The Water Footprint of Germany … and its impacts in the world

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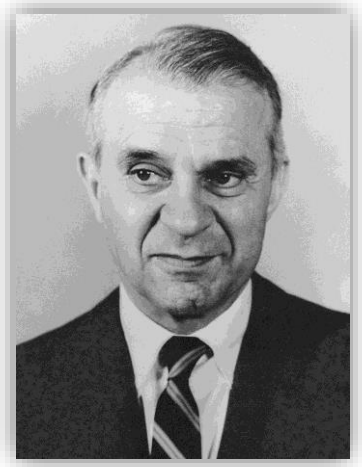
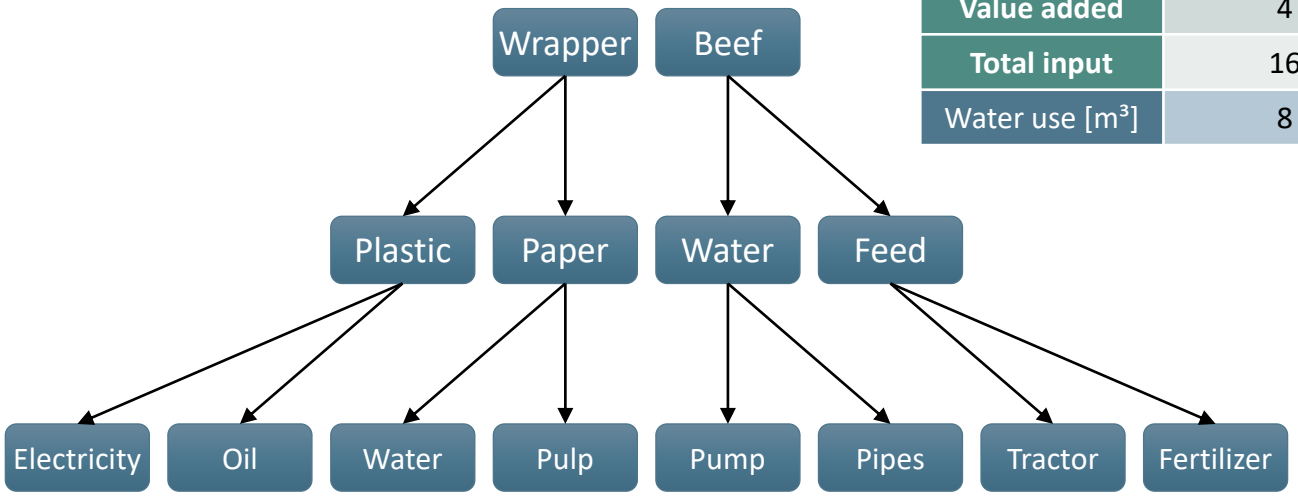
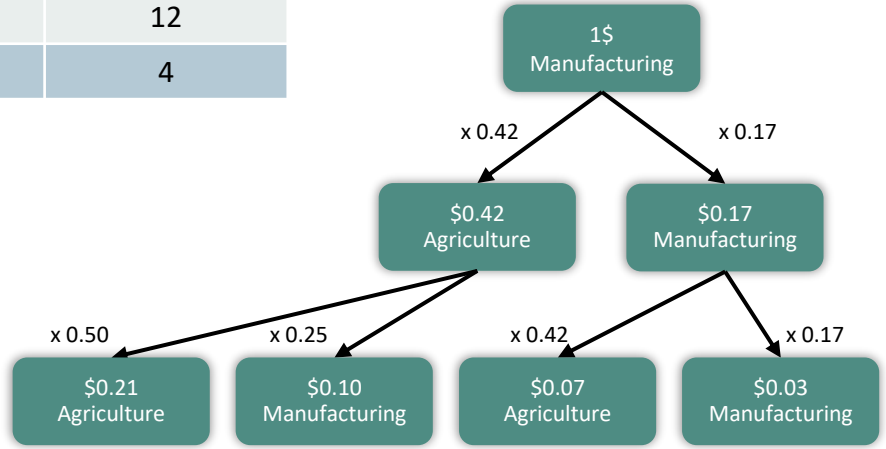
Environmental Input-Output Analysis - “[A] Framework for tracing […] impacts associated with interindustry production”*

	Agriculture	Manufacturing	Final demand	Total output
Agriculture	8	5	3	16
Manufacturing	4	2	6	12
Value added	4	5		
Total input	16	12		
Water use [m³]	8	4		



Wassily Leontief





* Miller, Ronald E, and Peter D Blair. 2009. “Input–Output Analysis: Foundations and Extensions, Second Edition,” 784.
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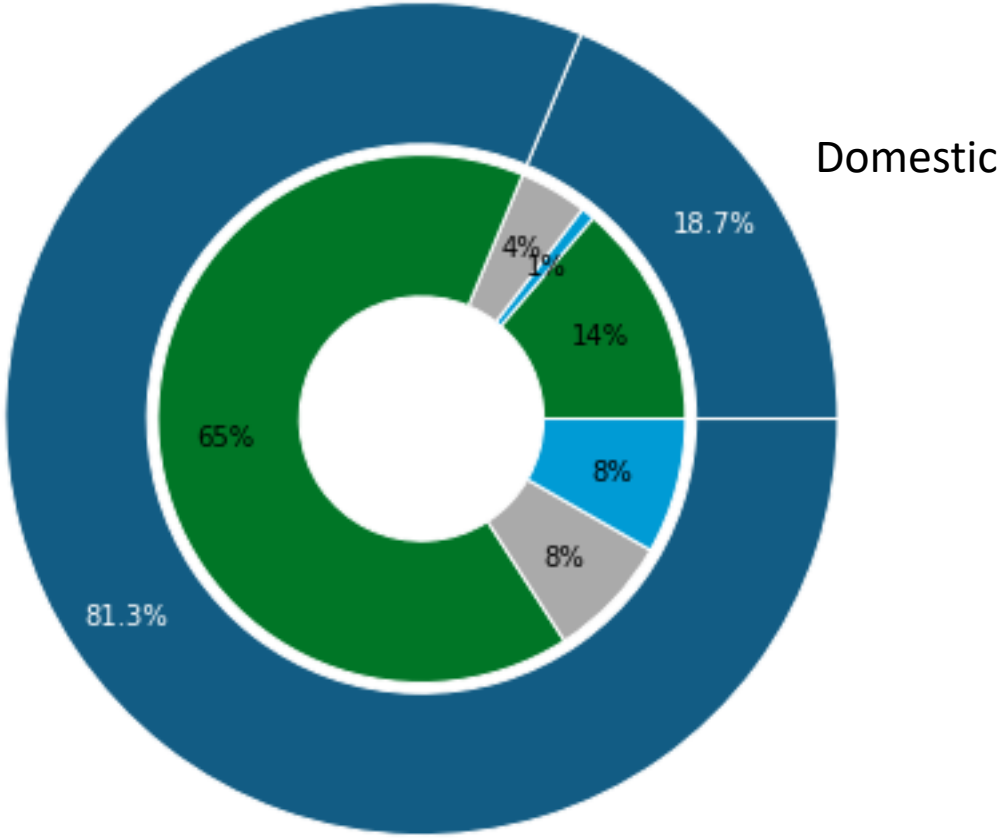
Based on: Kitzes, Justin. 2013. “An Introduction to Environmentally-Extended Input-Output Analysis.” *Resources* 2 (4): 489–503. https://doi.org/10.3390/resources2040489.

The Blue, Green and Grey Water Footprint of Germany

- Based on the (full) Eora database, the water footprint of Germany is approximately …
  - 183 $km^3 \cdot yr^{-1}$
  - 2,232 $m^3 \cdot capita^{-1} \cdot yr^{-1}$
  - 6 $m^3 \cdot capita^{-1} \cdot day^{-1}$
- 34 km^3 domestic- and 148 km^3 foreign contributions



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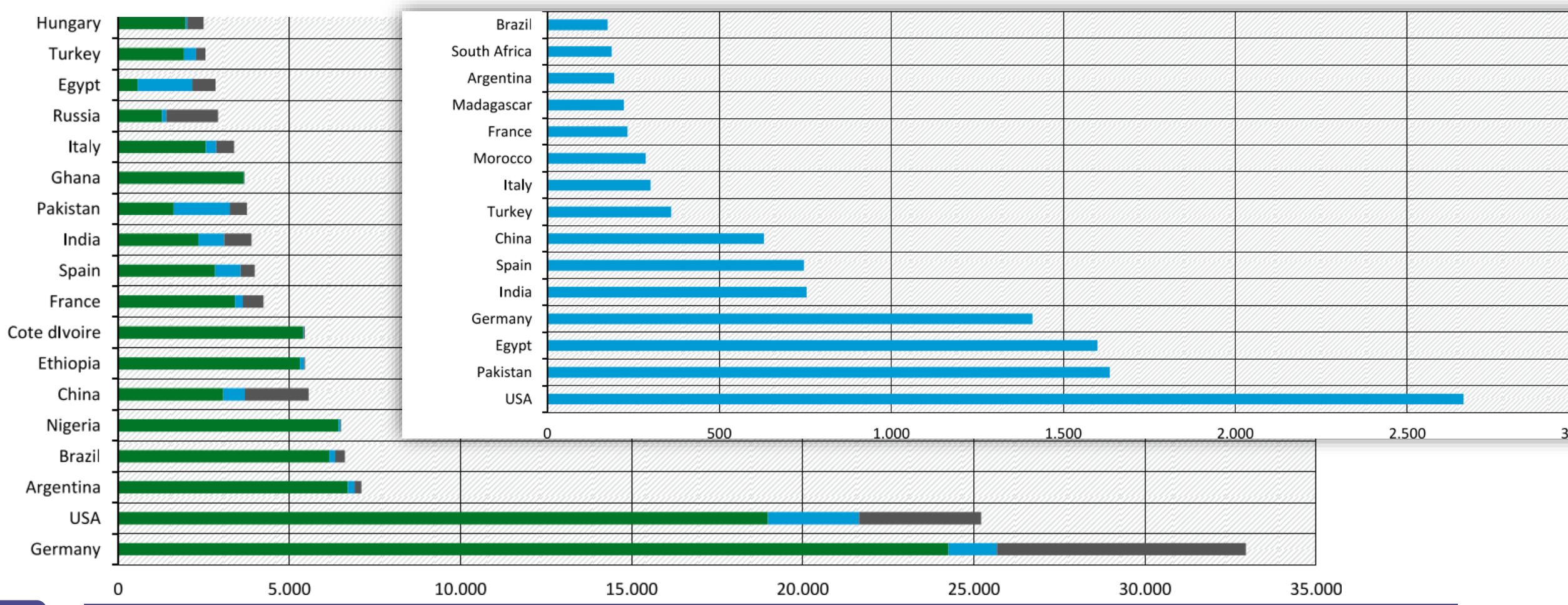
Which countries contribute *ultimately* to Germany's external water footprint?



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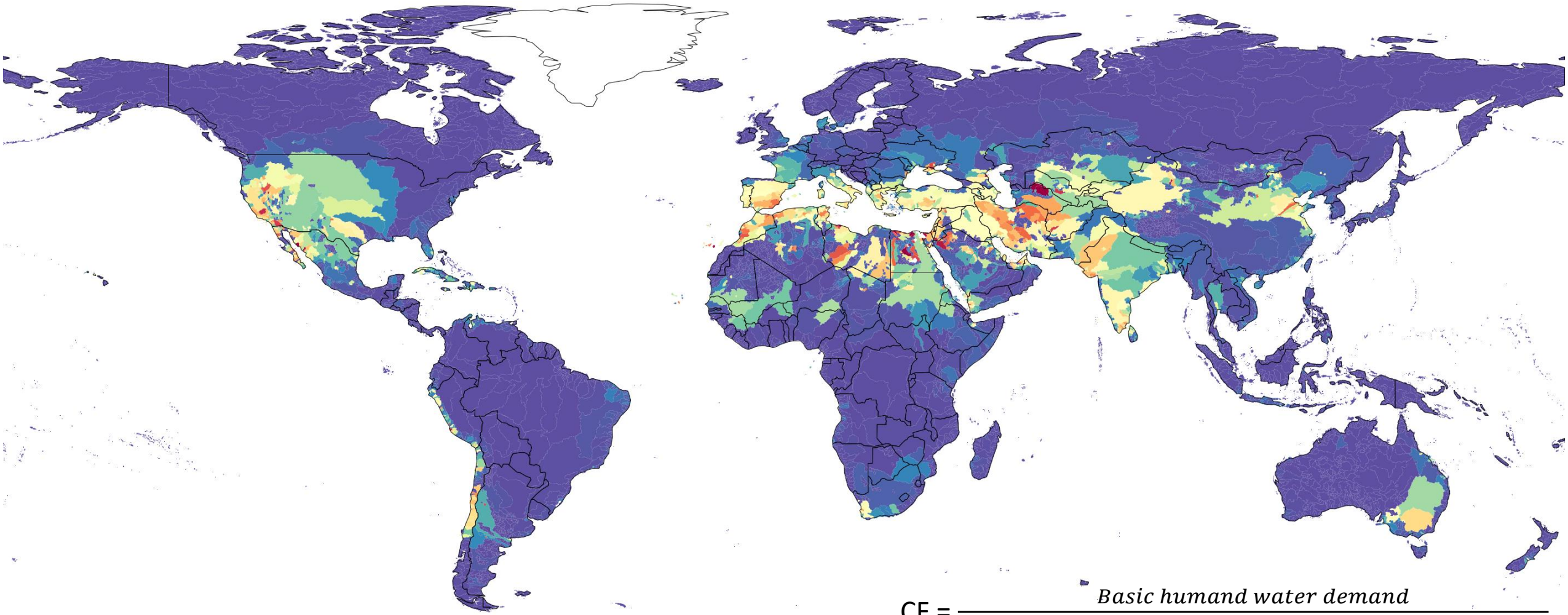
Worldwide, the potential impact of water consumption differs …



$$CF = \frac{Basic\ humand\ water\ demand}{Water\ availability - Environmental\ Flow\ requirements}$$

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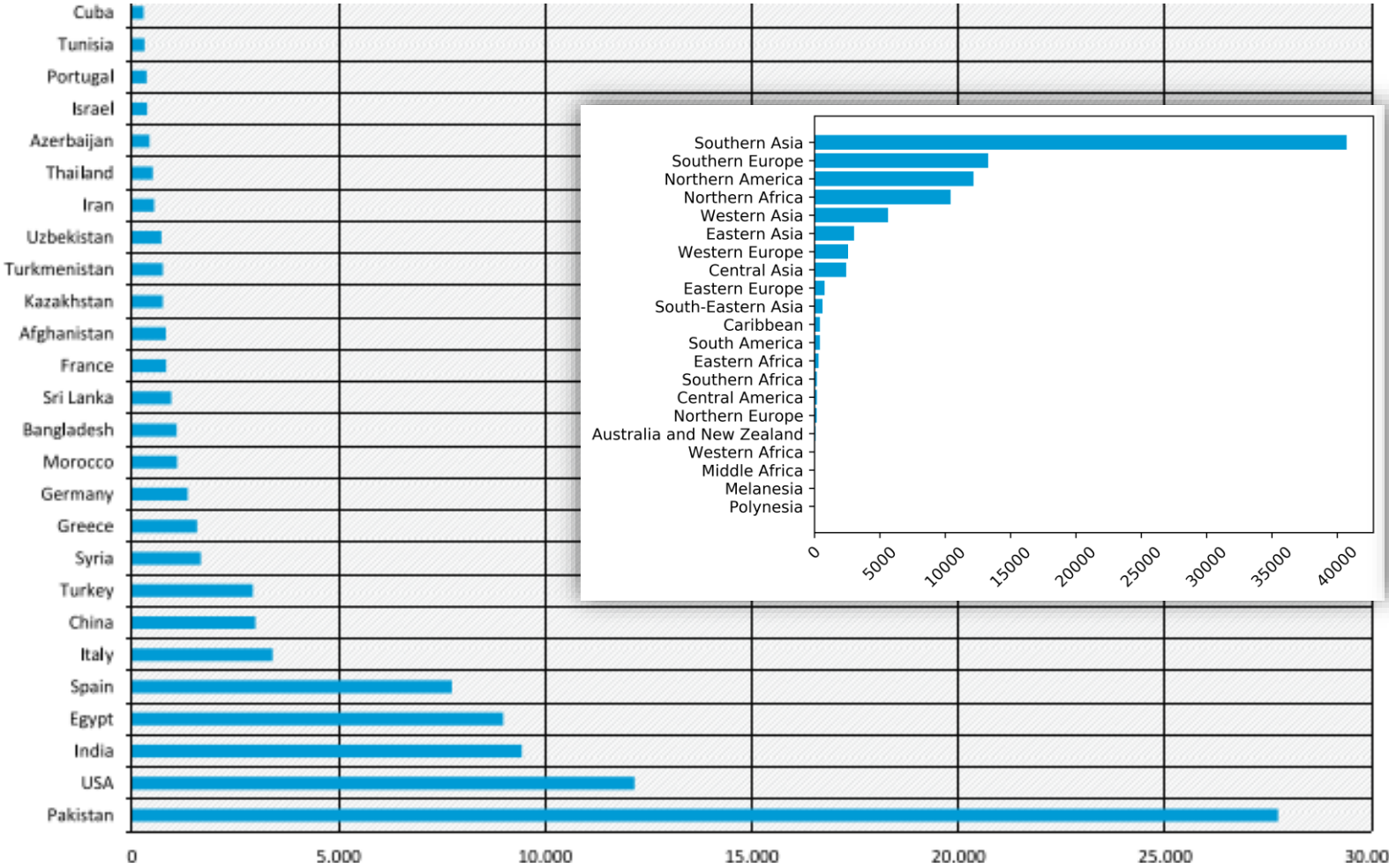
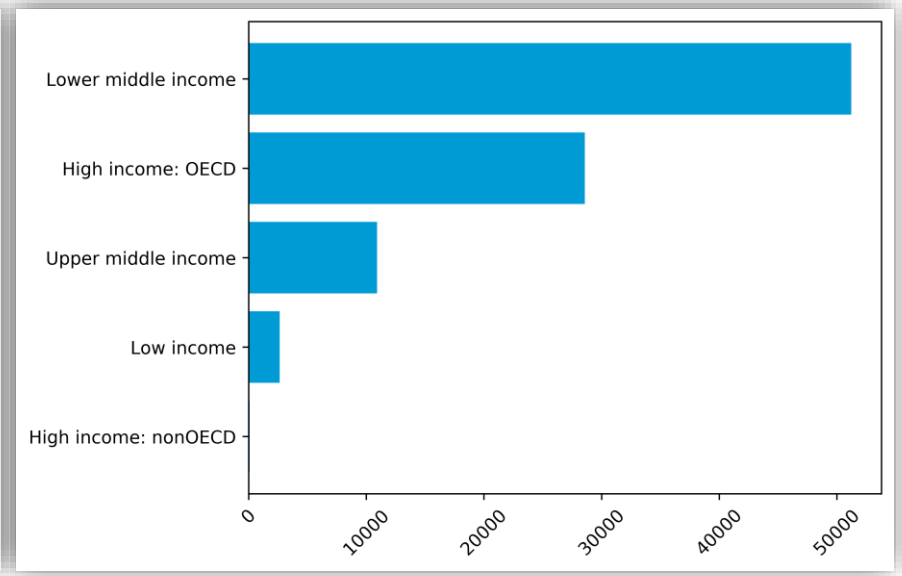
Ultimate contributions to Germany's external water footprint weighted by potential impact …





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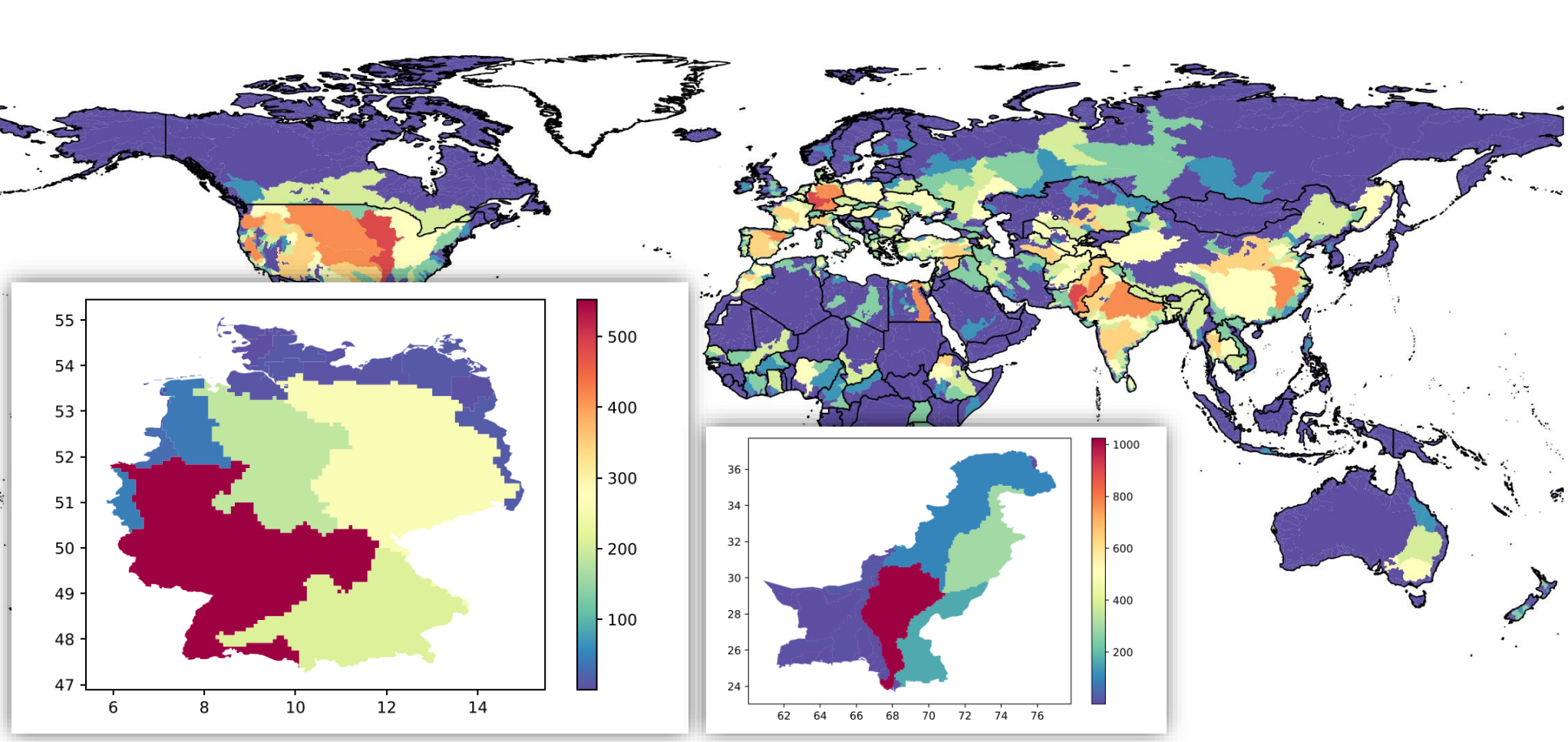
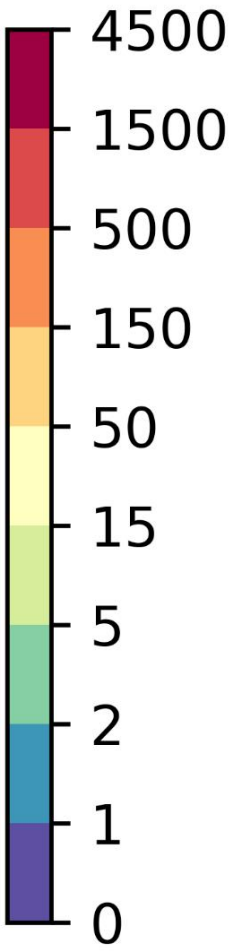
Consumption-weighted allocation of Germany's external water footprint to watersheds





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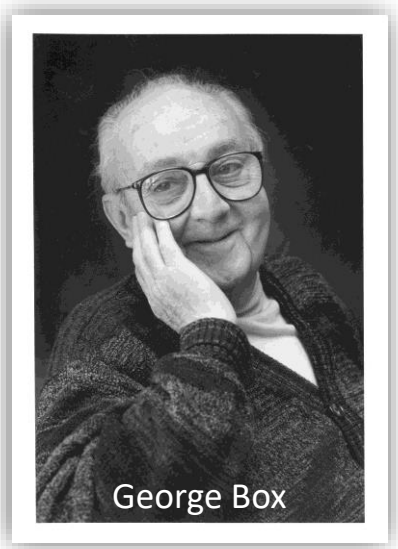

“All models are wrong …
… but some are useful”

- Global hydrogeological data combined with environmentally-extended multiregional input-output (EE-MRIO) analysis helps us to approximate and to investigate the water footprint of Germany in the world
- Germans consume more *(blue)* water abroad than from within Germany
- We can track potential water use hotspots induced by German consumption and … conclude on water-wise policies?(!)
  … let’s discuss

Box, G.E.P. 1979. “Robustness in the Strategy of Scientific Model Building.” In *Robustness in Statistics*, 201–36. Elsevier. https://doi.org/10.1016/B978-0-12-438150-6.50018-2.
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Thank you for your attention

Discussion follows …

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