

Irrigated Areas

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WHAT IS THIS MAP TELLING US?

Total area equipped for irrigation in Africa is 13.5 million hectares (ha) of which 11.5 million ha are actually under irrigation (Figure 1). The map shows the countries with the largest amount of area equipped for irrigation are Egypt (3.5 million ha), Sudan and South Sudan (1.9 million ha), South Africa (1.5 million ha), and Morocco (1.5 million ha). All of these countries face arid climate conditions. In Madagascar where it is more humid, rice is cultivated on about 1 million ha of irrigated land. These six countries account for almost 60 percent of the area equipped for irrigation in Africa. The regions with the highest density of irrigated land (50 percent or greater of the grid cell)¹ are located mainly in northern Africa in the Nile River Basin (Egypt, Sudan) and in the countries next to the Mediterranean Sea (Morocco, Algeria, Tunisia, Libya).

WHY IS THIS IMPORTANT?

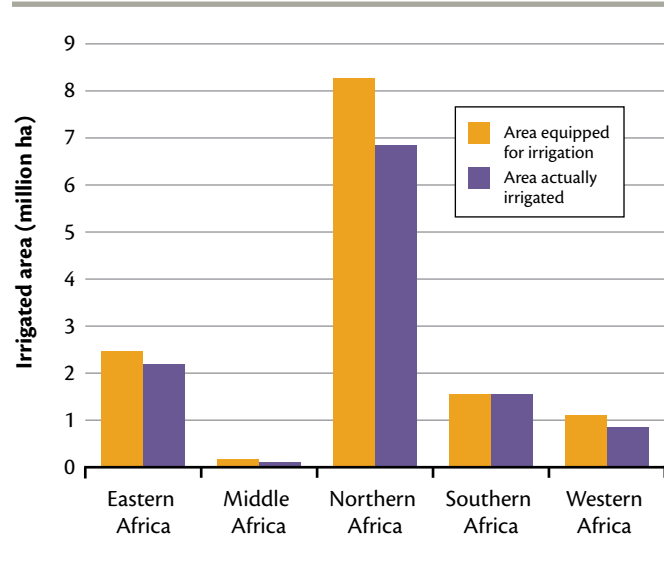
Since the beginning of crop cultivation, irrigation has been used to compensate for the lack of precipitation. In rice cultivation, irrigation also controls the water level in the fields and suppresses weed growth. Crop yields are higher and the risk of crop failures is lower in irrigated agriculture. Because the risk of drought stress is lower on irrigated land, farmers are more likely to spend on other inputs like fertilizers. Irrigation may also increase cropping intensity (p. 28), allowing farmers to cultivate several crops per year on the same field. It is important, therefore, when assessing crop productivity and food security, to consider the availability of irrigation infrastructure.

Irrigation represents the largest use of freshwater in Africa. Many dams were constructed to improve the supply of irrigation water, thereby modifying river discharge and increasing evaporation from artificial lakes. Extraction of groundwater for irrigation is increasingly of concern, because it has lowered groundwater tables in important aquifers. Use of irrigation results in an increase of evapotranspiration and reduces the land's surface temperature. Information on the extent of irrigated land is therefore also important for hydrological studies and regional climate models.

WHAT ABOUT THE UNDERLYING DATA?

The map shows the area equipped for irrigation as a percentage of a 5 arc-minute grid cell. It was derived from

FIGURE 1 Area equipped for irrigation and area actually irrigated per region, c. 2005



Data source: Siebert et al. 2013a and FAO 2012.

version 5 of the Digital Global Map of Irrigation Areas (Siebert et al. 2013a). The map was developed by combining subnational irrigation statistics for 441 administrative units derived from national census surveys and from reports available at the Food and Agriculture Organization of the United Nations and other international organizations with geospatial information on the position and extent of irrigation schemes. Statistics for the year closest to 2005 were used if data for more than one year were available. Geospatial information on position and extent of irrigated areas was derived by digitizing a large number of irrigation maps derived from inventories based on remote sensing (Siebert et al. 2013b).

WHERE CAN I LEARN MORE?

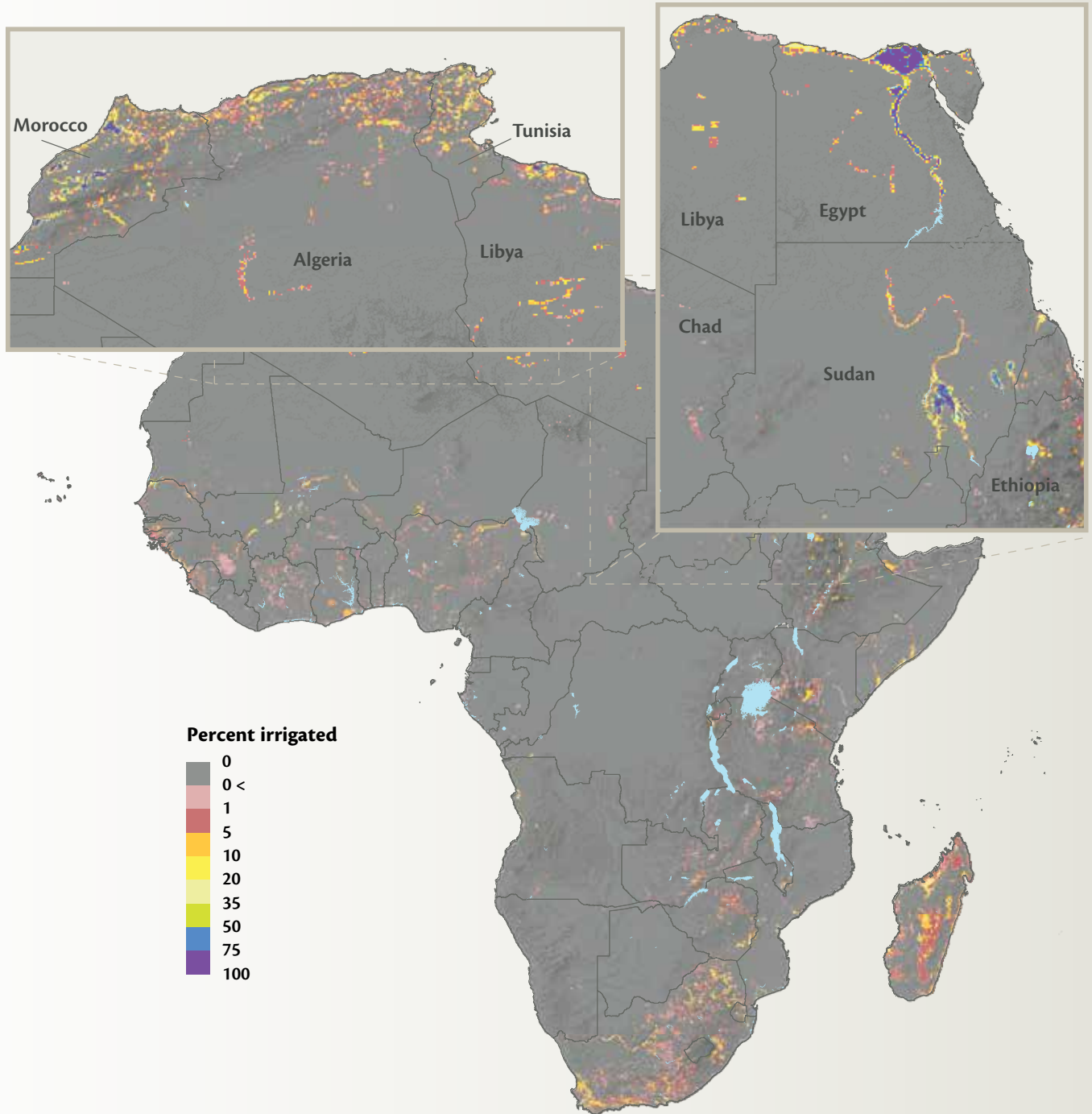
Global Map of Irrigation Areas (Version 5):
<http://bit.ly/1eHpDex>

Update of the Digital Global Map of Irrigation Areas to Version 5. Siebert et al. 2013b: <http://bit.ly/1cM6bip>
 Development and Validation of the Global Map of Irrigation Areas. Siebert et al. 2005.

¹ Each cell measures approximately 100 km² or 10,000 hectares at the equator.



MAP 1 Extent of irrigated areas, c. 2005



Data source: Siebert et al. 2013a.

Note: The percent values represent the share of each 100 km² cell that is equipped for irrigation.