

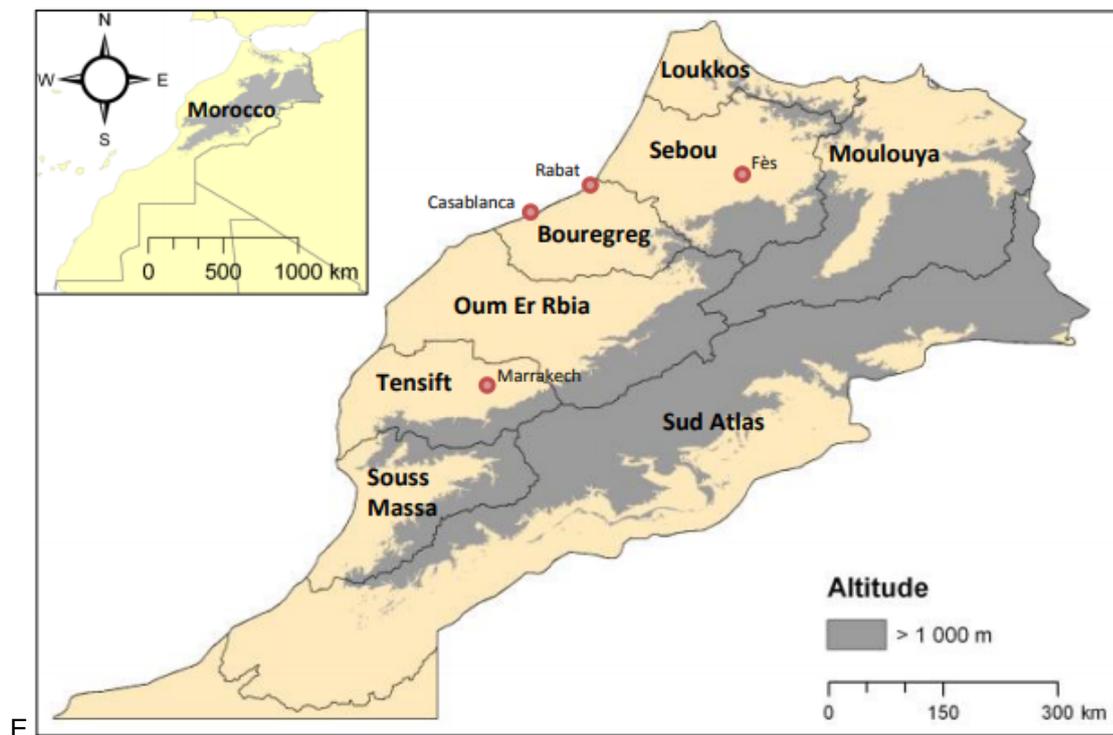
## Morocco: Water

In the wake of the 'Day Zero' water crisis in South Africa in April 2018, Morocco is identified as one of a growing number of countries facing the same harsh reality. Issues leading to this crisis are a combination of:

- Population increase and water demand
- Poor water management
- Salinisation of aquifers along the coast
- Over abstraction from aquifers inland that are already struggling to replenish
- Localised warming temperatures and decreasing rainfall patterns leaving to increased potential evapotranspiration rates
- Reduced snowmelt from the mountains
- Longer-term climate change.

There are 8 main drainage basins (as seen in Figure 1), and a number of small ones:

Figure 1: Drainage basins in Morocco

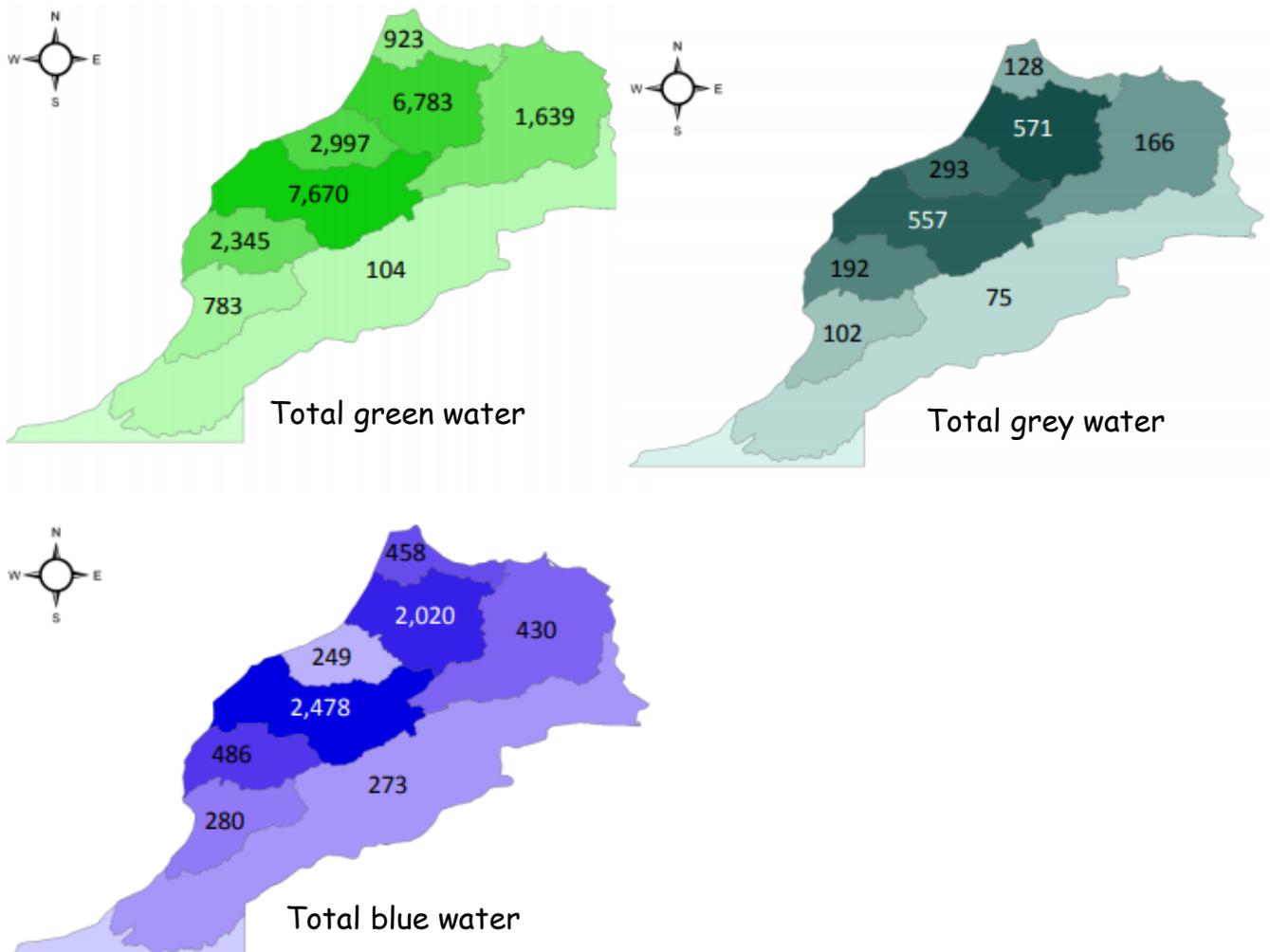


These basins have sources up in the Atlas Mountains, with the exception of the Loukkos River whose source is in the Rif Mountains instead.

Currently Morocco has approx. 100 dams and reservoirs of various sizes, capable of holding in the region of 15 billion m<sup>3</sup>. Evapotranspiration is ranked as the second highest ‘consumption’ of blue water in the country after crop irrigation, with the South Atlas drainage basin experiencing the highest rates of 1,652mm/year.

Agriculture in Morocco is water intensive, consuming nearly 80% of the country’s total consumption. This is especially shocking when 40% of the population are employed in this labour-intensive employment sector (75% of rural populations), contributing to only 14.8% GDP (2017). Citrus fruits take in the region of 67 gallons of water per lb fruit in their lifetime to grow, although this is far below the 361 gal./lb needed for olives. Olive oil, a staple ingredient in any Moroccan kitchen, requires a whopping 1,729 gal./lb to produce! Since 2017, there has been a big move towards growing watermelon – a trendy fruit to sell to urban tourists, and this requires 50gal./lb. Luckily, the peppermint used in the copious amounts of mint tea being drunk only requires 35gal./lb water to produce. Figure 2 illustrates the water footprint of national production per river basin (mm<sup>3</sup>/yr. from 1995-2005).

Figure 2: Water footprints in Morocco (1995-2005)





It is calculated that the cost of damage arising as a result of increased water insecurity in the nation is approx. US\$350 million. This figure takes into account the 35% water lost through leaking pipes and water misuse, polluted water stores from industrial and urban waste, and soil erosion on cultivated land.

***Suggested reading***

- <https://www.moroccoworldnews.com/2018/04/244388/morocco-risk-day-zero-water-crisis/>
- <https://www.utwente.nl/en/et/wem/education/msc-thesis/2013/schyns.pdf>