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153

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Discussion Paper

by

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on

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Commentary

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Desertification, much induced by man himself, and the lot of the population inhabiting the gradually desertified arid and semi-arid areas may generally be viewed pessimistically. This is to a great extent a result of the present state of general development and lack of the minimal know now and capital resources required to halt the process of desertification.

Nevertheless much could be achieved in reversing the trend by applying rather simple technologies, e.g. developing shallow groundwater resources for watering cattle and small scale irrigation, soil conservation methods and afforestation (applied successfully in Israel under similar climatic conditions).

Yet, there are great prospects for development of many of the presently desertified regions when, in some future era the vast natural resources those regions are blessed with will be combined with the application of proper technologies. Some of these technologies are already applied elsewhere and some may be expected to be available in the future:

(1) There are great rivers in the climatic regions of concern that are practically still unused for irrigation. The most important ones are the Shari and Logone rivers in Chad. The flow of these two rivers amounts to the present share of Egypt of the

Nile River waters, where this source of water provides the main economic basis for a population some ten times greater than that of the Shari and Logone basins.

(2) Just south of the Nile, Shari and Logone rivers basins the climate is humid, predominantly a tropical rainforest area, drained by the vast basin of the Congo River. In these areas, similar to those of the Amazon of South America, water yield averages some 400 mm. per annum and the total flow of the Congo River (half the flow of the Amazon) is almost twenty times the flow of the Nile.

Topographic barriers between the Congo basin and the basins adjacent to it in the North may be overcome by present day hydrotechnical technologies already applied elsewhere (e.g. in the United States and the Soviet Union). Diversion of only five percent of the Congo basin water would thus augment the water resources of the arid belt by an amount equal to the entire flow of the Nile!.

(3) In many arid regions the ratio between groundwater reserves and natural replenishment of water by rainfall is far greater than in more humid areas. Therefore, the one time reserves of groundwater underlying the vast arid belt of Africa, in particular in Nubian Sandstone are extremely significant as a great resource for the future. This resource, tapped at present only on a very minor scale, may yield for a whole century quantities of water in the order of the entire flow of the Nile.

(4) One may expect that future technologies would provide means to affect climatic conditions. For example, present day first steps taken to materialize concepts of artificial cloud generation may bring about great changes in the natural water balance of arid regions. Reduction of evapotranspiration from irrigated areas shaded by such clouds along with enhanced runoff and water yield from large areas covered by natural vegetation may result in changes in the agricultural productivity of such areas.

(5) Last, but not least is the great natural resource the arid zones of the globe are endowed with, solar energy. In the future, with means available for its economic exploitation, large energy resources may facilitate the management of water resources in pumping and conveyance of water as well as in improving its quality.

The peoples of the arid regions may look forward to a much brighter future when part or all of above resources and technologies are applied.

With assistance received from outside in technology and capital combined with an educational effort on their own part these goals may be achieved sooner.