Impacts of climate change on global irrigation water requirement and its sources

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Abstract

We have evaluated evapotranspiration from different types of cropland and its water sources under future climate conditions when the current cultivation and irrigation practices will be kept in the future. A future increase in evapotranspiration from irrigated croplands will be larger than that from rain-fed croplands. To compensate increasing water loss from irrigated croplands through evapotranspiration, a larger amount of water will be supplied from non-river water sources than today: cultivation of the second crops in a double-cropping system in India is a typical example. Additional adaptation measures will be necessary to prevent future water shortage where the capacity of currently existing reservoirs or groundwater will be insufficient for future irrigation requirement.