

Introduction

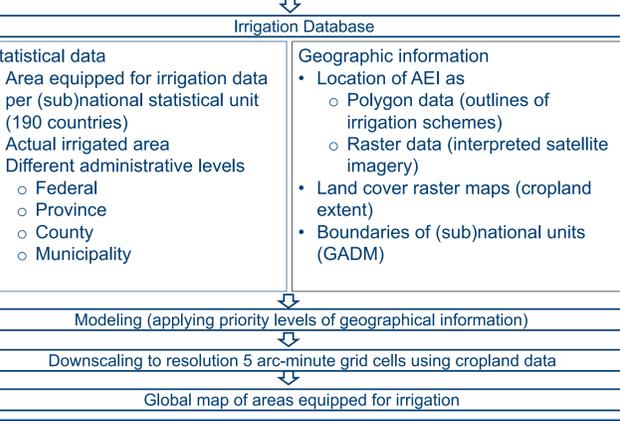
- The global population is projected to increase to about 10 billion by 2050
- Agricultural production needs to increase by 70% by 2050 to meet the growing demand
- To meet this demand, irrigation can play a vital role as with agricultural intensification, more food can be produced by using the same amount of cropland
- Irrigated areas occupy 20% croplands, but contribute to ~40% of total food production
- This comes at a cost - irrigation is the largest consumer of freshwater resources
- Most of the irrigation takes place in already water stressed regions

Research Questions

- How much area equipped with irrigation (AEI) increased since the start of the century?
- Did irrigation expand in already water-stressed regions and by how much?

Methods

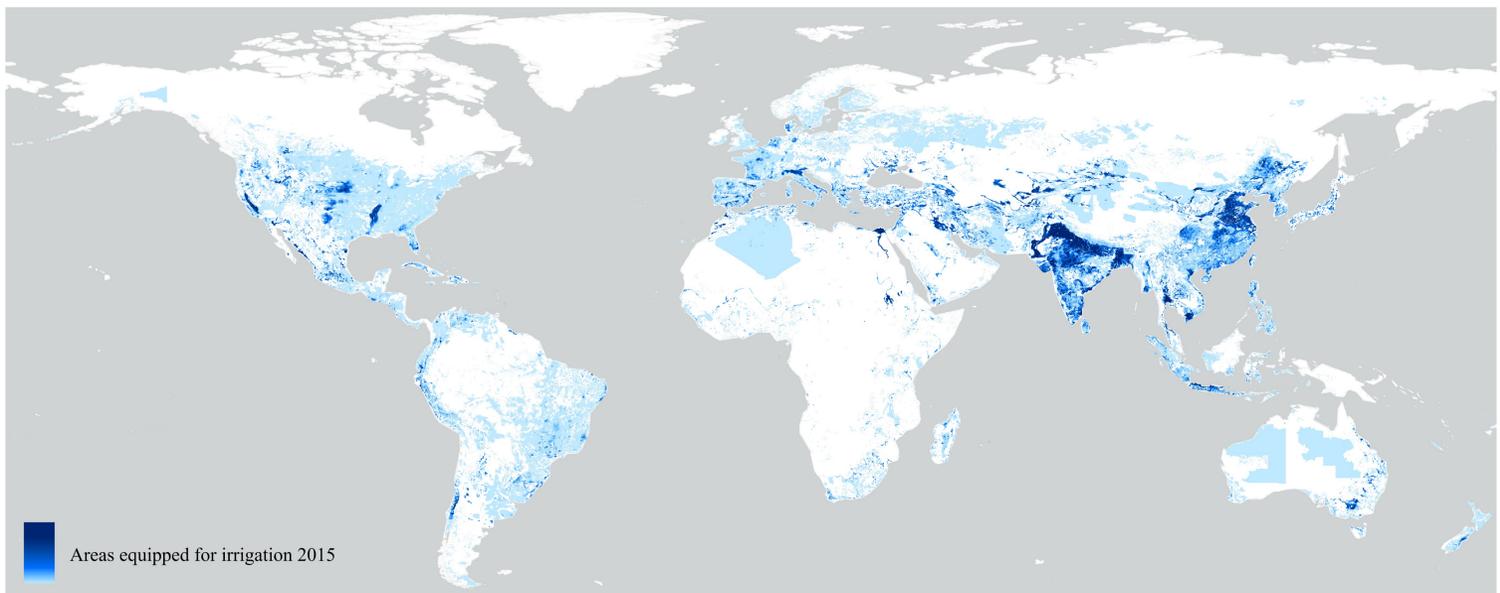
Reports of FAO, AQUASTAT, UN, Ministries of Agriculture, Irrigation associations, etc.



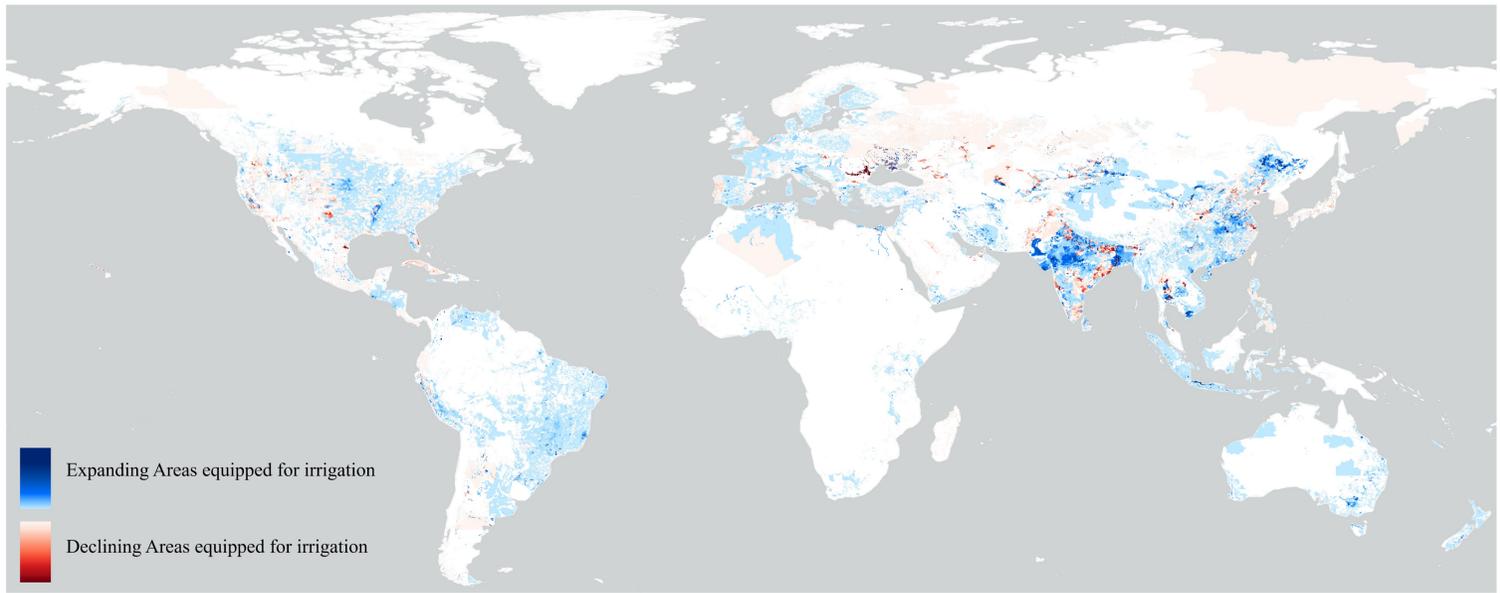
Results

- Overall, the global area equipped with irrigation increased by 33 million hectares (~11%) from 2000 to 2015
- It increased the most in China (~22%), India (~13%), and Brazil (~113%) by area
- In China, the total AEI increased from 59 million hectares to 72 million hectares from 2000 to 2015
- Asia and South America area the driving regions of irrigation expansion
- The top 10 countries are responsible for ~80% of the increase in AEI
- About 40% (30 million Ha) of irrigation expansion has happened in already water stressed regions since 2000

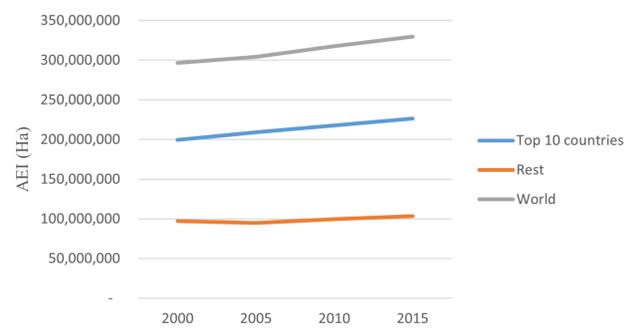
Areas Equipped with Irrigation in 2015



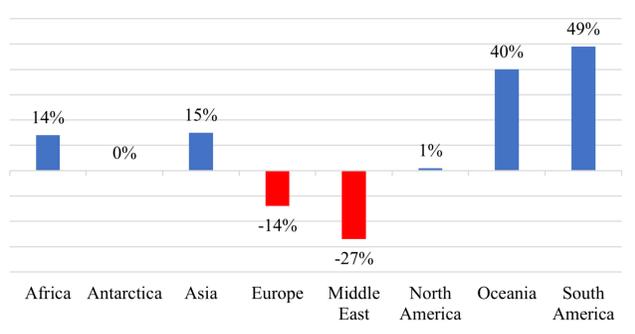
Change in Areas Equipped with Irrigation from 2000 to 2015



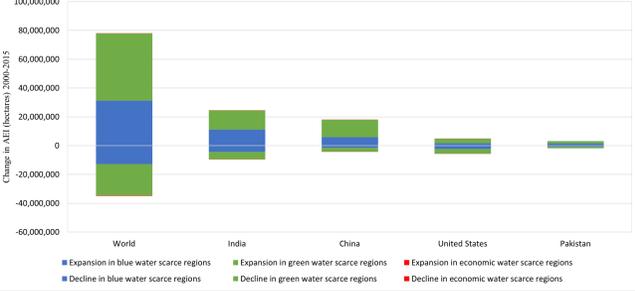
Increase in Area Equipped with Irrigation 2000-2015



Change in Area Equipped with Irrigation by Continent



Change in AEI by Water Scarcity



References

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