

Improving water and food security through Water Footprint Assessment

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TIAS Webinar
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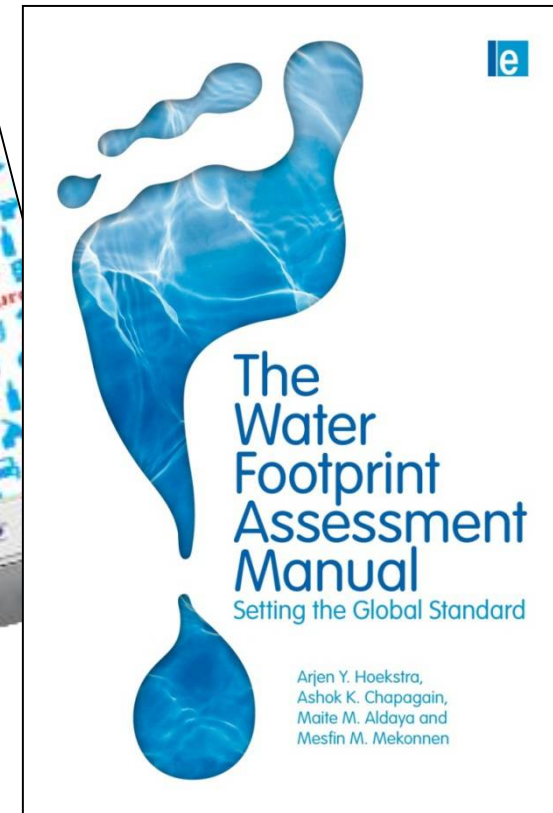
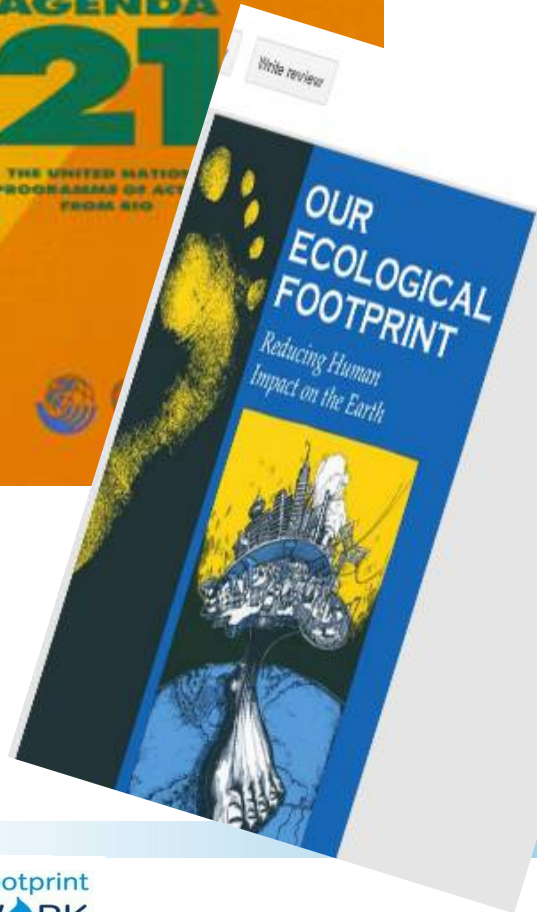


Water Footprint
NETWORK

www.waterfootprint.org

Road to sustainable development

Production, consumption and unsustainable natural resource use, lifestyle and resource efficiency are linked



What is a footprint?

- An indicator which measures the pressure that human activities put on natural resources
- An indicator which can link the natural resource use of production to the consumption of that product
- An indicator which can aggregate natural resource use across a value chain and for a process, product, group of products, company, individual or group of individuals e.g. a nation
- An indicator which can measure the amount of a natural resource consumed or the amount of assimilation capacity used
- An indicator which can lead to the assessment of the sustainability, efficiency and equitability of natural resource use, production and consumption

Water footprint

A measure of humanity's pressure on freshwater resources

Green water footprint

- ▶ volume of rainwater evaporated or incorporated into product

Blue water footprint

- ▶ volume of surface or groundwater evaporated or incorporated into product, lost return flow

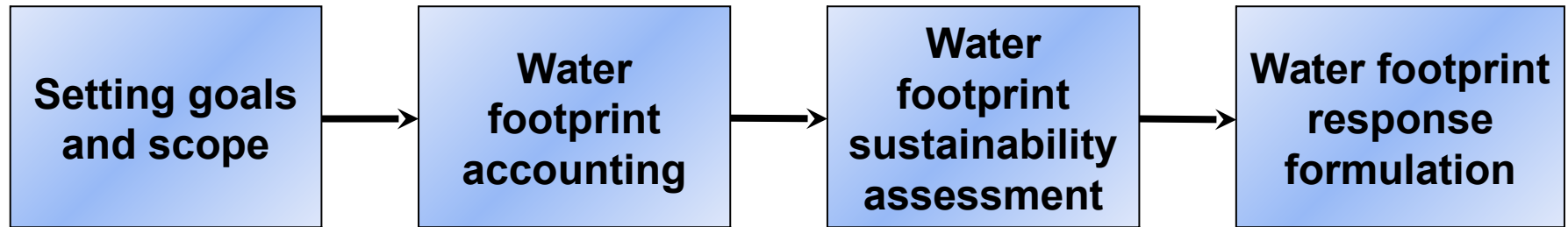
Grey water footprint

- ▶ volume of water needed to assimilate pollutants



[Hoekstra et al., 2011]

Water Footprint Assessment

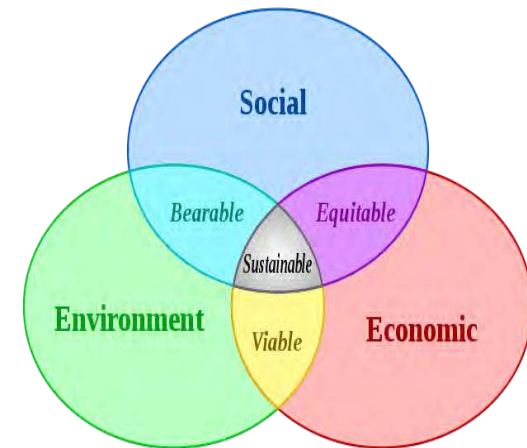


- Understand the ***geographic and temporal allocation of water resources*** for industry, agriculture and domestic water supply
- Assess the ***sustainability, efficiency and equitability of water use***: consumption & pollution
- Identify the most ***strategic actions*** to be taken in local, regional, national and global scales, individually and collectively

Sustainability Assessment

Sustainable: Does the water footprint violate sustainability criteria?

- *Is the water footprint located in a hotspot?*



Efficient: Can the water footprint be avoided or reduced with reasonable effort?

- *Is water being used as efficiently as possible?*

Equitable: Is the water being used for the highest and best purpose to meet broad social, environmental and economic goals?

- *Is water being used to meet human and ecosystem needs in a fair way?*

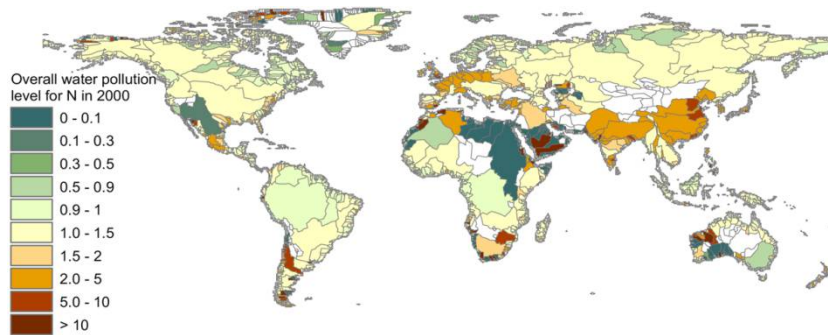
[Hoekstra et al., 2011]

Blue water footprint

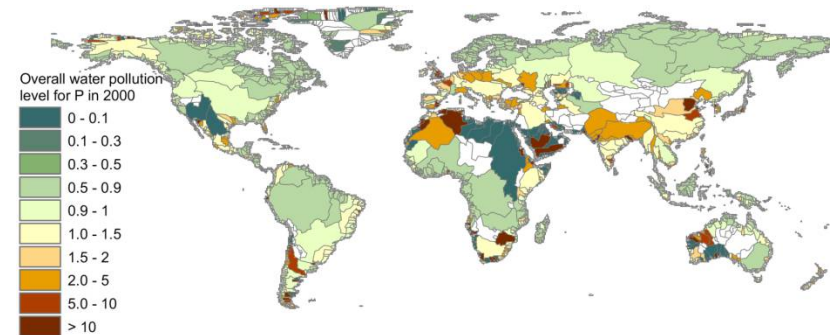
Blue water scarcity

Blue water availability

Water pollution level: nitrogen

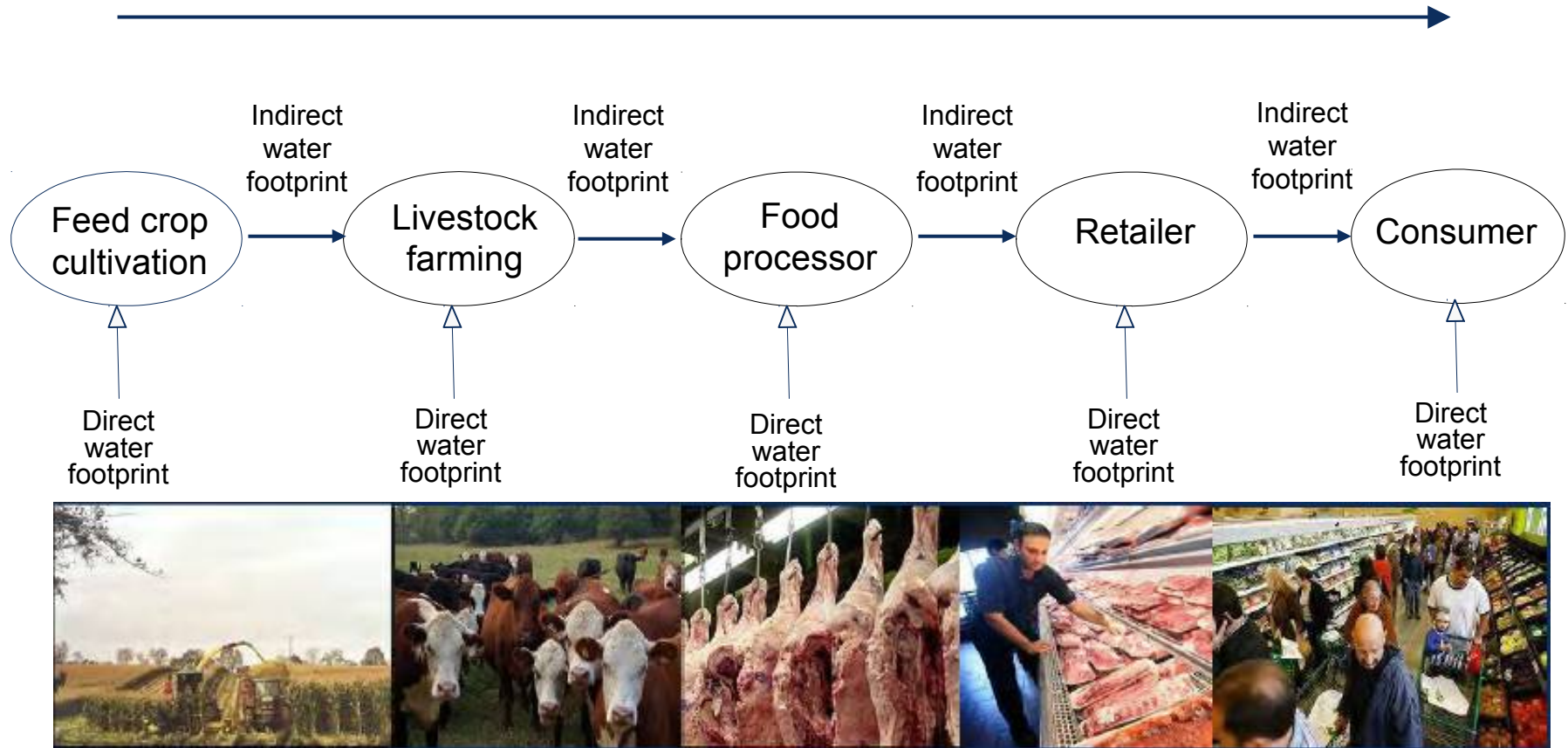


Water pollution level: phosphorus



Water footprint along a supply chain

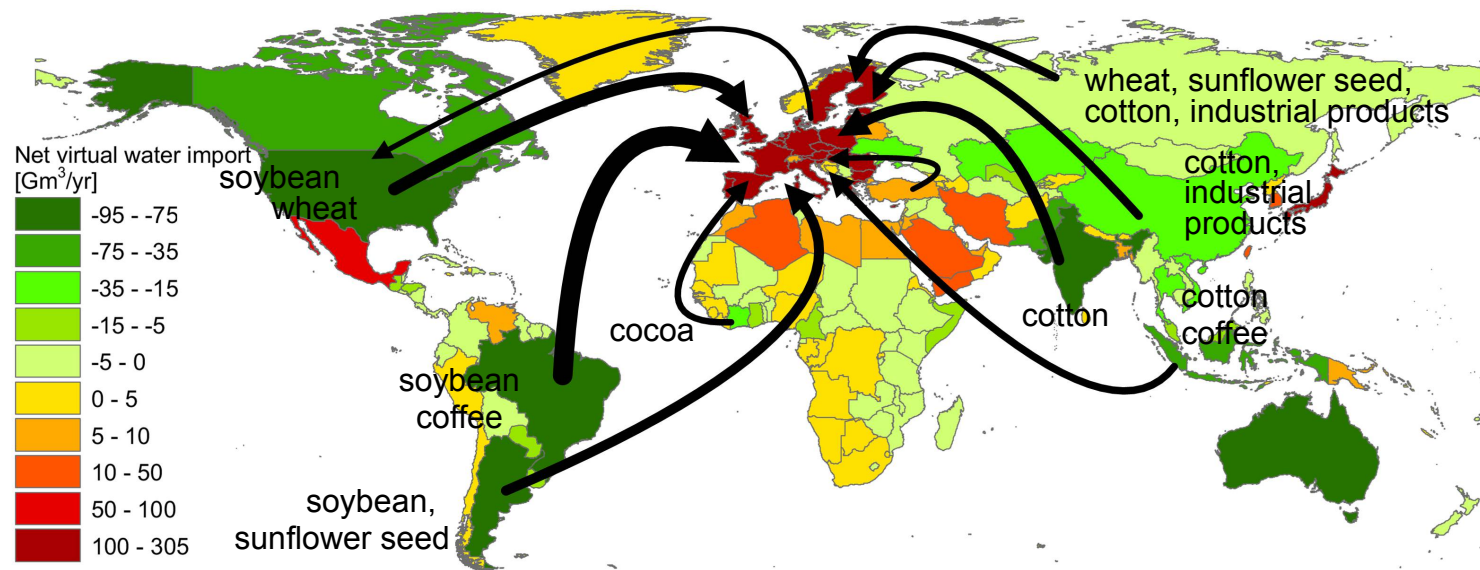
Virtual water flow through the supply chain



[Hoekstra et al., 2011]

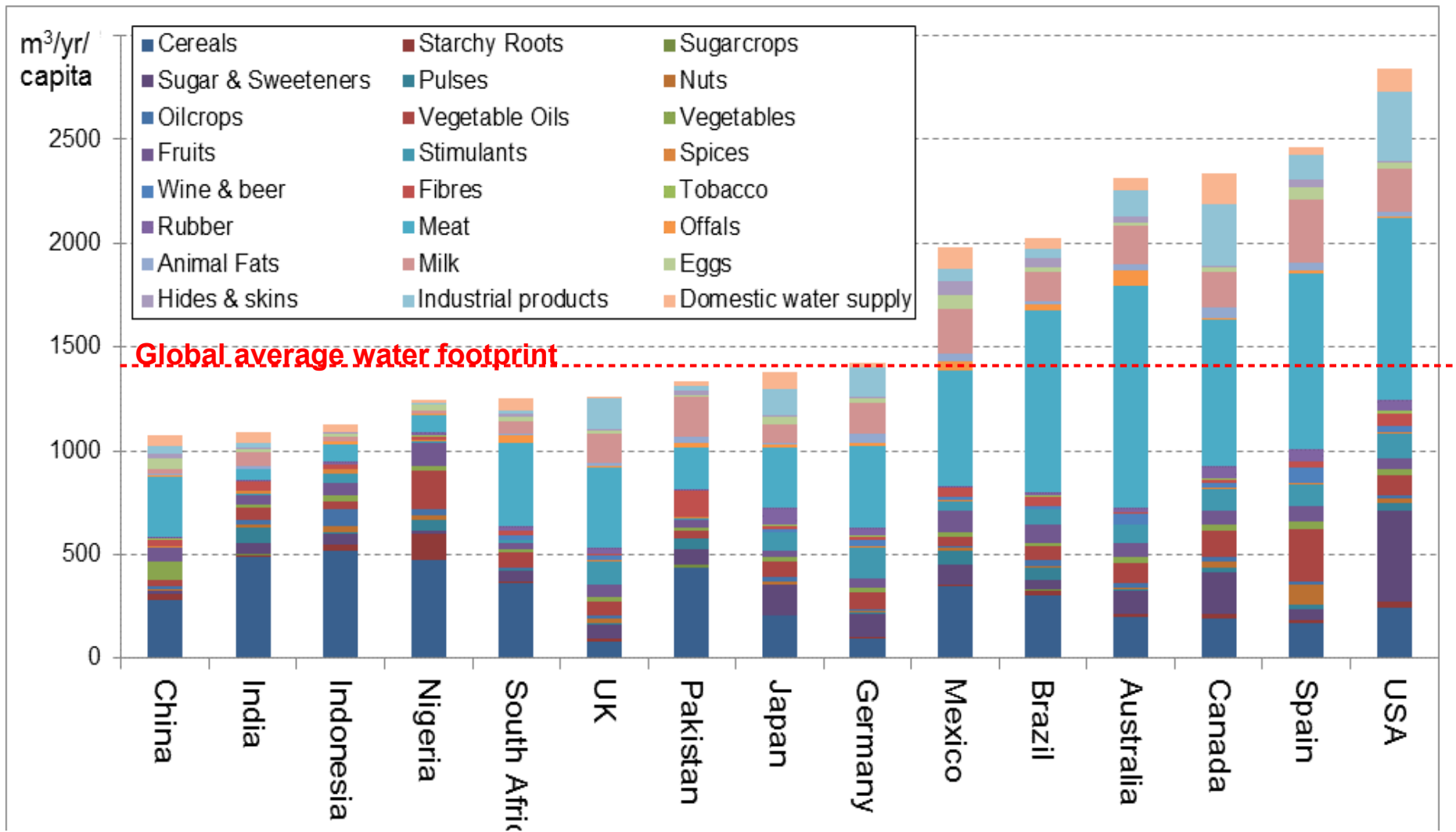
Virtual water

- Virtual-water content of a product is the freshwater 'embodied' in the product.
- Refers to the volume of water consumed or polluted for producing the product, measured over its full production chain.
- If a nation exports/imports such a product, it exports/imports water in virtual form.



Over 40% of the water footprint of European consumers is outside of Europe

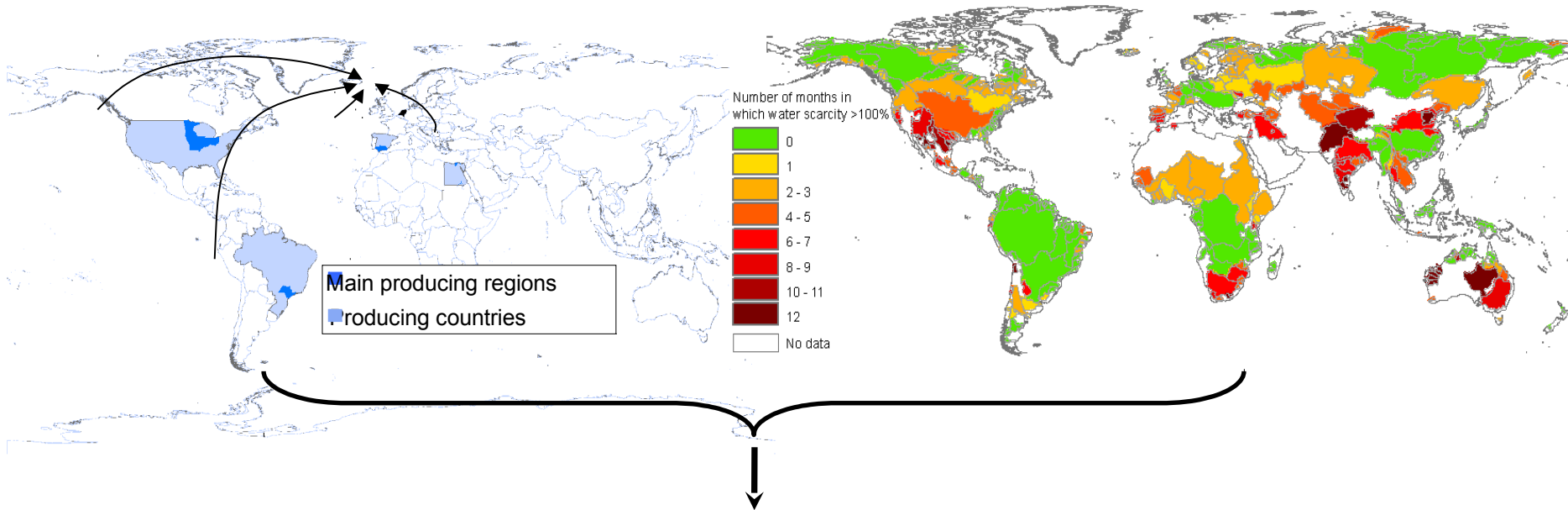
Water footprint of national consumption



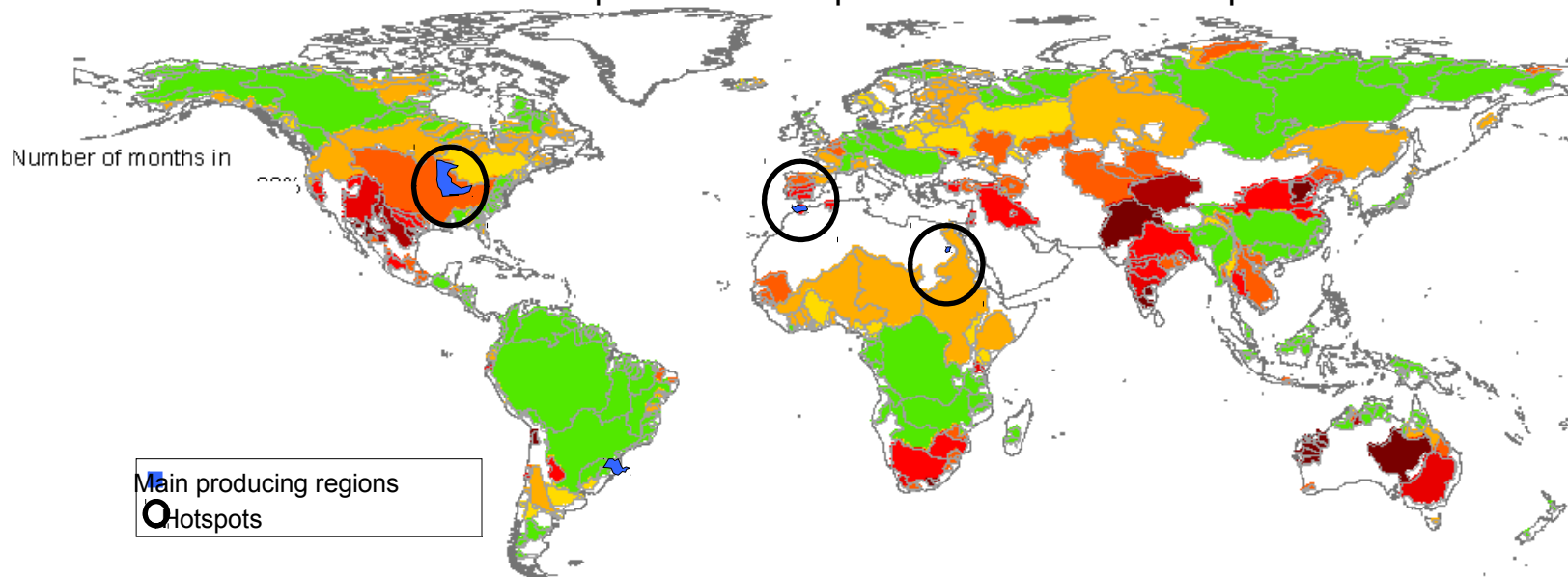
[Mekonnen & Hoekstra, 2011]

Global blue water footprint of a product consumed in the Netherlands

River basin hotspot map, showing per river basin the number of months with blue water scarcity > 100%



Unsustainable components of the product's blue water footprint



Water footprint allocation for sustainable development

Environmental sustainability:

- water footprint allocation at the local (catchment or river basin, aquifer) level

Economic efficiency:

- Water footprint allocation at the process (farm field, factory, household) level

Equitable sharing:

- Water footprint allocation at the global level

Response formulation

Environmental sustainability:

- Water governance, water footprint caps, regulations based on Water Footprint Assessment

Economic efficiency:

- Technology and improved practices

Social equity:

- Consumers share responsibility for water footprint of production

**Integrated policies and actions – individual & collective,
consumers & producers, business & government**



Thank you

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