

Transformation of the Ili Delta Ecosystems Related to the Runoff Control of the Ili-Balkhash Basin Rivers

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Abstract : This article presents the results of a research on the transformation of the diverse ecosystems of the Ili delta during the period 1979-2014 based on the analysis of the hydrological regime dynamics, weather conditions and satellite images. Conclusions have been drawn on the decisive importance of the water runoff of the Ili River in the negative changes and environmental degradation in delta areas over the past forty-five years. The increase of water consumption in the Chinese and Kazakhstan parts of the Ili-Balkhash basin caused desiccation and desertification of many hydromorphic delta ecosystems and the reduction of water flow into Lake Balkhash. We demonstrate that a significant reduction of watering of the delta areas could drastically accelerate the aridization and degradation of the hydromorphic ecosystems. Under runoff decrease, a transformation process of the delta ecosystems begins from the head part and gradually spread northward to the periphery of the delta. The desertification is most clearly expressed in the central and western parts of the delta areas.

Keywords : Ili-Balkhash basin, Ili river delta, runoff, hydrological regime, transformation of ecosystems, remote sensing

Conference Title : ICSWRM 2015 : International Conference on Sustainable Water Resources Management

Conference Location : Stockholm, Sweden

Conference Dates : July 13-14, 2015