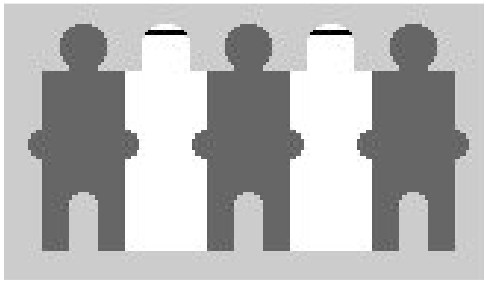
International Symposium on
Drylands Ecology and Human Security (ISDEHS)

Regional Perspectives, Policy Responses and Sustainable Development in the Arab Region - Challenges and Opportunities

Dubai, December 4-7, 2006

Thematic Session:

The Integration of Drylands Research into Sustainable Development Policy and Project Implementation



Session Convenor:

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Sufficient moistening, systematic processing of soils and deposition of fertilizers promote the increase of biological and physicochemical activities and the intensity of soil processes. Irrigation promotes a more pronounced humus horizon (in contrast with non-irrigated soils), an enhanced clay deposit in the soil profile, the blurring of boundaries of soil horizons, the destruction of carbonaceous new formation and the appearance of a number of other features, characteristic for irrigated soils. Ancient irrigated soils differ clearly from non-irrigated ones. They are characterized by an accumulation of agro-irrigation deposits, of which the power can reach a depth of 1-5 m. In these conditions, the special type of cultivated irrigated oases soils are formed, which, as a rule, are characterized by their high fertility. They are the "golden fund" of land resources. The process of desertification is related to the drainage of a territory and the disturbance of a water regime of soils, because of moisture deficit. Frequently, this is a result of regulation of water flow. Desertification occurs when the groundwater level lowers and when underground and surface water is reduced. The regulation of a fluvial flow changes a water regime of the flood land soils and deltas, which results in desertification of the earlier hydromorphic soils. There is also loss of forests, and other unfavorable consequences occur, as is observed for example along a channel of the river Vakhsh in Tajikistan. It would be interesting to study the effect of application of some water stocking soil conditioners on the water use efficiency for non-irrigated reforestation, irrigated agriculture and horticulture on these degraded and desertified lands. The processes of water erosion, occurring on irrigated soils, are particularly dangerous on high mountain valleys. A plough up of these territories, to use them in irrigated agriculture, results in active water erosion and disturbance of soil properties. Leaching of salty rocks and irrigation of high plains will activate not only erosion, but also salinisation of lower soils, because of dissolution of salts in groundwater and waterlogging of lower territories. Similar processes may are witnessed in the Fergana valley, the Hungry steppe and in the southwest of Tajikistan. Large losses of soil for new irrigation farming are caused by ravine formation (in the Yavan and Dangara valleys and other massifs). In an irrigated cotton-growing zone of Tajikistan, 110-120 thousand ha of stony and sandy soils occur.

These need urgent amelioration. 30-70 % of the fields in middle mountain regions of the Republic are also stony. As the practice demonstrates, irrigation of these soils in 1.5 - 4 times results in more expenditures of material - manpower (irrigation water, fertilizers, soil processing machines, fuels, lubricants and labor), in comparison with soils with small particles. In connection with the inferior conditions of growth and development of plants on these soils, the received commodity appears of low quality. The massifs of stony and sandy soils need large resource consumption. Simultaneously, they are centers of ecological threat. The exuberant water volumes eliminate the soluble kinds of fertilizers from a soil profile, thus polluting soil and underground waters. Geochemically, in anthropogenic landscapes, it causes the rise of groundwater and salinisation of soils. The sand-dust mass, blown from these massifs, covers adjacent fields and affects negatively the normal growth and development of plants in irrigated oases.

The situation in Tajikistan is symbolic for many countries with arid and semiarid ecosystems. Scientific knowledge about drylands is often ignored, when it comes to project implementation and creating an institutional framework that could provide new opportunities for the affected populace. One of the best examples would be the ongoing implementation of large irrigation projects around the world. Although the impacts of large dams have been well documented in the past, in case after case, new ones are proposed whose environmental impacts are downplayed or even ignored. Finally even the established institutions had to admit that "bad governance" is the most important factor, hampering sustainable development.

The primary objective of this session is to provide a better understanding of policy-related challenges and opportunities for improving drylands ecosystems. The urgent need to integrate independent scientific research into of a sustainable policy formulation will be highlighted, while looking at the current reality of the situation.

Possible Subject Coverages:

- ⇒ Case studies of the negative impact of irrigation projects
- ⇒ The Environmental and Socioeconomic Consequences of Large Dams
- ⇒ Environmental and Social Impact Assessment of Development Projects in Drylands
- ⇒ Sustainable Rangeland Use versus Wheat Production
- ⇒ Agriculture and the Environmental Imperative - The need to integrate conservation and agricultural production

Please note that the deadline for submitting your abstract is October 15, 2006.