



Efficiency of water management, key to sustainable food production

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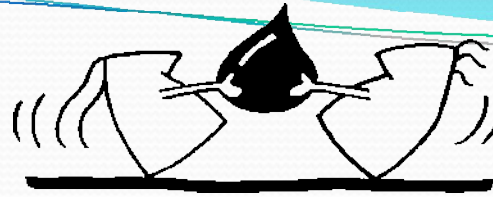


Sources and use of water





competition



💧 drinking-water / household use (1%)

💧 domestic use / sanitation (9 %)

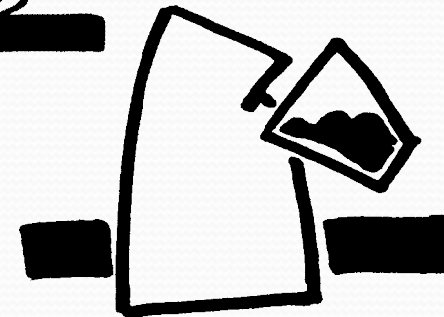
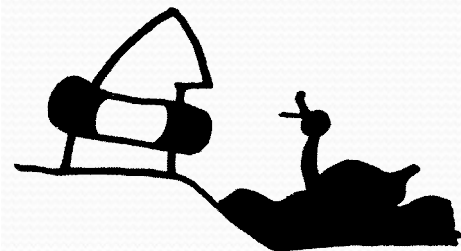
(water consumption per capita: 350 m³ in 1900
642 m³ in 2000 on average, per person, per year)

💧 agriculture (70%)

💧 navigation / transport

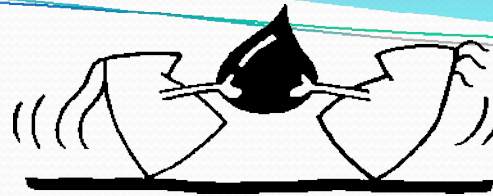
💧 industrial use (20%)

💧 nature and recreation





competition



unsustainable water usage due to

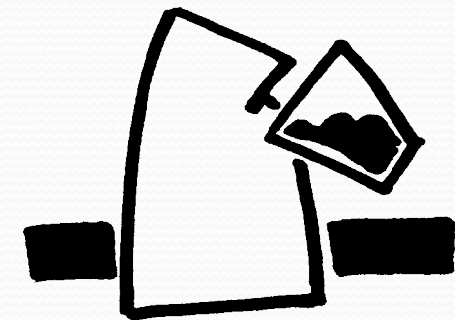
- — higher household usage
- — urbanization
- — irrigation
- — changing diet patterns



Number of people living in countries chronically short of water:

- — 2000: half a billion (out of six billion)
- — 2050: four billion (out of nine billion)

(Source: Clarke and King (2004))





Food production: water quantity

agriculture (70% of fresh water)

💧 Method:

💧 Irrigation spray (25% loss), drip (10% loss)

💧 Rainwater –fed

💧 grey water

💧 time of day – amounts

💧 Crop choices

💧 Non-domestic

💧 Biomass / bio fuels

💧 pricing



Food production: water quantity

- 💧 food industry
- 💧 Transport (energy, pollution)
- 💧 Virtual water: the volume of freshwater used to produce the product, measured at the place where the product was actually produced". Sum of the water use in the various steps of the production chain. real water used to grow it is no longer actually contained in the product.
 - 💧 Glass of wine: 120 liters of water, hamburger 2.400 liters, a cotton shirt 4.000 liters ;
Read more: <http://www.lenntech.com/water-food-agriculture.htm#ixzz0RIS9usly>



Food production: Water Quality

- Pollution – fertilizers, pesticides
 - Water treatment : Waste water purification, re-use
 - Organic agriculture/ Ecological / bio – agriculture
 - Insects
- Biodiversity
- Climate change



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Food habits / diet / cooking

- 💧 Nutrition advise / diet
- 💧 Status / marketing:
 - Non-domestic crops/ food
 - (Wealth) Meat consumption
- 💧 Availability
 - 💧 Transport
- 💧 Preparation:
 - 💧 "food safety" >> water use / "waste" water

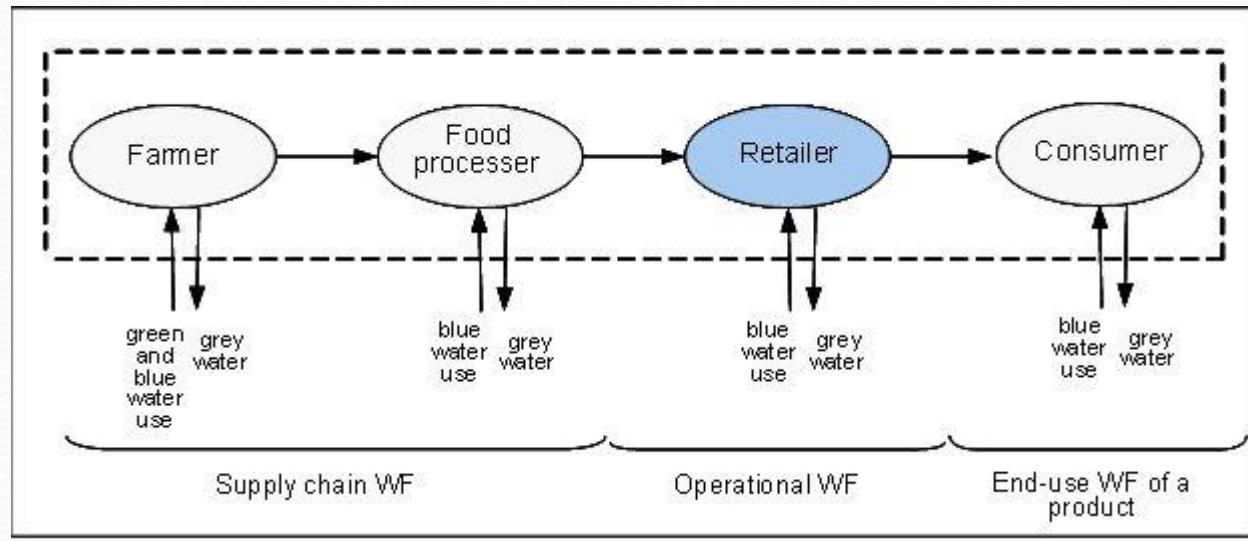


Understand and possible solutions

- Awareness: Water foot print
<http://www.waterfootprint.org>
- 💧 the operational water footprint, i.e. the direct water use by the business in its own operations
- 💧 the supply-chain water footprint, i.e. the water use in the business's supply chain
- CGIAR: <http://www.waterandfood.org/about-cpwf.html>
 - plant-breeding solutions
 - ecosystem goods and services
 - Water system management

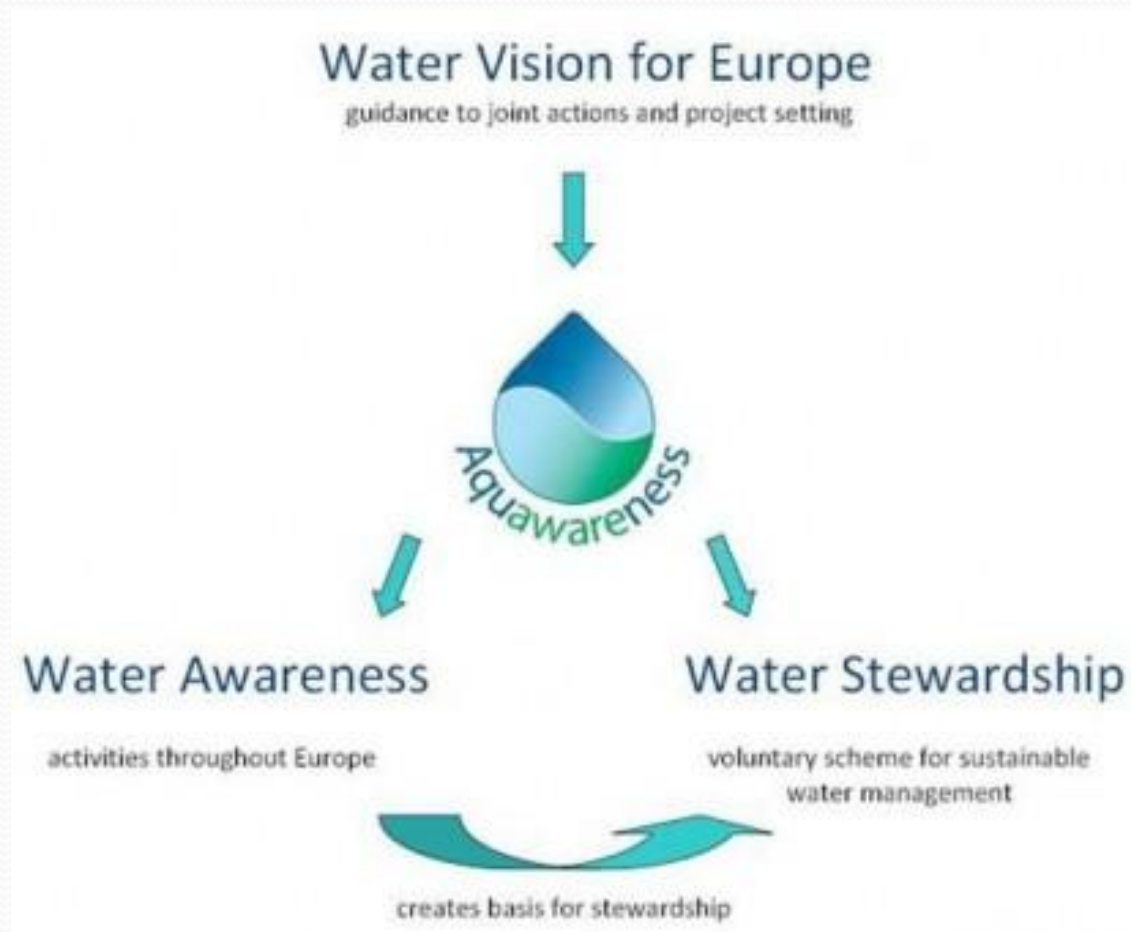


Water footprint





Water Vision





Water footprint

- 💧 Water Vision
- 💧 Aquawareness: European Water Awareness Program: a water saving and water efficient culture among political decision makers, key stakeholders and inhabitants
- 💧 Water stewardship:
www.ewp.eu/projects/aquawareness/water-stewardship



Understand and possible solutions

- 💧 Capacity development & education:
 - 💧 sustainable practices in pre-harvest and postharvest agricultural activities
 - 💧 Water usage
 - 💧 Crop choices
 - 💧 Teach other cooking methods (2/3 less water?)
- 💧 Eat seasonal / local
- 💧 Aquawareness: Water Dialogues
- 💧 Participation: involve women, youth, indigenous peoples



Concluding

We cannot expect mankind to change its eating habits overnight or “deny” them a balanced diet , so it is evident that

- the agriculture and water sector have to join forces
- and drastically reduce the use of water to produce our future food requirements by at least 50%
- Dieticians, food industry , higher education and restaurants have to join forces and change the way we prepare food and eat.

