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“Prosperity and Poverty in a Globalised World—
Challenges for Agricultural Research”

The Digital Global Map of Irrigation Areas — Development and Validation of Map Version 4

STEFAN SIEBERT¹, JIPPE HOOGEVEEN², PETRA DÖLL¹, JEAN-MARC FAURES², SEBASTIAN
FEICK¹, KAREN FRENKEN²

¹*University of Frankfurt (Main), Institute of Physical Geography, Germany*

²*Food and Agriculture Organization of the United Nations, Land and Water Development Division, Italy*

Abstract

A new version of a digital global map of irrigation areas was developed by combining irrigation statistics for 26909 sub-national statistical units and geo-spatial information on the location and extent of irrigation schemes. The difference to map version 3 (available at: <http://www.fao.org/ag/agl/aglw/aquastat/irrigationmap/index.stm>) is the incorporation of a map update for Africa, Europe and parts of Latin America. The map shows the percentage of each 5 arc minute by 5 arc minute grid cell (about 86 km² along the equator) that was equipped for irrigation around the year 2000. It is thus an important data set for global studies related to land and water, but also for assessments on food security or to quantify possible impacts of climate change on agriculture. The poster describes the data set and the mapping methodology and gives an estimate of map quality at the scale of countries, world regions and the globe. Two indicators of map quality were developed for this purpose, and the map was compared to irrigated areas as derived from remote sensing based global land cover inventories. The main results of the study are, that 278.8 Mio ha were equipped for irrigation at the global scale. About 68% of the total irrigated area is located in Asia, 17% in America, 9% in Europe, 5% in Africa and 1% in Oceania. The largest contiguous areas of high irrigation density are found in North India and Pakistan along the rivers Ganges and Indus, in the Hai He, Huang He and Yangtze basins in China, along the Nile river in Egypt and Sudan, in the Mississippi-Missouri river basin and in parts of California. Smaller irrigation areas are spread across almost all populated parts of the world. At the global scale, the overall map quality is good, but there are large regional differences of map quality. It was found that remote sensing based land cover inventories report higher values for the global extent of irrigated land and that there is a need for a systematic comparison of the different data sets.

Keywords: Agriculture, crop management, crop production, global map, irrigation, irrigation map, land cover, land use, water use