CLIMATE CHANGE AND ADAPTATION IN THE MAGHREB

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CLIMATE CHANGE IN THE MAGHREB : THRESHOLDS AND LIMITS TO ADAPTATION

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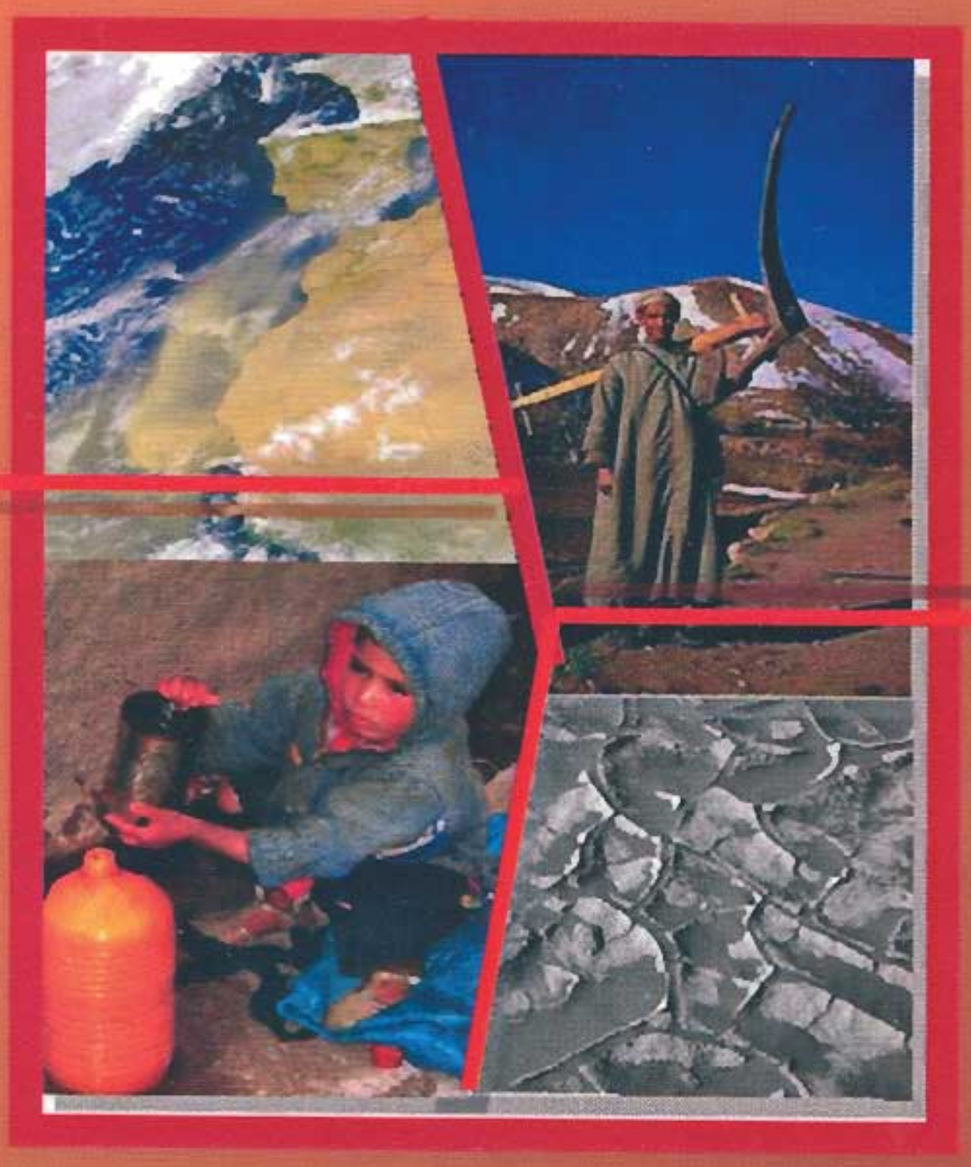

Workshop programme and book of abstracts

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Groundwater invertebrates as canaries in the coal mine for climate change

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In Morocco, climate change is being felt by an increase in irregularity of precipitation, climate aridity, as well as in frequency and duration of periods of drought. As a result, aquifers in many regions experience recurrent, or even permanent hydrous deficits. Demographic and land-use changes have further increased water demand and have made the problem of water shortage even more acute. To worsen matters, the concentration effect makes that hydrous deficits in aquifers strengthen the effect of human-induced pollution.

In order to enhance the sustainable use of high-quality water resources, it is of paramount importance to assess the impact of global climatic change on aquifers. In this regard, knowledge of groundwater invertebrates is crucial insofar as these animals are highly adapted to their extreme environment. As such, they are expected to be extremely vulnerable to hydrous deficits and thus can be considered canaries in the coalmine for climate change. Hence, it is important to document abundance, composition and distribution of groundwater biodiversity, as a sound benchmark against which future change can reliably be assessed.

These aspects were addressed in a project supported by the Belgian National Focal Point to the Global Taxonomy Initiative, by focusing on inventory of invertebrate biodiversity in Moroccan ground water, with special reference to the oligochaetes. In addition to providing the needed base-line taxonomic information, the project also enabled to identify the existence of a cryptic, mostly endemic biodiversity that might represent an important part of groundwater biodiversity. The fact that some cryptic species could be restricted to only one aquifer, making them potential bioindicators of a particular aquifer, stresses the importance of taxonomy in the context of global climate change.

Finally, our taxonomic results will improve decision-making in biological conservation and thus will entail fair access to the ultimate natural resource called water.