Water in Berlin – Virtual Water

Hannes Schritt - Ecologic Institute

German-Egyptian Youth Exchange 2019

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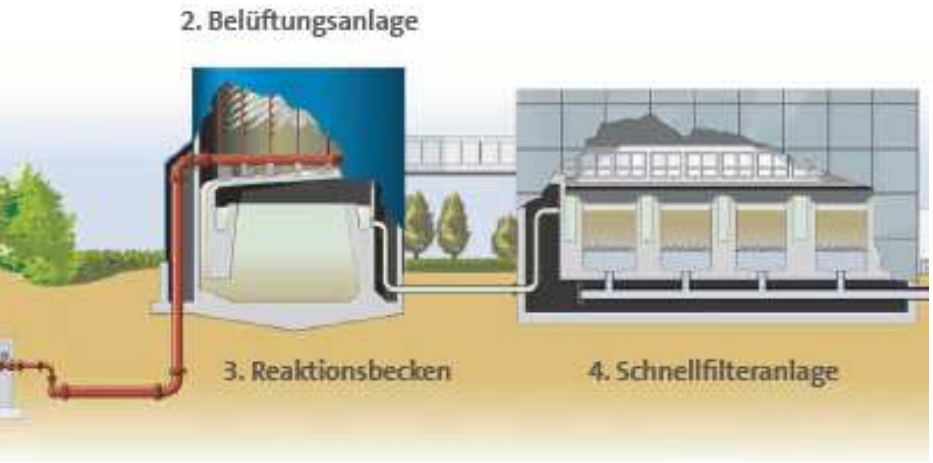
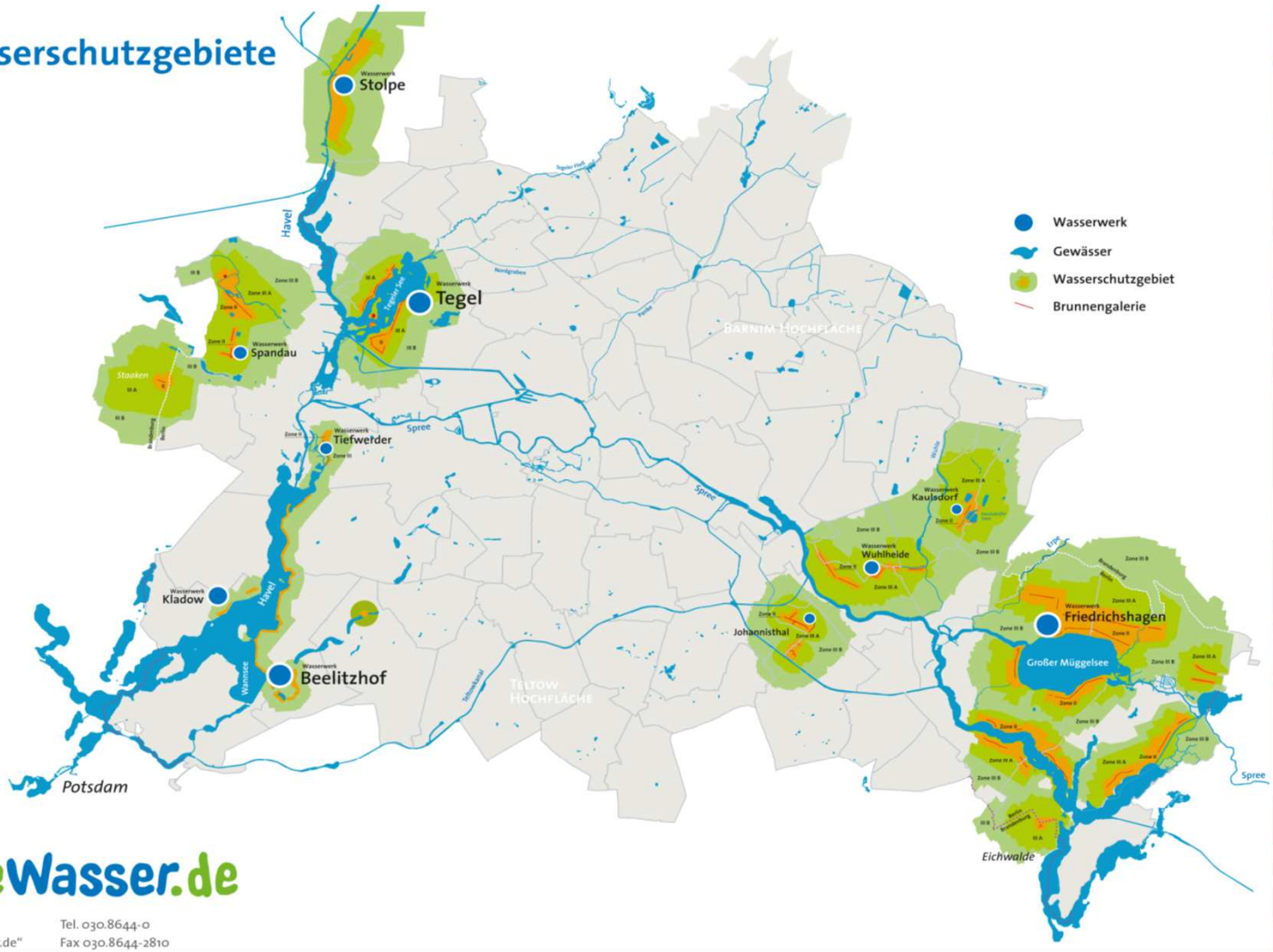


Outline

- Water cycle in Berlin
  - Drinking water
  - Waste water
  - Water quality
  - Water security
- Political conflicts and initiatives in Berlin
  - Privatization
  - Initiatives
- Virtual Water


Wasser
in Berlin.
Der urbane Wasserkreislauf
In Berlin ist immer was los.
Auch in Bezug auf Wasser
gibt es eine Menge zu
entdecken.
Berliner
Wasserbetriebe
Ohne uns läuft nix.

Berlins Wasserschutzgebiete



klasseWasser.de

Berliner Wasserbetriebe
Redaktion „klassewasser.de"
10864 Berlin

Tel. 030.8644-0
Fax 030.8644-2810
klassewasser@bwb.de
www.klassewasser.de

- Water cycle
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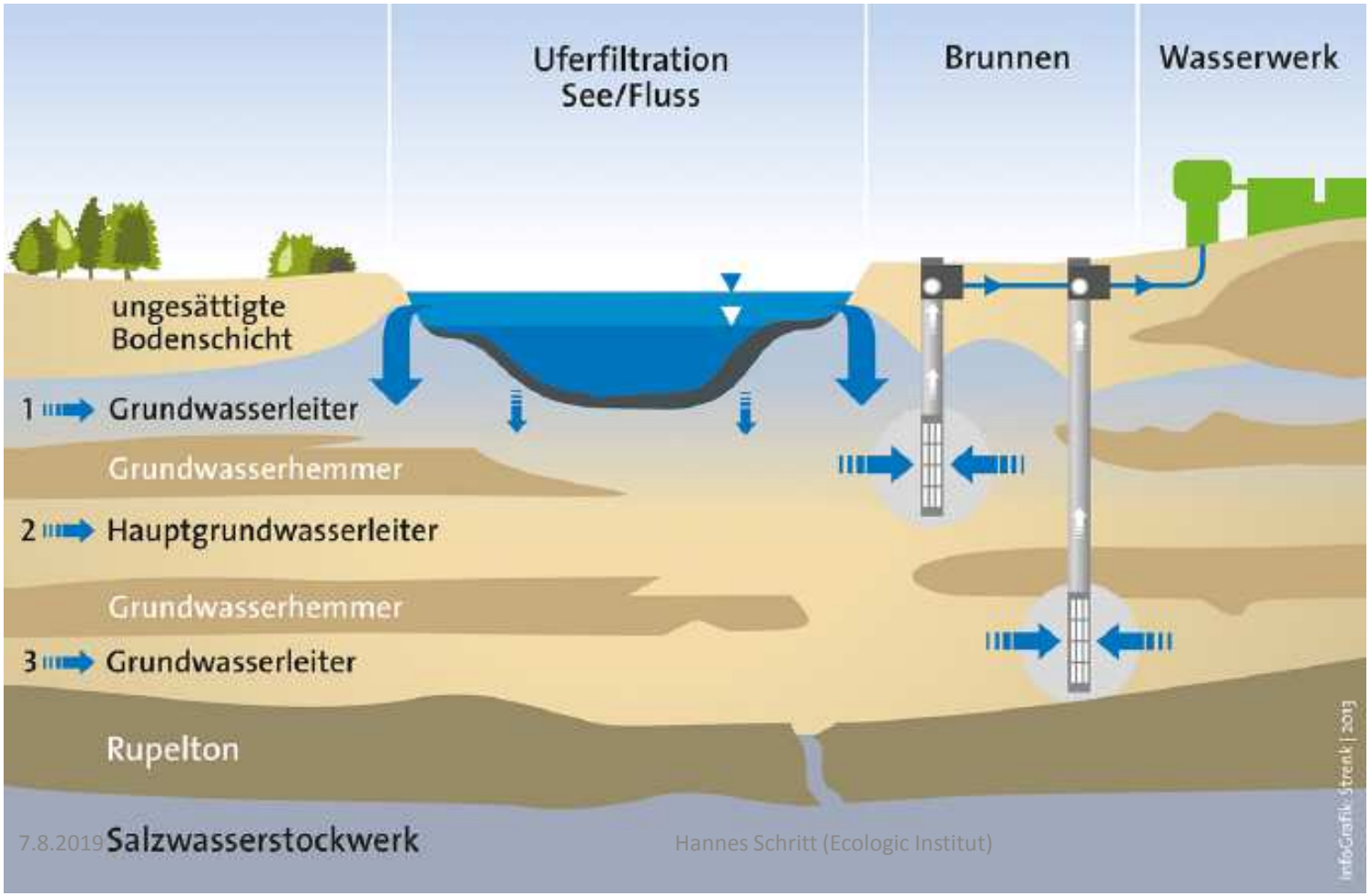
Bank filtration & groundwater



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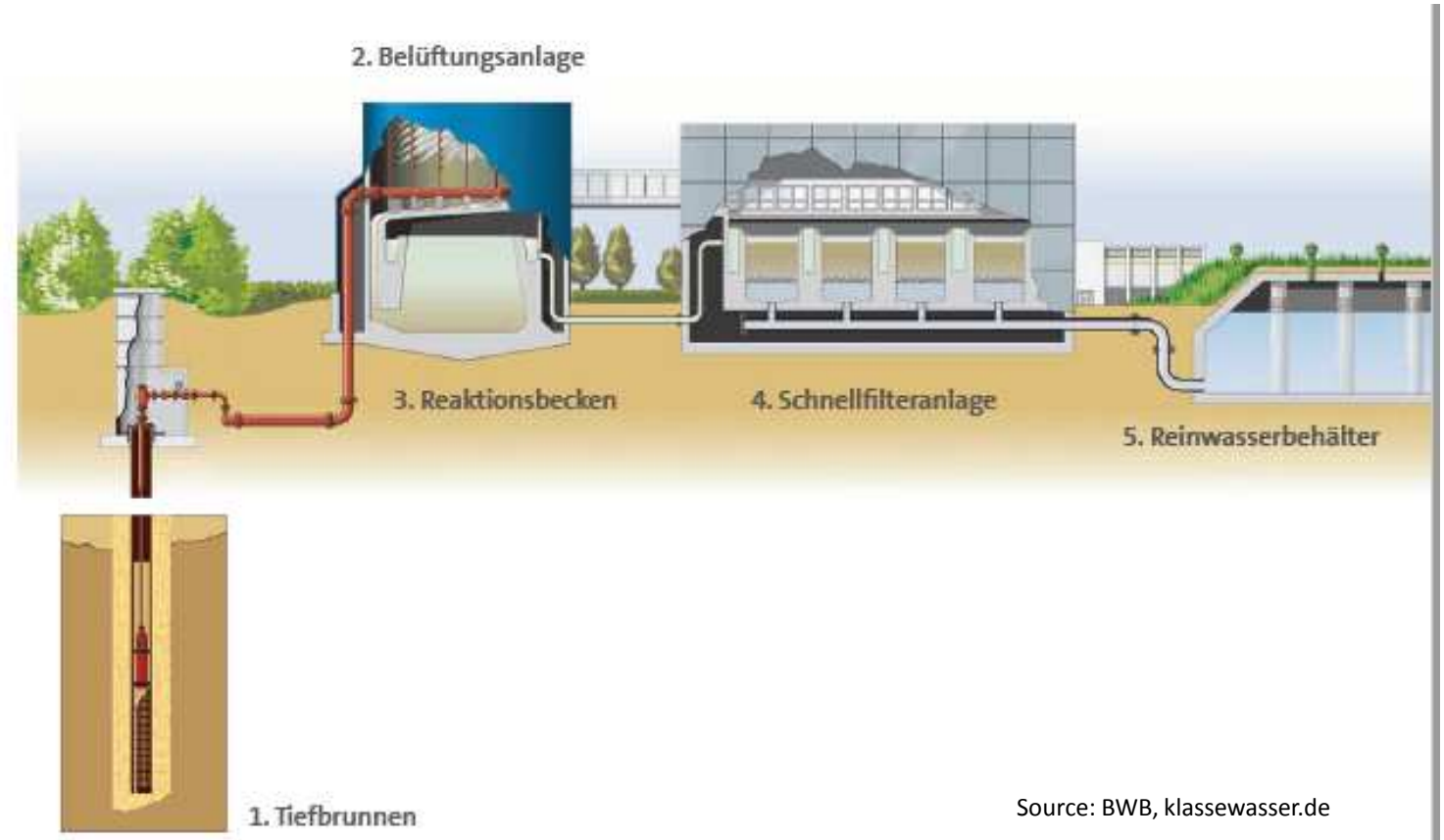
Drinking water purification



Source: BWB, klassewasser.de

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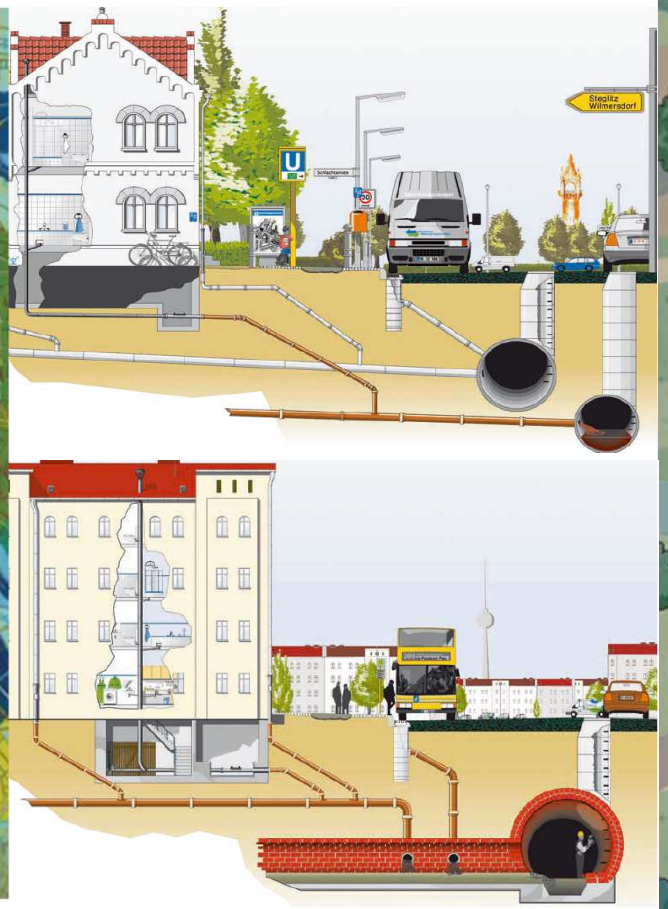
Sewage system



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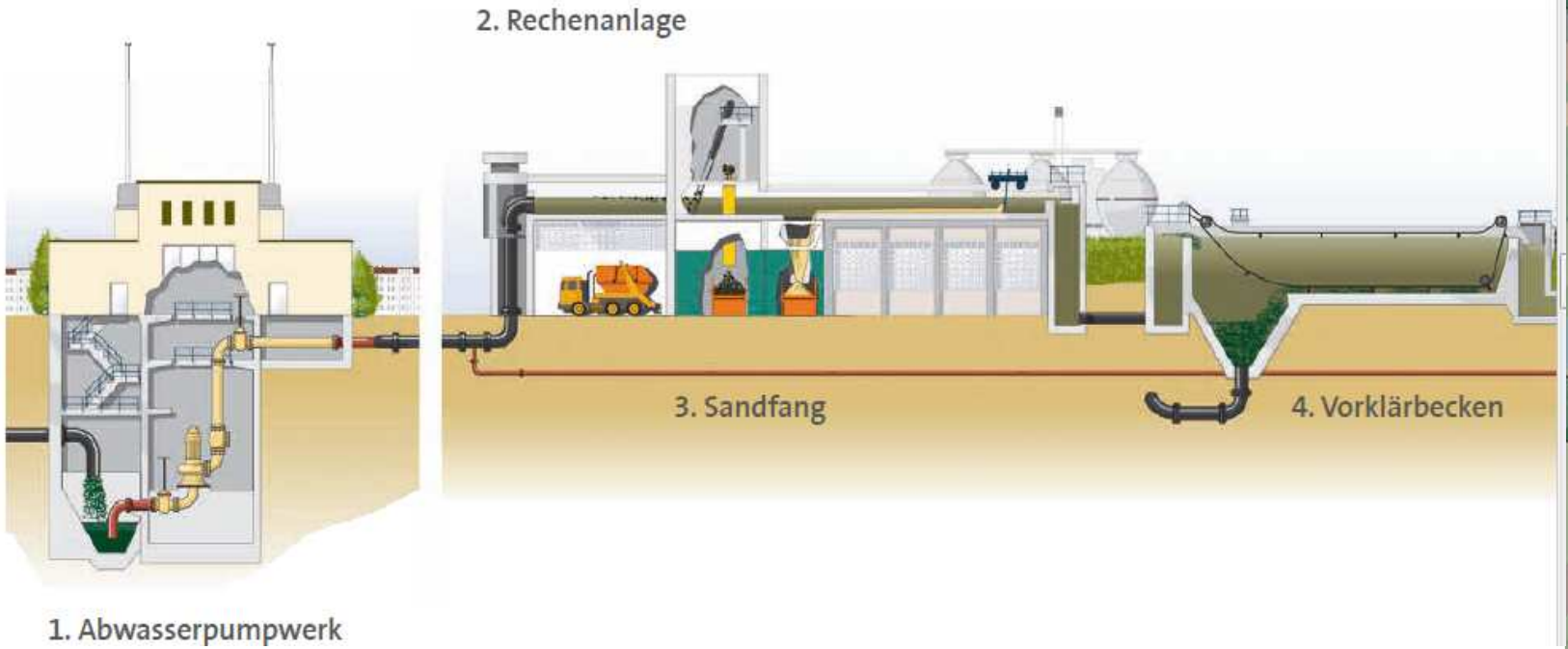
Source: [BWB, 2008]

Source: BWB, klassewasser.de

Waste water treatment (1)



Source: BWB, klassewasser.de

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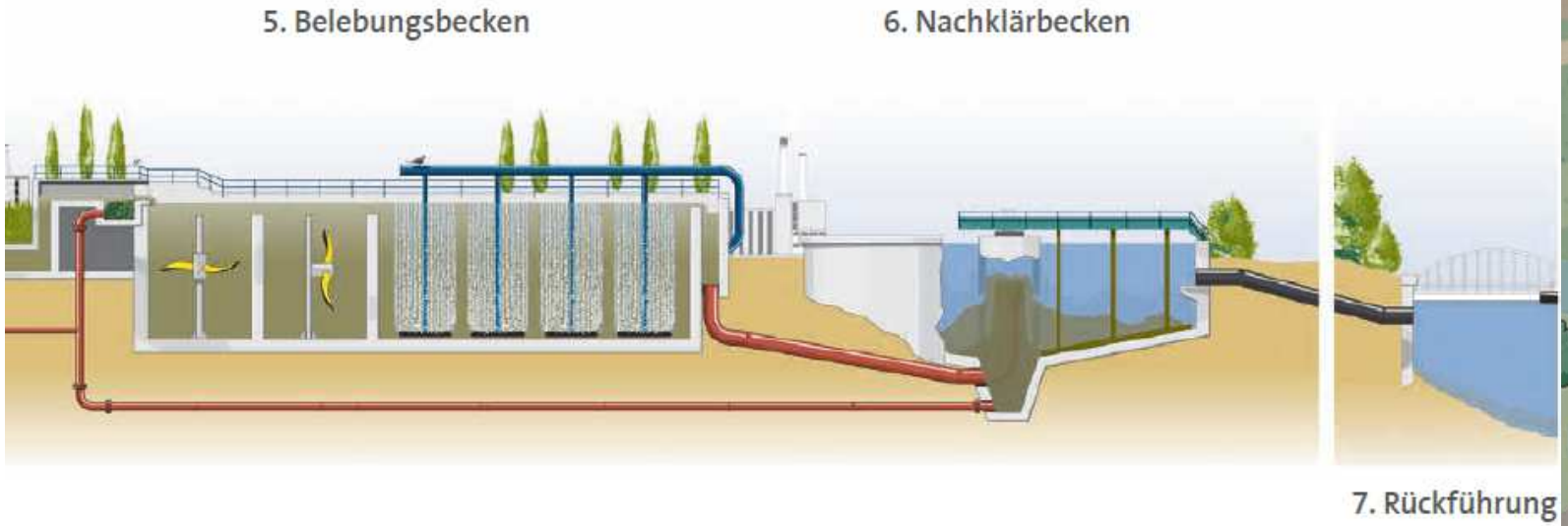
Waste water treatment (2)



Source: BWB, klassewasser.de

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Water quality

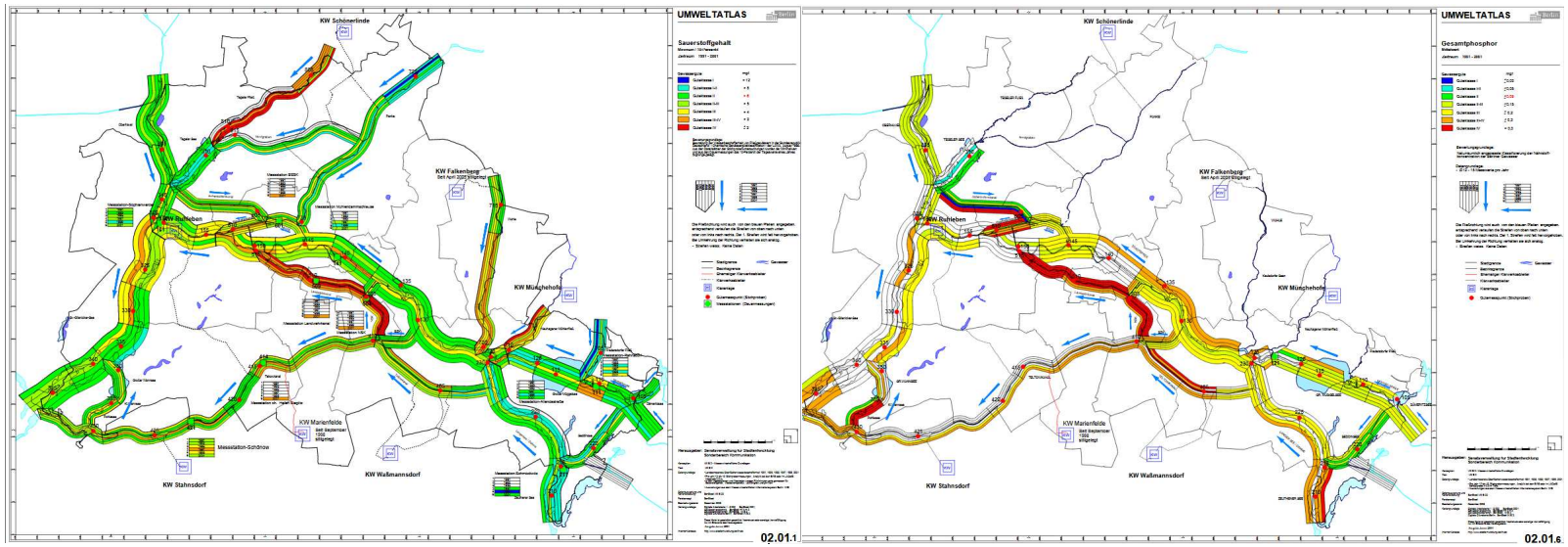
Drinking Water

- Sulfate (coal mining)
- Pharmaceuticals (water cycle)
- Contaminated soils (former industry)


Source: Alemanneenergie.de

Quality of water bodies

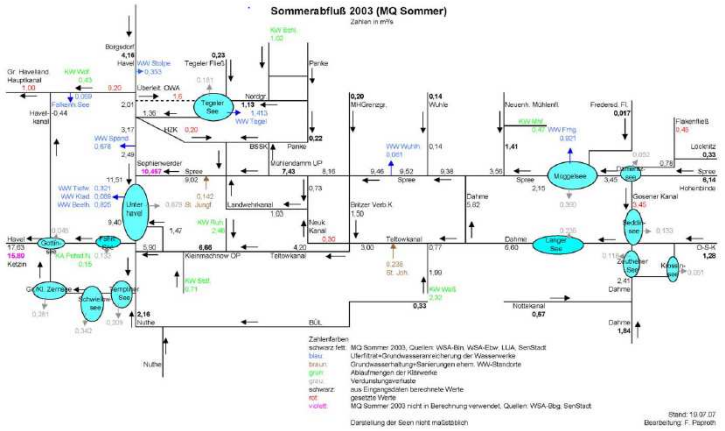
- Water quality class: ~II -> III-IV after flowing through city



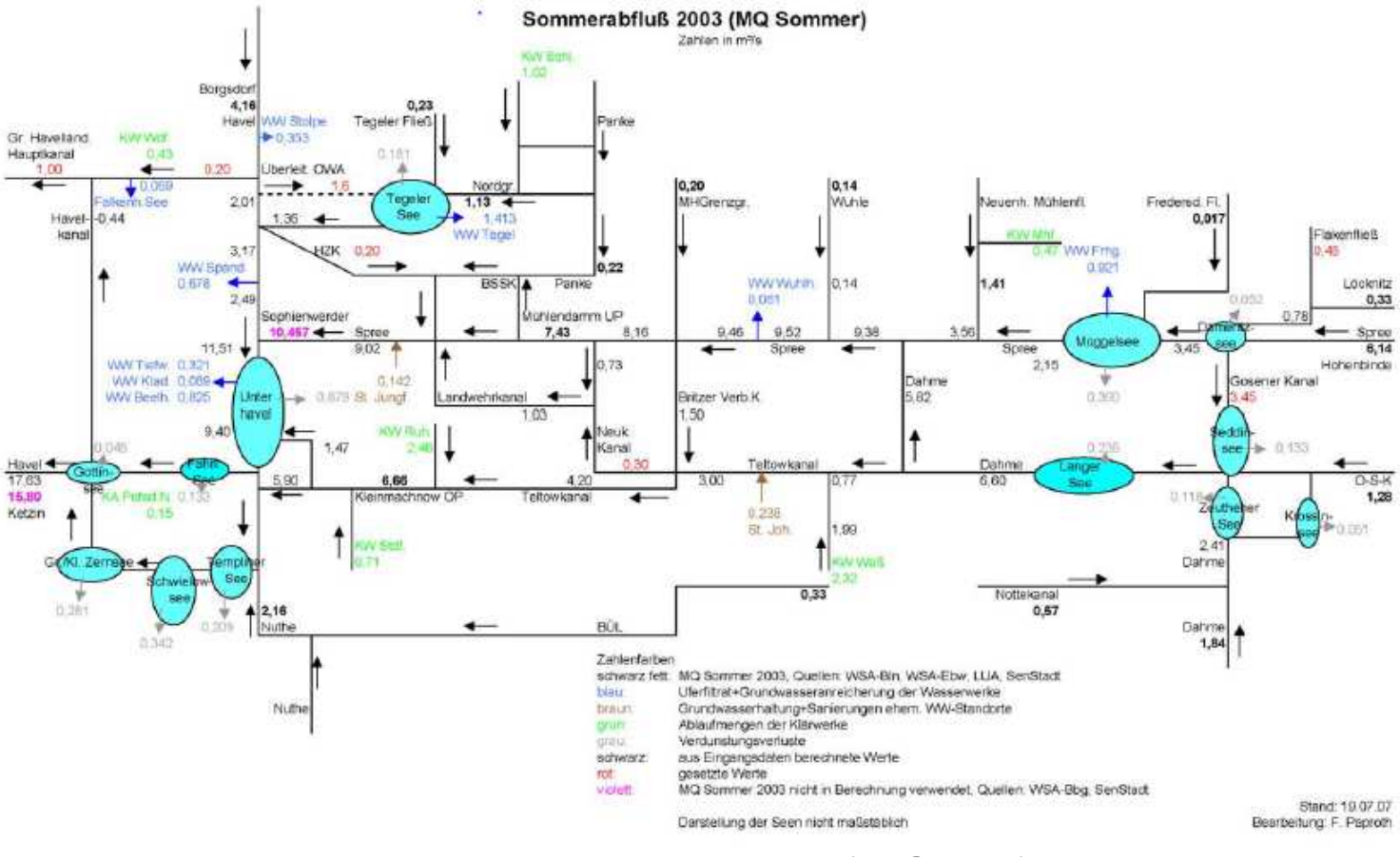
Source: http://www.stadtentwicklung.berlin.de/umwelt/umweltatlas

Water security

- Sulfate (coal mining)
  - Health problems
  - Lack of water
- Population growth
  - Accumulation of pharmaceuticals
  - Lack of water
- Climate crisis
  - Lack of water



Water balance



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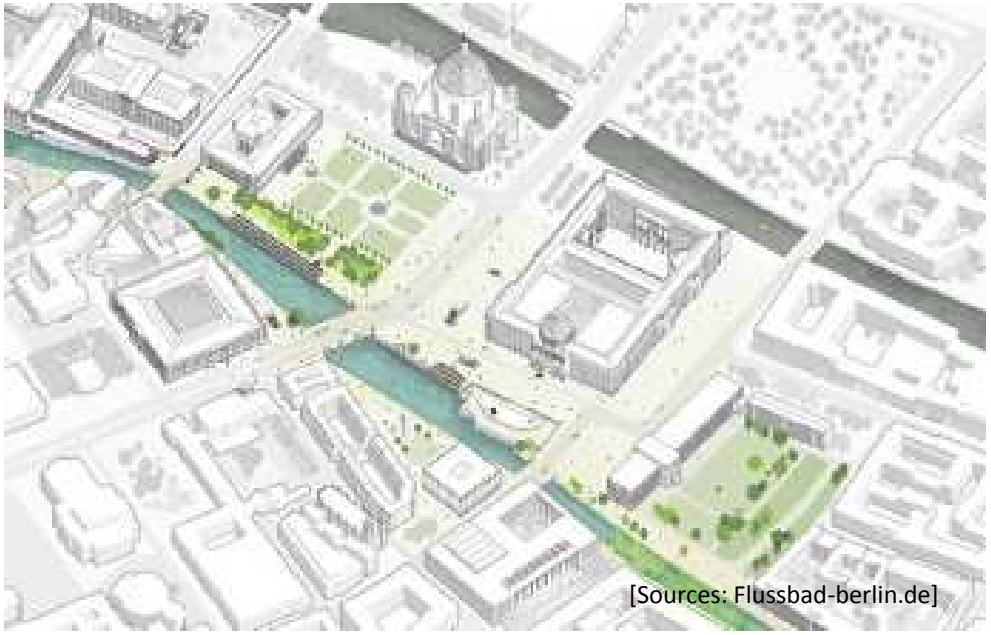
Privatization

- 1999 was 49% sold to RWE and Veolia
- Secret contracts, unusual rises of water prices
- Group of activists reached publication of contracts by referendum => Revealed huge profit garantuees for private companies
  - Three-digit millions per year for private companies and way less for the city
- Repurchased in 2013 after 2nd referendum

Mediaspree versenken

Flussbad Berlin

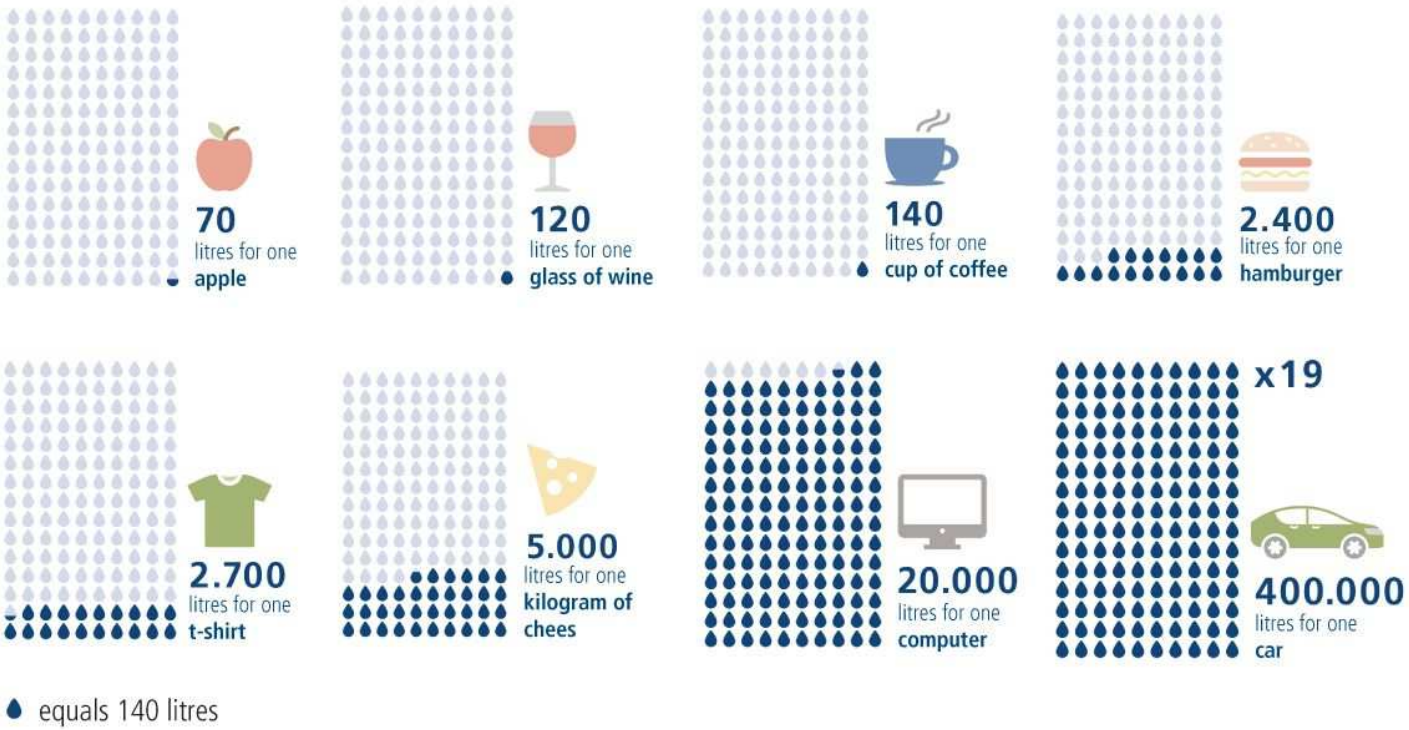
- Feasibility study concerning bathing in tributary of the Spree



[Sources: Flussbad-berlin.de]

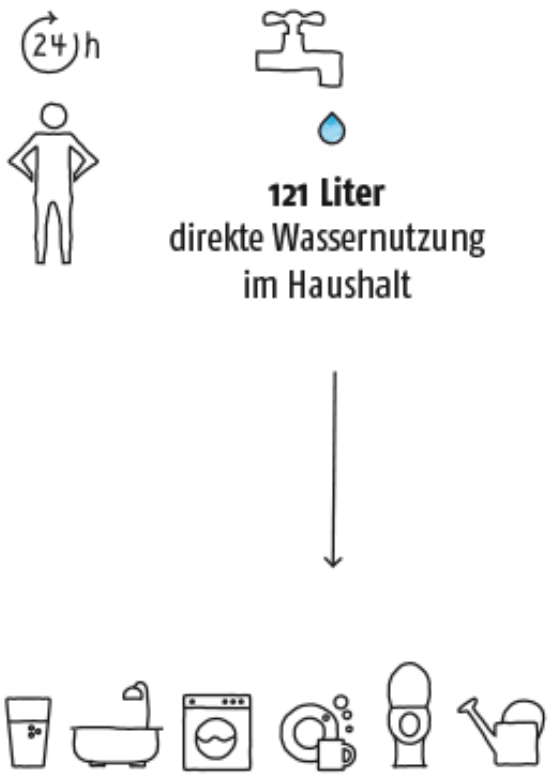
Virtual Water

Virtual Water



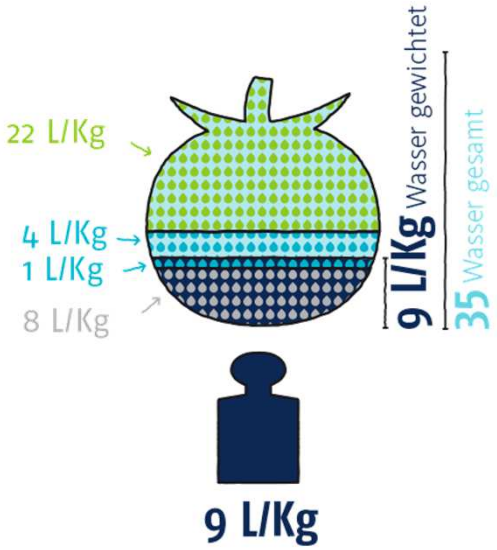
[Source: http://union-investment.es/home/Competencies/Sustainable_Investments/Topics/Water.html]

Direct vs indirect water use

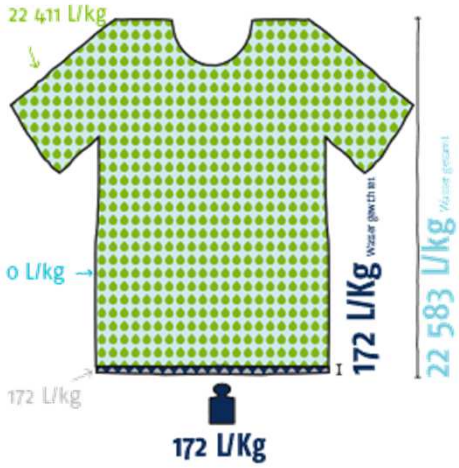


Source: virtuelles-wasser.de

Green, blue & grey Virtual Water



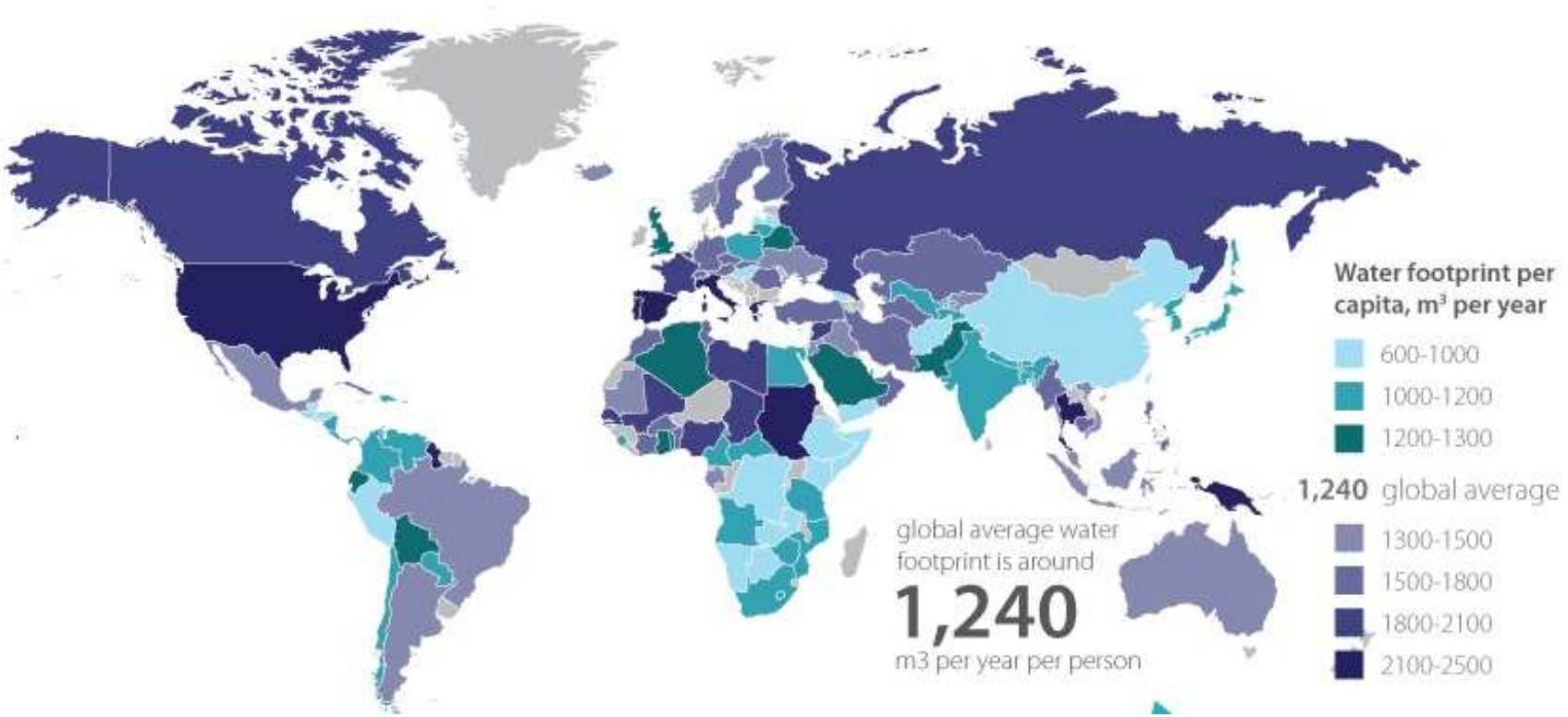
Usbekistan



Africa

Source: virtuelles-wasser.de

World water footprint



[Source: Waterfootprint.org & WWF]

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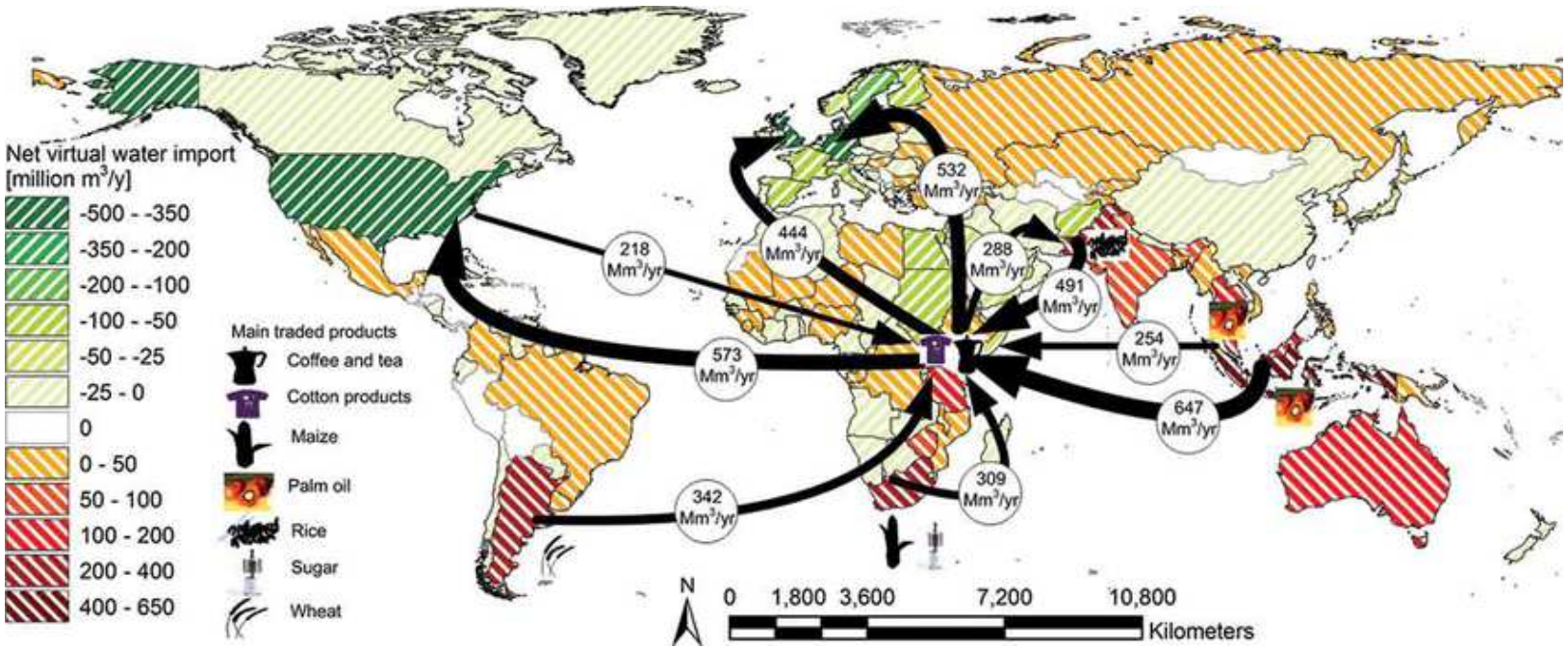
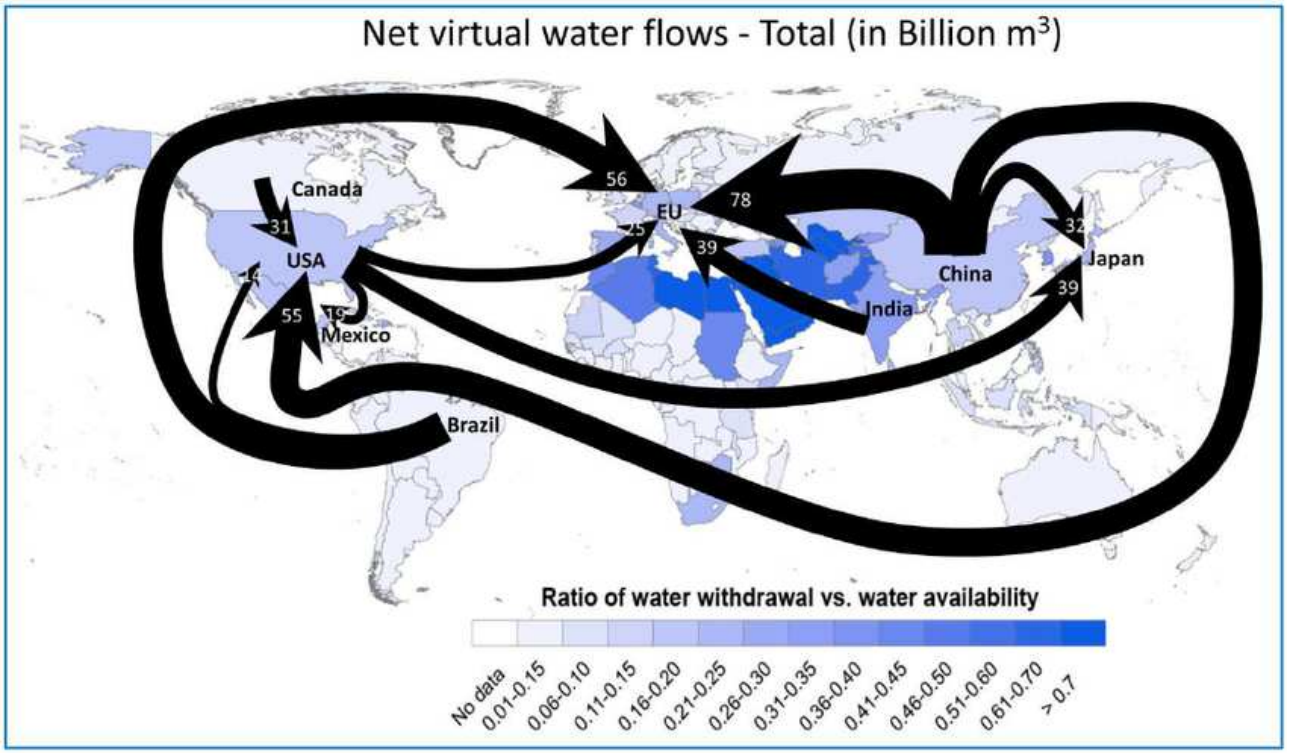
Virtual water flows to and from Kenya



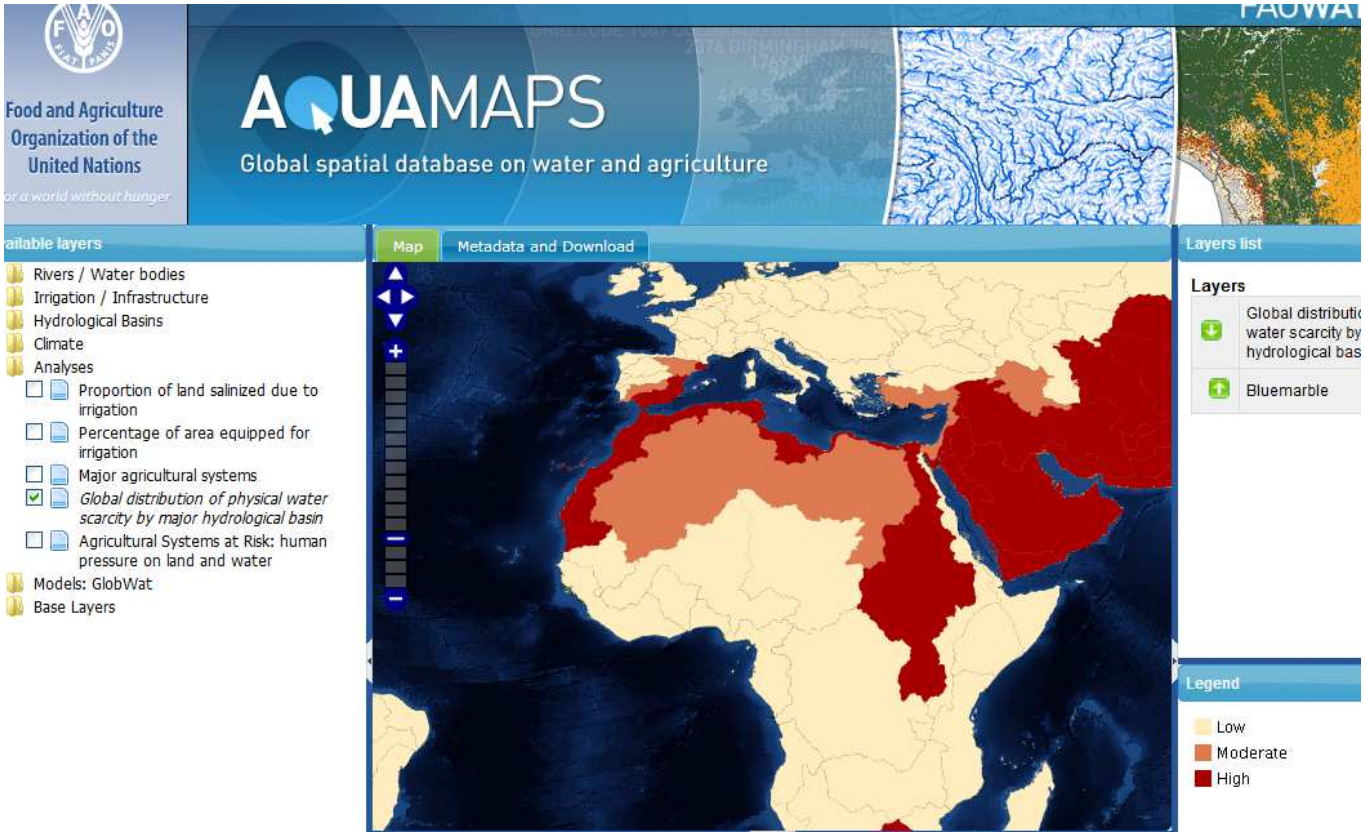
[Source: Mekonnen, M.M. and Hoekstra, A.Y. (2014)]

Water withdrawal vs. water availability



[Source: Feng, K. and Hubacek, K. (2015)]

Water scarcity



[Source: http://www.fao.org/nr/water/aquamaps/]

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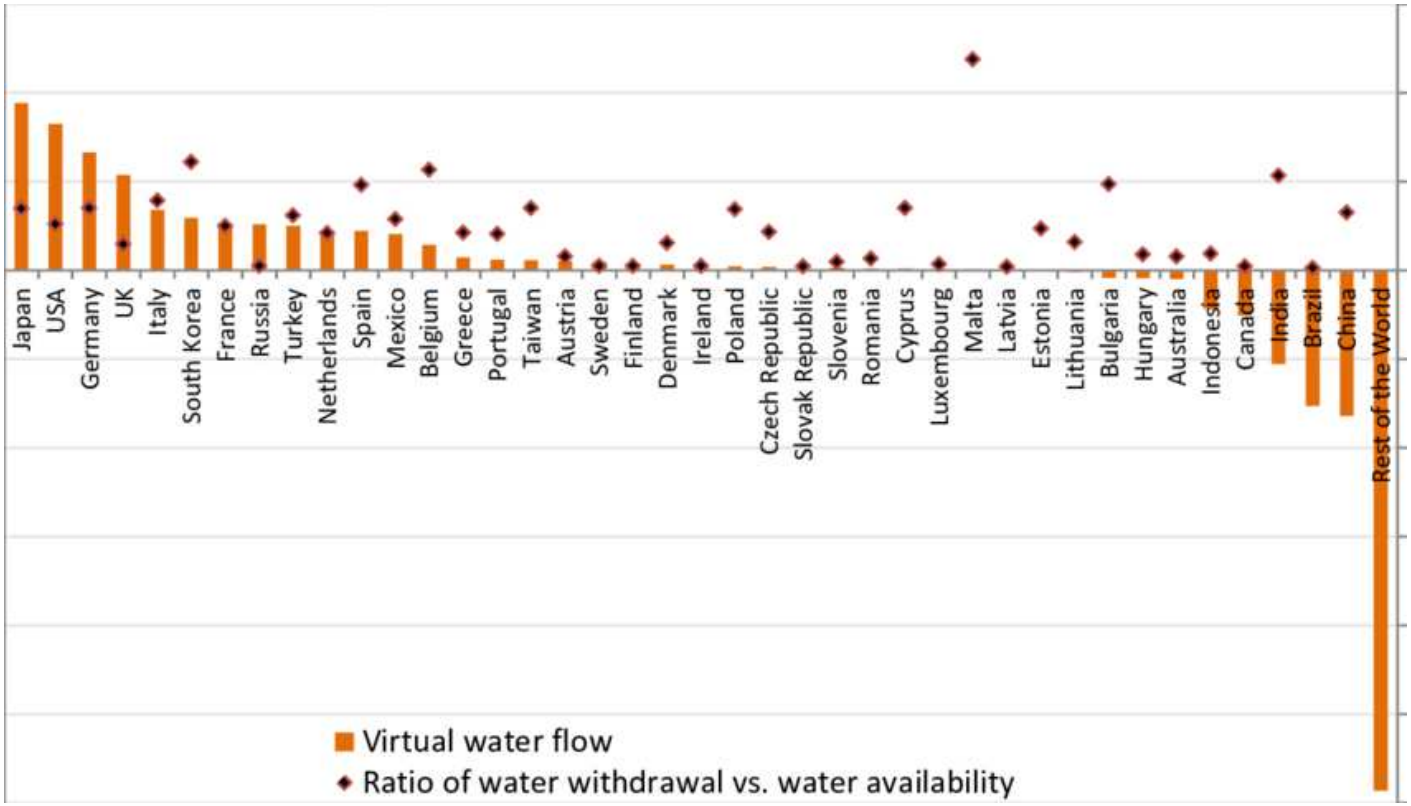
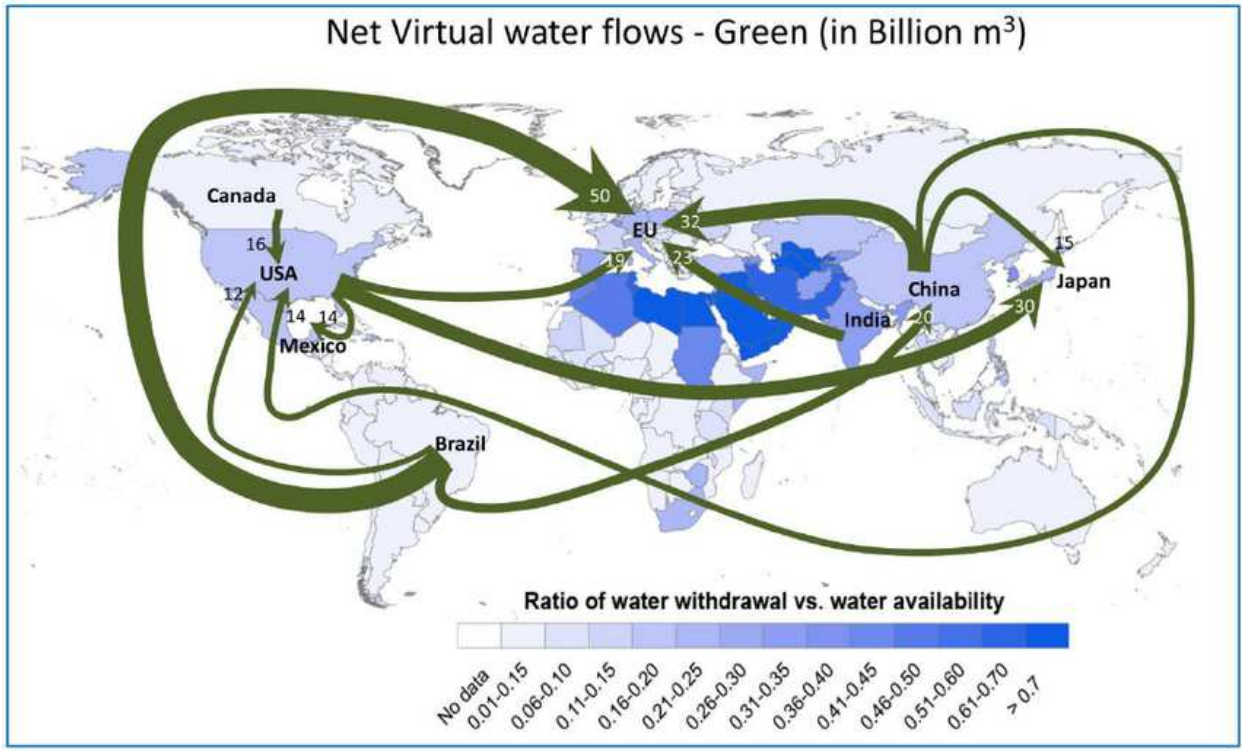
Net virtual water flow



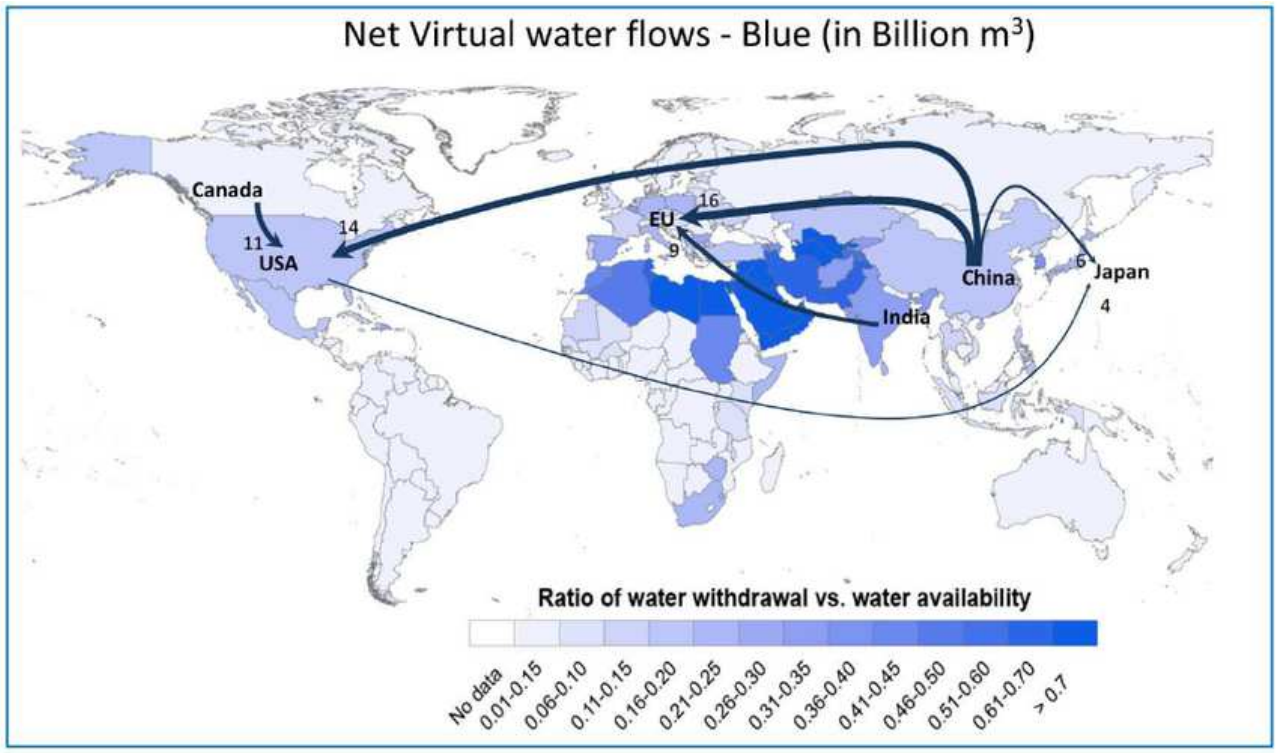
[Source: Feng, K. and Hubacek, K. (2015)]

Green virtual water flows



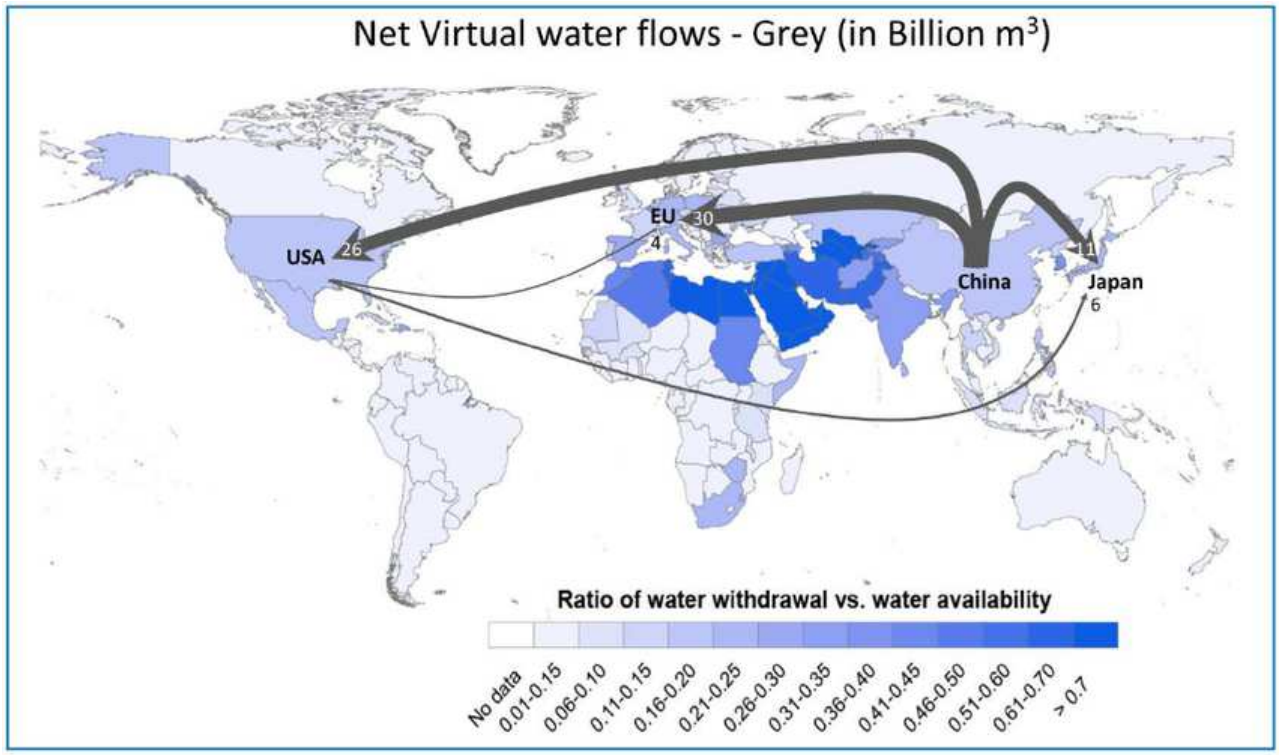
[Source: Feng, K. and Hubacek, K. (2015)]

Blue virtual water flows



[Source: Feng, K. and Hubacek, K. (2015)]

Grey virtual water flows



[Source: Feng, K. and Hubacek, K. (2015)]

How can we save virtual water?

[Adopted from BWB]

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- Look at the origin of fruits and vegetables in the supermarket. Buy seasonal and regional food

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- Eat less meat. Beef products in particular contribute to water scarcity worldwide

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How can we save virtual water?

- Look at the origin of fruits and vegetables in the supermarket. Buy seasonal and regional food
- Eat less meat. Beef products in particular contribute to water scarcity worldwide
- Plan your shopping well so you don't have to throw food away

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How can we save virtual water?

- Look at the origin of fruits and vegetables in the supermarket. Buy seasonal and regional food
- Eat less meat. Beef products in particular contribute to water scarcity worldwide
- Plan your shopping well so you don't have to throw food away
- Six jeans, three pairs of sneakers, more toys, another new mobile phone? Buy only things you need and preferably second-hand clothes

[Adopted from BWB]

How can we save virtual water?

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- Eat less meat. Beef products in particular contribute to water scarcity worldwide
- Plan your shopping well so you don't have to throw food away
- Six jeans, three pairs of sneakers, more toys, another new mobile phone? Buy only things you need and preferably second-hand clothes
- Sell or give away your old clothes, books, bicycles and other things. This is how virtual water does not land in the trash.

[Adopted from BWB]

Thanks for your Attention!

Websites of Interests:

- fao.org/aquastat/en/ & fao.org/nr/water/aquamaps/
- Klassewasser-berlin.de
- Waterfootprint.org
- virtuelles-wasser.de
- en.wikipedia.org/wiki/Water_footprint
- en.wikipedia.org/wiki/virtual _water

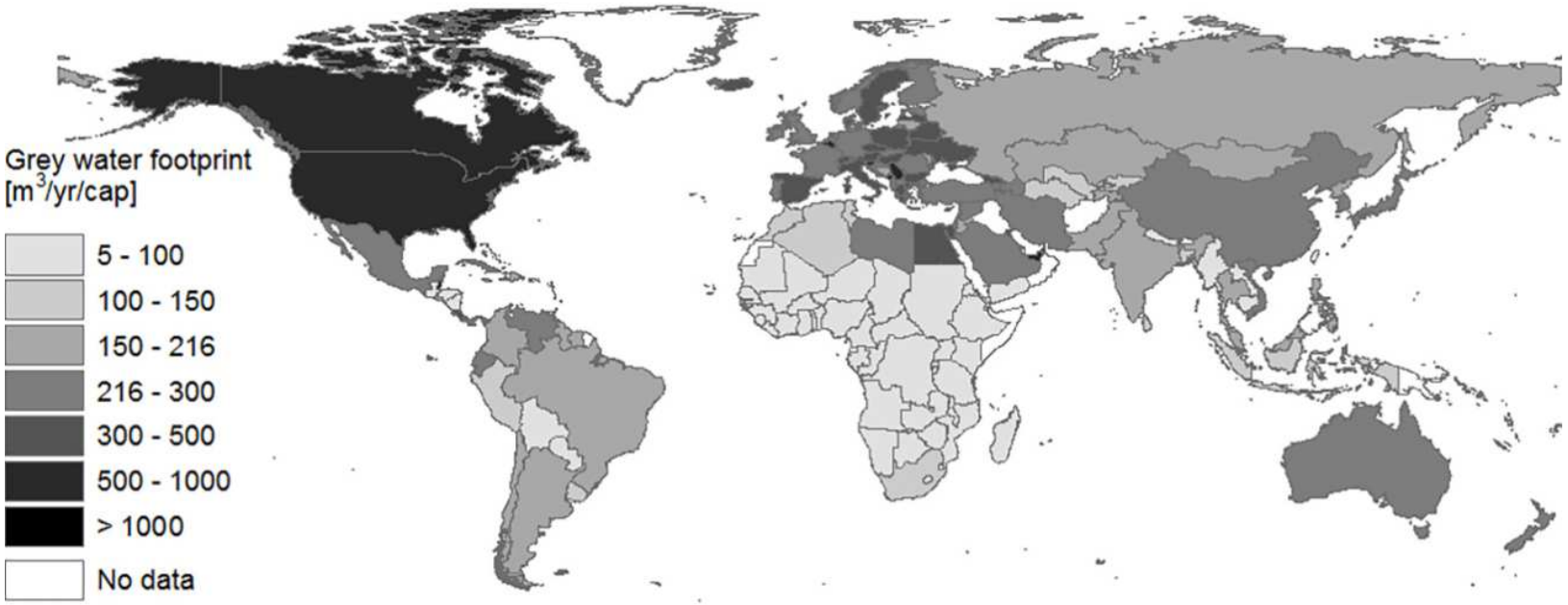
Further Sources:

- BWB, 2008]: Möller & Burgschweiger (Hg.): Wasserversorgungskonzept für Berlin und für das von den BWB versorgte Umland (Entwicklung bis 2040). 2008.
- Mekonnen, M.M. and Hoekstra, A.Y. (2012)
- Mekonnen, M.M. and Hoekstra, A.Y. (2014)
- Feng, K. and Hubacek, K. (2015)
- https://www.bmu.de/themen/wasser-abfall-boden/binnengewaesser/badegewaesser/
- www.stadtentwicklung.berlin.de/umwelt/umweltatlas/ka201.htm
- https://www.morgenpost.de/berlin/article213292649/Sulfat-im-Wasser-Berlin-fordert-Brandenburg-auf-zu-handeln.html
- https://www.berliner-zeitung.de/berlin/berliner-wasserbetriebe-bwb-berlin-kauft-wasser-zurueck-4466876
- https://www.zeit.de/zeit-magazin/2014/46/spree-wasserqualitaet-ralf-steeg-berlin
- https://ms-versenken.org/
- Flussbad-berlin.de
- http://union-investment.es/home/Competencies/Sustainable_Investments/Topics/Water.html

Discussion

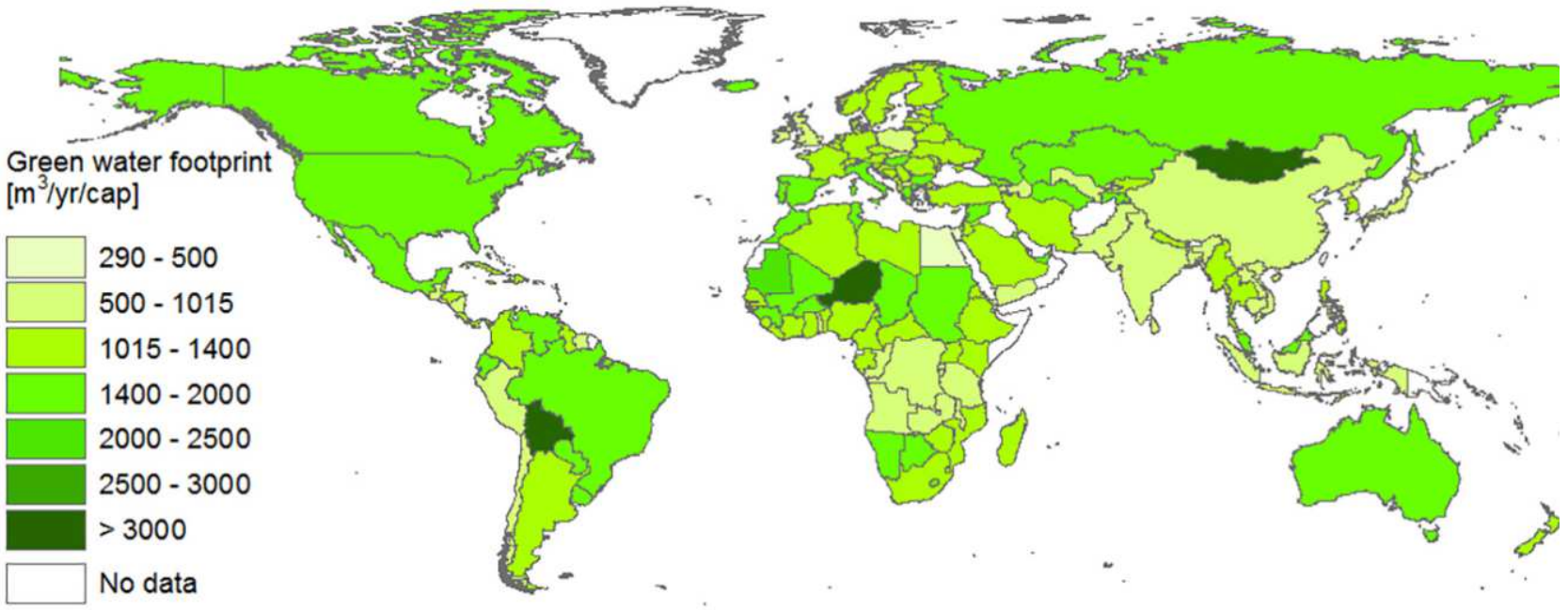
- Why is green virtual water better than blue virtual water?
- When might use of green virtual water be a problem?
- What are the limits by comparing water flows between countries (c.f. Brazil, US)?

Grey water footprint



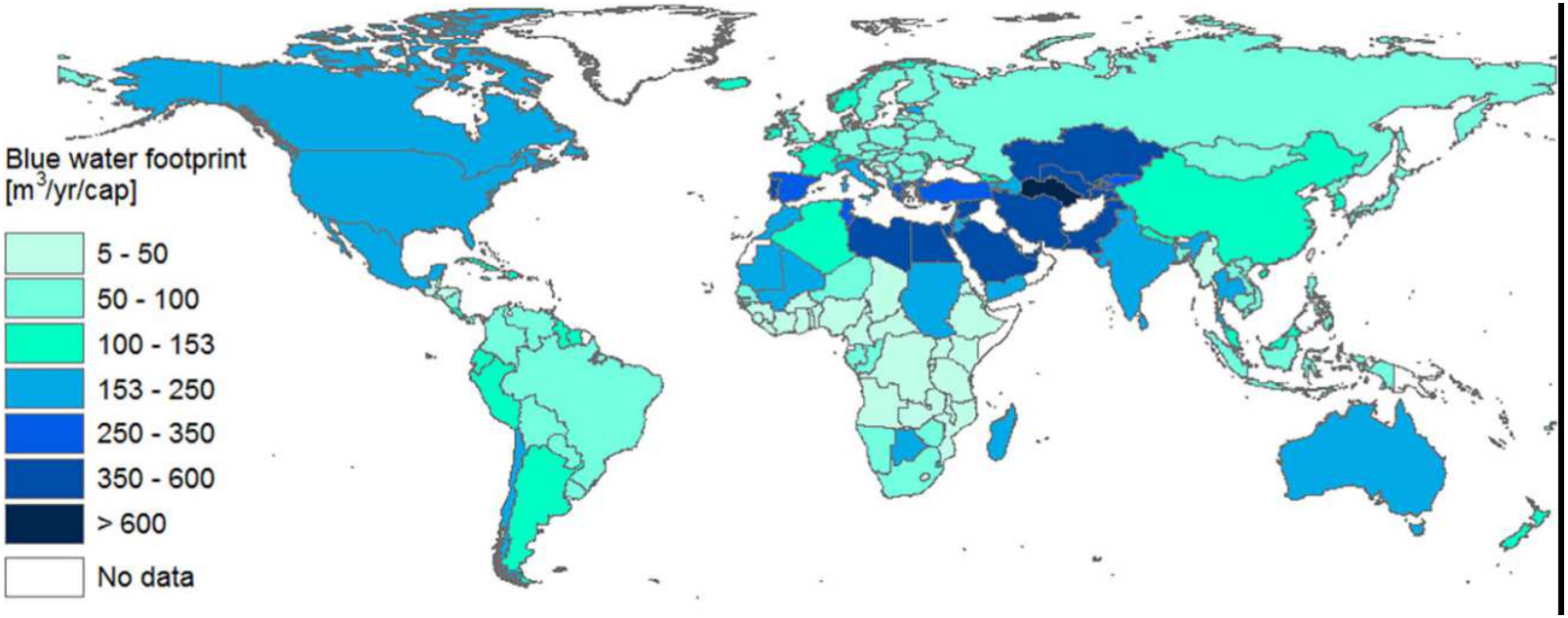
[Source: Mekonnen, M.M. and Hoekstra, A.Y. (2012)]

Green water footprint



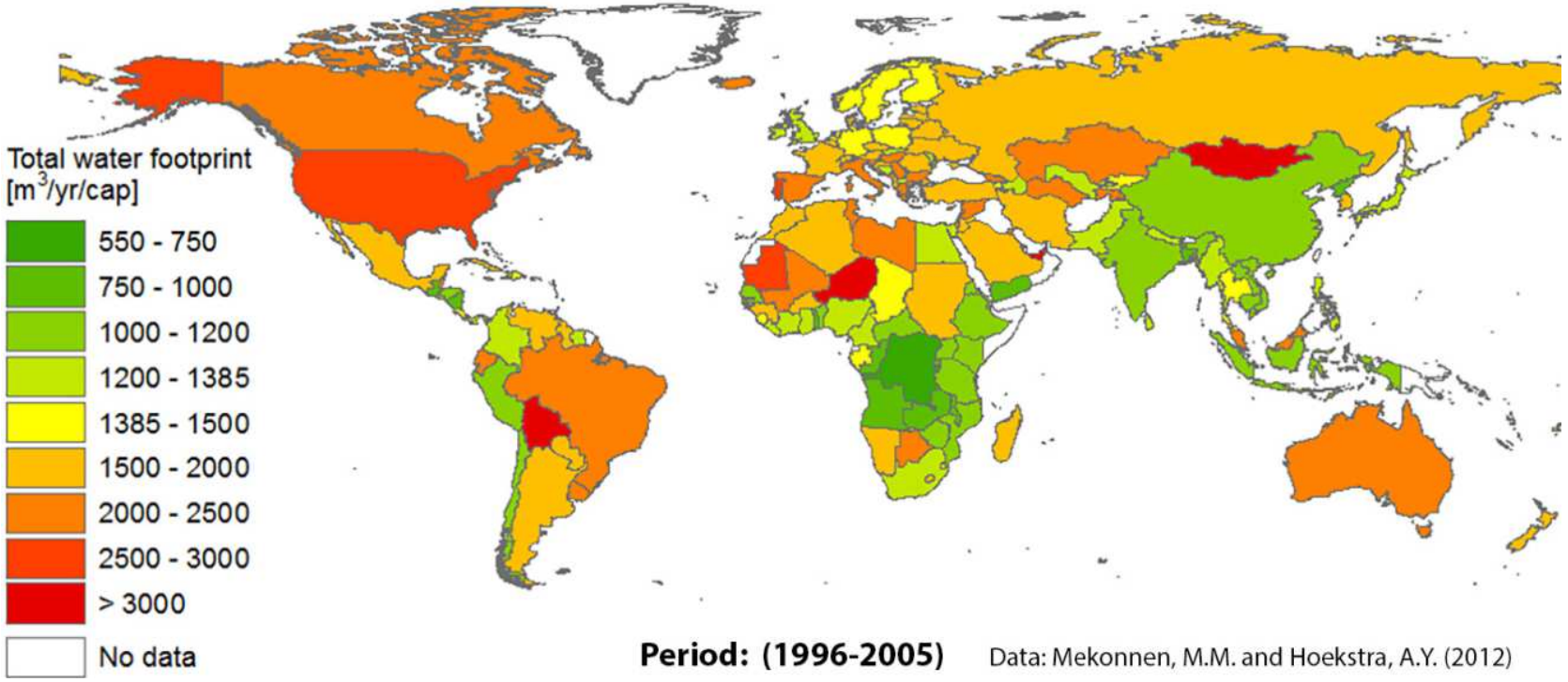
[Source: Mekonnen, M.M. and Hoekstra, A.Y. (2012)]

Blue water footprint



[Source: Mekonnen, M.M. and Hoekstra, A.Y. (2012)

World water footprint



[Source: en.wikipedia.org/wiki/Water_footprint]