

## **Conclusions of the workshop on Rangeland Desertification; Iceland 1997**

Halldór Thorgeirsson

*Ministry for the Environment, Vonarstraeti 4, 150 Reykjavik, Iceland  
Tel: 354 560 9600; Fax: 354 562 4566; E-mail: halldor.thorgeirsson@umh.stjr.is*

### **HIGHLIGHTS OF ISSUES DISCUSSED**

During the workshop on Rangeland Desertification, that was held in Iceland in September, 1997, an *ad hoc* group was formed to discuss and bring together conclusions of the meeting. This paper presents the highlights of the discussion at a summing-up session prepared by the *ad hoc* group. Please note that the meeting was not an inter-governmental meeting and the participants attended in their personal capacity.

#### *The context*

- Rangelands are of key importance in the context of desertification globally, both in terms of extent and socio-economic impact.
- Demographic pressures on rangelands will continue to increase. Desertification is not just an African problem; it is a global issue. Particularly vulnerable groups have to be identified and catered to. The demands put on rangelands by society are not limited to food and fiber, rangeland management needs to meet multiple demands simultaneously, including outdoor recreation, hunting, water supply, conservation, etc.
- There is a need to act in spite of uncertainty. The CCD needs to be founded on sound science, however. Leadership and deeper political commitment is needed from affected as well as unaffected countries.
- Interaction between the scientific community and the decision -makers needs to be strengthened. Stakeholders need to play an integral part in the planning, implementation and evaluation of desertification control actions. A sense of ownership in the solution should be strengthened. Empowerment of stakeholders and capacity building at all levels needs special attention.
- Guiding principles for desertification control need to be elaborated, taking notice of socio-economic consideration, ethical issues, ecosystem dynamics and external driving forces. National strategies and programs are critical.
- The context provided by the Icelandic rangelands, which have undergone catastrophic desertification, helped to underline the sense of urgency.

#### *The science*

- Specific case histories demonstrated that the rangeland systems in climatically diverse regions have more in common than what separates them. The desertification in Iceland is an excellent example of desertification and can provide insights applicable to other parts of the world.
- The degradation of rangelands needs to be evaluated based on the area's ecological properties, and methods designed for croplands are generally not applicable. Understanding the ecosystem functions is vital, for assessment, management objectives and control measures. Management of rangelands needs to be based on un-

derstanding of ecosystem function (plant, soil, and animal), and the role external driving forces have in dictating ecosystem behaviour.

- Some ecosystem processes are event-driven and the ecosystem response to extreme events can be more important than the mean conditions in determining the long-term trend. Their response to stress is commonly non-linear due to positive feedback loops. There may exist ecological thresholds, beyond which degradation may accelerate and become irreversible. These thresholds have not been clearly identified, however.
- There was a general consensus that the desertification concept needs to be re-evaluated as knowledge about the processes and mechanisms increases worldwide. Functional analysis of rangeland ecosystems has developed to the point that we can move from the mere description of superficial phenomena to a working understanding of rangeland function. This understanding can be distilled into functionally relevant indicators. There are still important gaps in our understanding of rangeland function, however.
- Indicators functionally relevant at one scale can lose their meaning when up-scaled to larger areas. When rangeland systems are analysed at the landscape level, individual patches are found to be spatially interconnected with significant fluxes of matter from one landscape unit to the next. Processes need to be studied at the spatial and temporal scales management decisions are made at.
- Rangelands are degraded when the functional integrity of the system is damaged and thus leading to reduced productive capacity and loss of resiliency. Rangeland degradation represents a continuum of system states with desertification as the end point. Productive capacity of rangelands will fluctuate due to external driving forces. These fluctuations need to be separated from long-term trends.
- The best management of rangelands can only be devised in the context of the management objectives of the stakeholders. The needs of the stakeholders, however, can only be met within the limits posed by the supply capacity of the soil-plant system.
- Current level of understanding of rangeland function has been gained from long-term studies, using broad based ecological approach (including the soil system). These studies need to be continued.
- There is a need for issue-driven research programs, combining several scientific disciplines aimed at finding solutions for desertification control.

#### *Implications for the Convention to Combat Desertification*

- The workshop participants welcomed strengthened co-operation among climatically different regions under the CCD Convention. They also agreed that the evolution of the Convention could be enhanced through broad-based scientific input. The interaction across the science-policy interface needs to be enhanced.
- The scientific community needs to recognise the importance of the development of indicators (impact indicators and implementation indicators) and benchmarks for these indicators under the CCD Committee on Science and Technology.

- The social science disciplines need to promote and research the participatory approaches advocated by the Convention. People's participation and NGO involvement are of key importance.
- Adoption of appropriate technology needs to be enhanced at the local level through technology transfer.
- The science input to the benefit of rangelands and the people depending on rangelands for their livelihood can be significantly enhanced through efficient networking across and within climatic regions, between scientific disciplines and across sectors of activity relevant for combating desertification. The CCD has a role to play in networking and in mobilising partnership arrangements.
- There is a need for early-warning network based on co-ordinated databases.



**Figure 1.** Ms. Vigdís Finnbogadóttir and Ambassador Bo Kjellén at the Rangeland Desertification Workshop. Photo G. Johannesson.