 to 20% of this land is either degraded or unproductive.

The scale of the problem has prompted the United Nations General Assembly to declare 2006 the International Year of Deserts and Desertification. The Year is aimed primarily at drawing attention to the fact that desertification is a major threat to humanity – a threat which is compounded by forecasts of climate change and the decline of biodiversity.

The Algerian national authorities regard this scourge as a major concern, both at national and at pan-African level, in connection with the strategy of the New Partnership for Africa's Development (NEPAD).

**2. Establishment of the Mediterranean Institute for Sustainable Development in Arid Zones (IMDA) in Biskra.**

Aims:

Multidisciplinary training leading to a professional qualification for graduates with 4 years of higher education:

- Masters (1 year): “Adviser on sustainable development in arid zones”.
- lectures: 200 hours over 3 months,
- A 6-month placement under the supervision of a tutor in central or local government office, a company or a research laboratory, with 100 hours of courses in parallel.

- Preparation and drafting of a thesis followed by a viva voce examination by a panel.

Framework:

- Euro-Mediterranean Centre for research in arid zones (CRSTRA), Med Kheider University, Biskra
- Establishment of a Joint Committee to foster career opportunities, involving CRSTRA, Med Kheider University and representatives of public and private-sector professions.
- Co-operation with a network of Algerian, North African and European higher education and research establishments.

Proposed timetable:

- July 2006 – November 2006: Preparation of the content of training courses and the policy with regard to placements, identifying funding sources, etc.
- December 2006 – Preparation of documents on the IMDA project and a funding policy for the preparation and implementation phase;
- February 2007 – Presentation of the IMDA project to the Algerian authorities for approval;
- March 2007 – Implementation of an information campaign on the IMDA project and enrolment requirements;
- September 2007 – Launch of the training course.

### **3. Step up research, training and development in arid zones**

In this context and in view of the words of the Algerian President in speeches in Ouargla and Laghuat, it is proposed to set up two regional technopoles on the following themes:

- making full use of resources in Saharan regions;
- making full use of resources in steppe regions.

### **4. The participants:**

- highlighted the scientific, economic and social importance of the topics raised, discussions held and proposals made during these study days;
- noted and approved the content of the CRSTRA research programmes and called for the CRSTRA's capacity for action to be enhanced.

The participants wished to congratulate the CRSTRA, the University of Biskra and the local authorities in Biskra on their idea of holding these study days, their outstanding organisation and the high-quality scientific and technological content of the debates.

## **Recommendations by workshop**

### **WORKSHOP 1**

#### ***The steppe ecosystem and its protection***

The statements made in this workshop were remarkably rich and diverse and highlighted the need to preserve ecosystems to achieve sustainable development in steppe and Saharan regions. They also highlighted problems with regard to the protection of biodiversity. It was stressed that scientific research should be used as a basis for progress. Improved technology has proved a key factor in the fight against the major hazards which threaten animals, plants and even the physical environment and hence humans. Recommendations were made on the subject of the protection of animals and plants:

- Take stock of the work done on ecosystems, highlighting the extent to which species are endangered and identify the measures that need to be taken to protect them (national management plans).
- Support and carry on with studies on natural processes (in the areas of climate, soil and biology) to gain a better understanding of interactions and processes of change in space and time.
- Update national legislation to bring it into line with international conventions (the convention on biodiversity, the convention on desertification and the convention on climate change).
- Organise multidisciplinary teamwork involving local communities.
- Harmonise study approaches and methods with a view to making better use of the results obtained.
- Set up a national monitoring system to keep track of deterioration and desertification and of rehabilitation. With regard to genetic resources, do everything necessary to find out more about them, protect them and develop and enrich them.
- In development programmes, promote the sustainable use of natural resources, involving local inhabitants and other partners in all the stages of devising and implementing these programmes. Promote human resources and in particular the role of rural women in the preservation, use and farming of steppe regions for foodstuffs, taking account of their functions as agricultural, forestry and grazing lands.

## **WORKSHOP II**

### *Optimum use of water resources*

In arid zones, water is a key strategic resource for economic and social development. Bearing this in mind, the participants in the workshop on water resources made the following recommendations in the light of the statements and the ensuing discussions:

- Encourage saving techniques in the various areas of water use through the reduction of leaks, the promotion of alternative technologies and action to combat waste through user information and awareness-raising campaigns.
- Use water resources rationally in the production and supply cycle and ensure that water quality is preserved. In this context, all our energies and efforts must be focused on a major sustainable development goal, namely to avoid all forms of misuse of water resources and aquatic habitats both in terms of water extraction and of effluent disposal.
- Take account of the multidisciplinary nature of the science and technology of water resource development and management. Research on water-related issues should be decompartmentalised and incorporated into an integrated national policy.
- Reorient national policy on scientific research and technological development through programmes and mechanisms for exchange and interaction between research centres, institutions and all those involved in the water industry, capitalising not only on experience of the mustering and use of water resources but also on the accumulated results of prospective studies, research and experiments in recent years.
- Treat domestic and industrial effluent and use treated waste water for irrigation and sludge for agriculture.
- Control resources in areas with major potential, as identified in the mathematical models of the ground water in the North Saharan aquifer system (SASS), in co-operation with the neighbouring countries concerned.
- Use modern, isotopic hydrology-based investigation tools and methods to make an accurate assessment of the parameters of water balances in Saharan ground water (evaporation and infiltration) and to monitor their chemical quality, as well as using satellite imaging for hydrogeological exploration, which can contribute to the success of drilling if combined with information gathered on the ground.
- Capitalise on the potential of photovoltaic solar power, wind power and geothermal power through the development of water pumping plants, which are economically and technically viable and environmentally-friendly.
- Promote the widespread use of new communication technologies which would make it possible to pool expertise accrued at national and international level.

## **WORKSHOP III**

### *Agriculture in arid zones for sustainable development*

The following recommendations stemmed from the statements that were made:

#### I. Biodiversity in oases:

- Biogenetic inventories are still somewhat piecemeal and efforts need to be made to standardise compilation methods and dissemination systems.
- With regard to cereal crops, the ecotypes that have been assessed highlight the importance of reference standards. These steer the criteria for the choice of ecotypes towards early-developing crops that are suited to the environmental constraints.
- With regard to date palms, we recommend that the work on this genetic heritage that is unique to the Sahara be pooled and developed. We also recommend the launch of activities to select new varieties which might be used to replace the excellent Deglet Nour date. We would point out that bayoud is still a problem and calls for the greatest possible vigilance. We highly recommend the prompt eradication of any new outbreaks.
- Generally speaking, we recommend an inventory of local species and ecotypes (fruit trees, medicinal plants, fodder plants, etc.), respecting priorities and enhancing the status of the best ecotypes.

#### II. Irrigation, drainage:

Current studies show that the recent growth in irrigated areas has caused an expansion of the water table practically everywhere in the Sahara, causing salt deposits to rise and poison the land. This very rapid and alarming development has caused declining productivity in many different crops but, in particular, in our palm groves, where the quantity and the quality of crops has decreased:

- Organise a general campaign to popularise modern irrigation techniques among producers in order to improve water management on each plot of land.
- Appeal to institutions responsible for water management in irrigated areas to give priority to maintaining irrigation networks, controlling the quantity of water being used and strictly applying the rules on the leaching and drainage of land in salty environments.
- Put a stop, in so far as possible, to arbitrary choices on the location of new irrigated sites. Formal consideration needs to be given to the drainage capacity of the land, the quality of the soil and water resource trends.

### III-The thrust of agronomic research in the Saharan environment:

One of the recurring problems underlying low crop yields is poor nitrogenous fertilisation and a very low level of organic matter in the soil.

All efforts to improve this situation (symbiotic nitrogen fixation, composting of various types of organic matter) are strongly encouraged.

## PARTICIPANTS

**Number of foreigners: 8** (*France, Tunisia, Irak, New Caledonia*).

**Number of participants : 102**

**Number of oral communications : 57**

**Number of poster communications : 48**

**Number of invited persons : 20**

### **1/ European bodies :**

- IRA Tunisie.
- Université Paris 8 (Noumea).
- Université d'Angers.
- Université de Bordeaux.
- Académie Européenne des Sciences.
- EUR-OPA Risques Majeurs.

### **2/ Ministries :**

- MESRS.
- MATE.

### **3/ Universities:**

- U. Biskra.
- U. Batna.
- U. Constantine.
- U. Annaba.
- U. Tebassa.
- U. Mascara.
- U. Oran.
- U. OUARGLA.
- U. Boumerdes.
- C. U. Djelfa.
- USTO.
- USTHB.

### **4/ Institutes:**

- INRF.
- INRAA.
- INA.
- ITDAS.
- ENS – Kouba.

### **5/ Bodies:**

- ONM.
- ABHS - Sahara.
- ASAL.
- ONG Ibn Elawam.

**06/ Research Centres:**

- CDER.
- CRNB.
- CDARS – Ouargla.

**7/ Directorates:**

- DGF.
- DSA – El Oued.
- Direction de Tourisme.
- Direction de l'Environnement.
- Direction d'Hydraulique.

**- List of speakers (excel table)**

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