User Rights Priorities by Human Rights

Legal systems establish a hierarchy among different kinds of laws, claims and rights. Usually constitutional and human rights guarantees take precedence over other types of laws, claims and rights.

Priority Rights Holders

States are responsible to align national laws and regulations according to UN Declarations, Resolutions or Conventions. As human rights are higher order norms, states have to ensure the ongoing protection of human rights and environmental guarantees.

Ecosystem and Environmental Flow Requirements

The condition, in which riverine ecosystems and their services are maintained, is essentially a socio-political decision enshrined by legislation or international conventions. Environmental Flow Requirements (EFR) describe the quantity, timing, and quality of water flows required to sustain freshwater ecosystems.

EFR varies among different ecosystems and the climates, worldwide average lies at 30 % (e.g. SDG 6.4).
Protection of a healthy environment is the requirement to ensure an adequate supply of safe and potable water (ICESCR 12).

Other Water Users

For the regulation of other water users' rights protection principles, such as precaution (do-not-harm), prevention and restoration of water bodies must be binding in international and state treaty agreements, development policies and programs, national regulations and corporate actions and activities.
To guaratee the aforementioned principles the following safeguards may be of use: accountability mechanisms for human rights based monitoring and evaluation of total renewable freshwater ressources (TRWR) and total water withdrawal (TWW); control and assessment of environmental requirements and water quality; prohibition/restriction of use for pollutants, pesticides, herbicides and fungicides ("red list"); application of national and international regulations and obligations, e.g. EU Water Directive.

The Graphic is based on benchmarks derived from international treaties and obligations on water governance: ICESCR (Article 11 Human Right to an adequate Standard of Living, Article 12 Human Right to Health), Committee on Economic, Social and Cultural Rights (CESCR), CESCR General Comment 12 Right to Food (1999) General Comment 15 Right to Water (2002), UN Resolution 64/292 on the Human Right to Water (2010), EU Water Directive (2000), UN GA Resolution A/RES/70/1: Agenda 2030 for Sustainable development (2015) – especially SDG 6.4 Water Use and Scarcity.

Local Population
Water for domestic purpose, drinking and cooking water, sanitation water.

Subsistence farmers, pastoralists and fisher-folk
Water for food security and sustainable livelihoods

Indigenous / Traditional Communities
Collective Rights Holders to water, land and territory, recognition of Customary Rights and Legal Pluralism

Agroindustrial Use
Pumped irrigation rights for industrial food production

Mining
Piped groundwater use for production and transformation

Industrial and Energy Sector
Piped groundwater use / or barraged water / non-consumptive water use

[1] Data analysis by TU Berlin, Chair of Sustainable Engineering. For more information please refer to https://www.see.tu-berlin.de
[2] Boulay, A.-M. et al. (2017) The WULCA consensus characterization model for water scarcity footprints: assessing impacts of water consumption based on available water remaining (AWARE). Int. J. Life Cycle Assess.
[3] Holthaus, E.: The Thirsty West: 10 Percent of California's Water Goes to Almond Farming. available online http://www.slate.com/articles/technology/future_tense/2014/05/_10_percent_of_california_s_water_goes_to_almond_farming.html, 20 June 2018
[4] Information acquired from Lok Sanjh Foundation Pakistan.
[5] Ocak, S. Et al. (2013): Turkey's Animal Production Water Footprint; Heading in the Wrong Direction, Procedia Technology, Vol. 8, p. 255-263, available online https://www.sciencedirect.com/science/article/pii/S2212017313000972, 20 June 2018
[6] Radio Farda (2017): Iran's Water Crisis Passes Tipping Point, available online https://en.radiofarda.com/a/iranwater-crisis-serious-soil-erosion/28914002.html, 20 June 2018
[7] Leahy, S: World Water Day: the cost of cotton in water-challenged India. In: The Guardian, March 20 2015, available online https://www.theguardian.com/sustainable-business/2015/mar/20/cost-cotton-water-challengedindia-world-water-day, 20 June 2018
[8] Information on farmer's suicides acquired from Ekta Parishad.
[9] Information acquired from União Nacional de Camponeses (UNAC).
[10] Information acquired from Articulação Semiárido Brasileiro (ASA).
[11] Banalink.org: Why pineapples matter. Available online http://www.bananalink.org.uk/why-pineapples-matter, 20 June2018; Jadin, I (2016): International trade, and land use intensification and spatial reorganization explain Costa Rica's foresttransition. In: Environmental Research Letters No. 11, available online http://iopscience.iop.org/article/10.1088/1748-9326/11/3/035005, June 2018.

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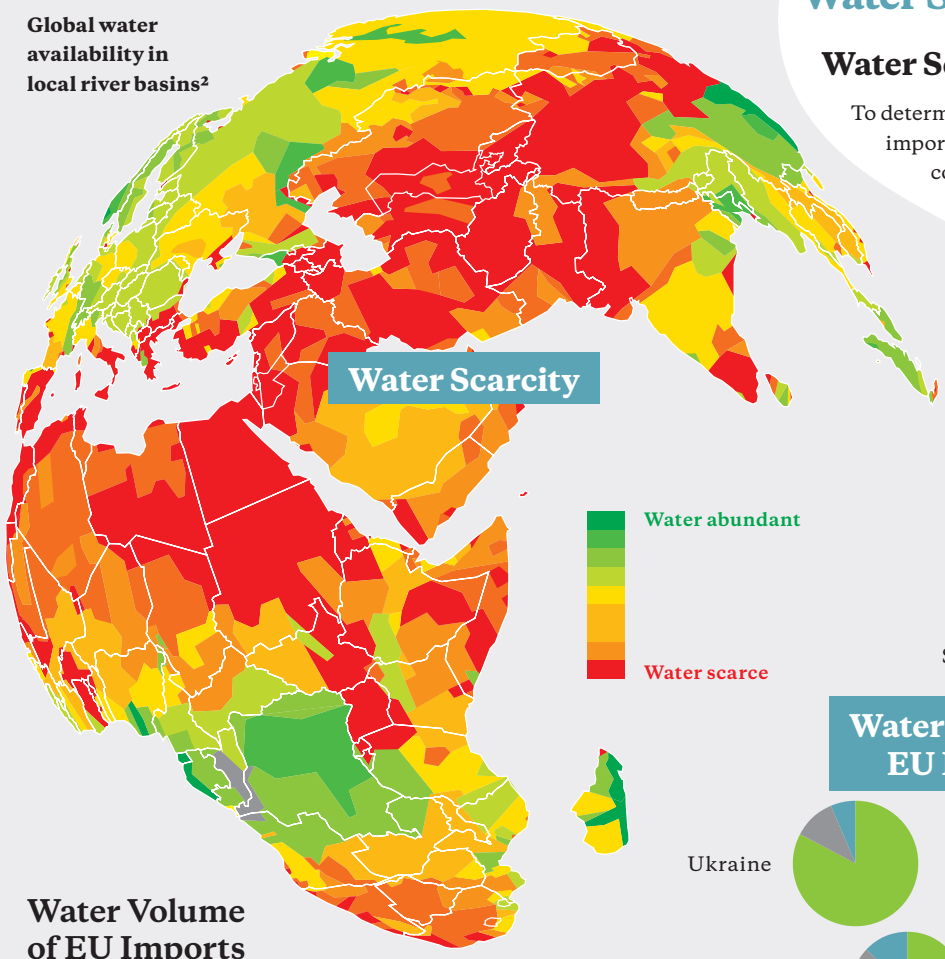
Water Footprint of European agricultural imports: a water scarcity perspective

The UN-Water Synthesis Report on Sustainable Development Goal 6: Water and Sanitation (2018) warns: More than 2 billion people live in countries experiencing high water stress. The situation will likely worsen as populations and the demand for water grow, and as the effects of climate change intensify. The following Hotspot Analysis illustrates the EU's External Water Footprint in water stressed regions and showcases the most problematic agricultural imports in terms of irrigation water consumption.[1]

Global water availability in local river basins[2]



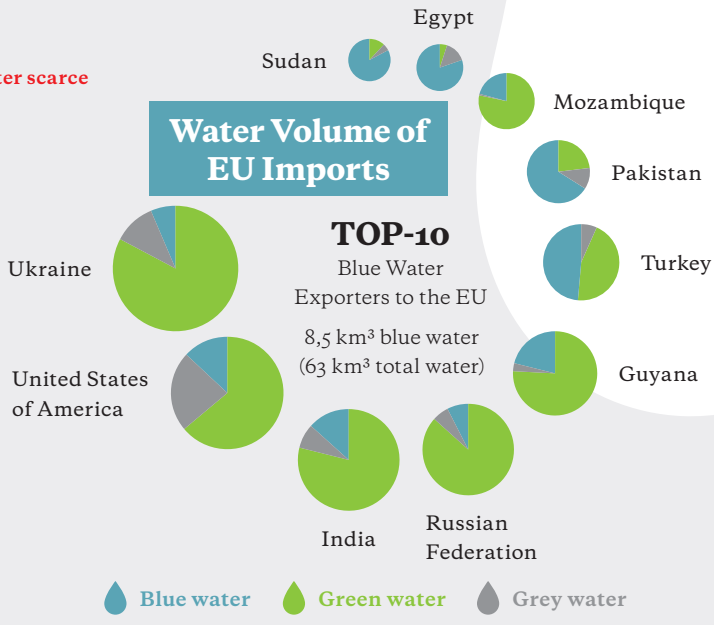
Water Volume of EU Imports

In 2015, the European Union imported 98 mio. tons of agricultural goods associated with the consumption of 262 km³ of **green** (soil moisture), 11 km³ of **blue** (ground and surface water used for irrigation) and 13 km³ of **grey** water (polluted freshwater due to fertilisers and pesticides). Blue (irrigation) water consumption may lead to severe impacts due to water scarcity in producing countries, increased water stress levels and the risk of conflict between different user groups.

Water Scarcity Footprint = Water Scarcity × Water Volume

Water Scarcity Footprint (WSF)

To determine the EU's Water Scarcity Footprint, import quantities are multiplied by the blue water consumption per product and the country-specific water scarcity factor ("AWARE" factor). This means blue water consumption gets "weighted" according to a water scarcity index in the producing countries. In such a way, the "value" of water is considered for each country depending on its available freshwater resources.



Technische Universität Berlin

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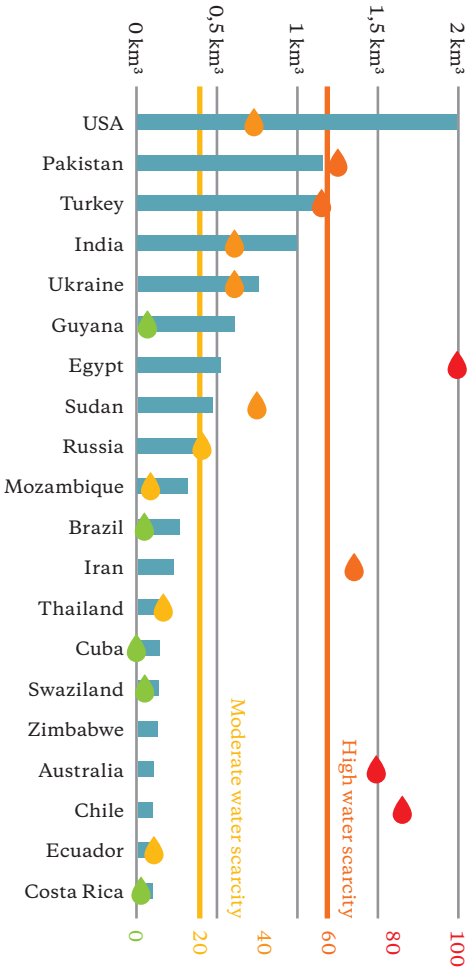
EU Water Scarcity Footprint in the exporting countries

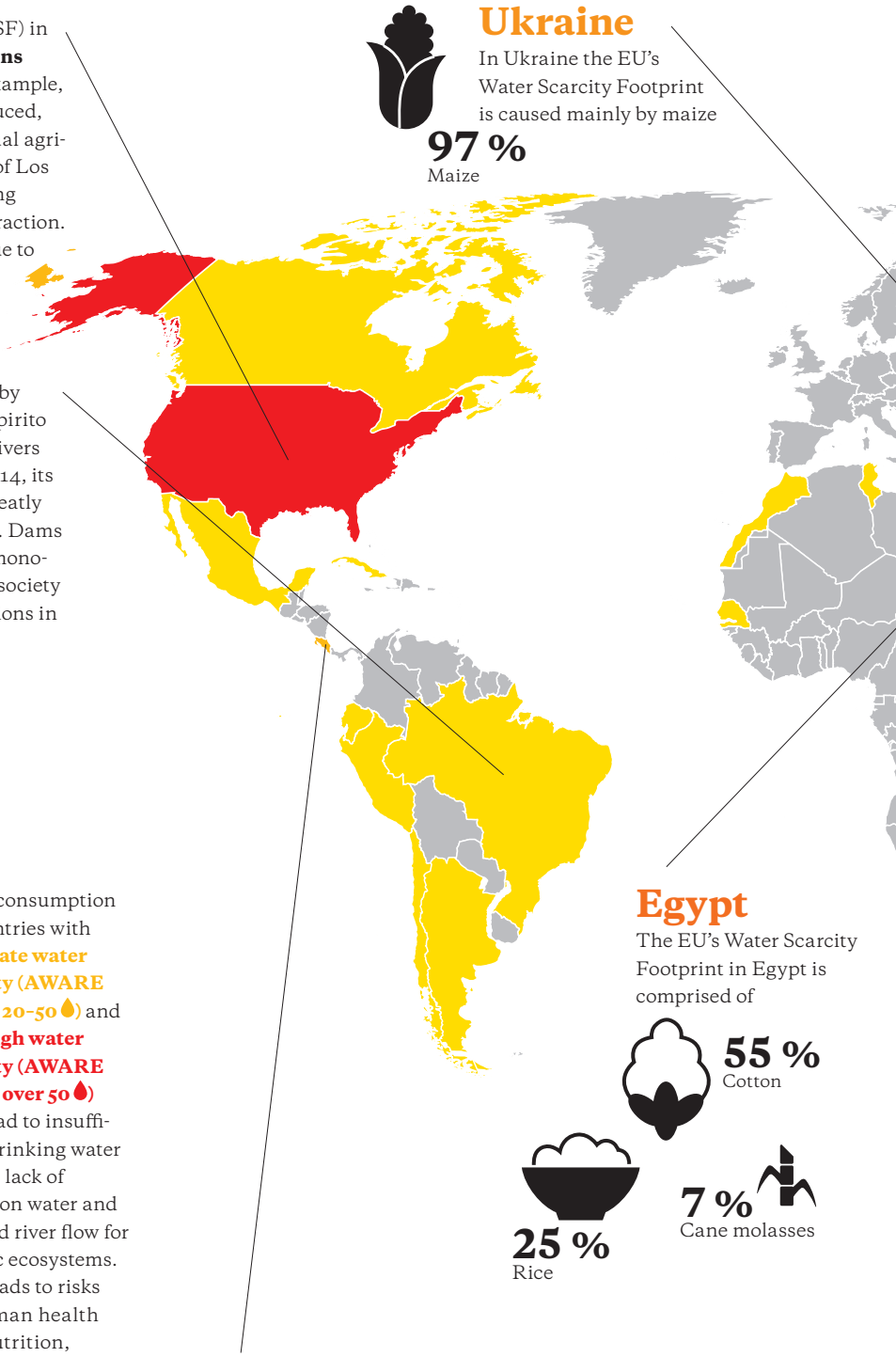
US More than half of EU's Water Scarcity Footprint (WSF) in the US is caused by **nut imports (65 %)** followed by **soybeans (26 %)**. Nut cultivation requires very high irrigation. For example, in California, where **80 %** of the world's **almonds** are produced, their irrigation accounts for almost 10 % of the state's annual agricultural water use – more than what the entire population of Los Angeles and San Francisco use in a year. During recurring droughts, Californian farmers depend on groundwater extraction. In some places land has subsided by almost nine meters due to groundwater overdraft.[3]

Brazil EU's Water Scarcity Footprint is composed by **68 % of coffee** imports, mostly from Minas Gerais and Espirito Santo. The São Francisco River supplies six of the largest rivers of the country and is known as "the cradle of waters". In 2014, its major source ran dry for the first time and has also been greatly reduced due to deforestation of its riparian Cerrado forests. Dams and irrigation schemes, large scale coffee and eucalyptus monoplantations affect local water cycles and ecosystems. Civil society organisations advocate for the ban of monoculture plantations in the Cerrado.[10]

Water Consumption for EU-Imports in km³ and Water Scarcity in Top 20 exporting countries



Water consumption in countries with **moderate water scarcity (AWARE Factor 20–50)** and with **high water scarcity (AWARE Factor over 50)** may lead to insufficient drinking water supply, lack of irrigation water and reduced river flow for aquatic ecosystems. This leads to risks for human health (malnutrition, diseases) and environmental damage. Countries with **low water scarcity (AWARE 0–20)**, e.g. Brazil, still may face high local water shortage in some regions.



Ukraine

In Ukraine the EU's Water Scarcity Footprint is caused mainly by maize

97 % Maize

Egypt

The EU's Water Scarcity Footprint in Egypt is comprised of

55 % Cotton

25 % Rice

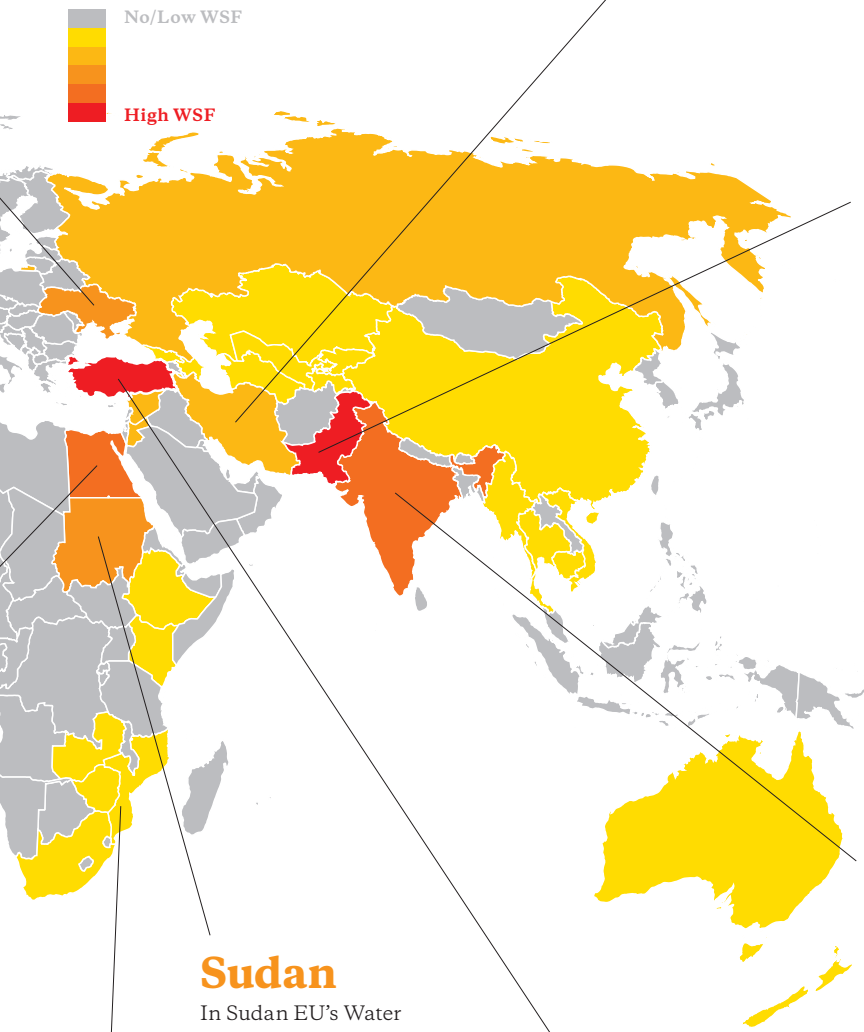
7 % Cane molasses

Costa Rica Even though Costa Rica does not suffer from water scarcity at national level, the country faces numerous challenges due to inadequate water supply infrastructures. The main products exported by Costa Rica to the EU in 2015 were **bananas (6,7 Mio tons)** and **pineapples (1 Mio tons)**. Costa Rica is the third largest banana producer and world leader in pineapple production with 2.5 million tons of pineapple per year – more than 80 % of the global production. Three-quarters of the pineapples on European store shelves come from Costa Rica. The multinational pineapple and banana companies do not provide compensation for the harmful effects of pesticides in drinking water. National statistics estimate an average of 100 deadly intoxications per year. Since 2015, the Inter-American Commission on Human Rights has pursued a case on behalf of victims of contaminated water from Costa Rica.[11]

Two-thirds of water intensive imports originate from countries with **high or moderate water scarcity.**

Five irrigation-intensive crops contribute to almost 80 % of the EU's external Water Scarcity Footprint: cotton 30 %, nuts 21 %, rice 18 %, maize 7 %, sugar cane 5 %.

Even though soybeans are mostly grown in rain-fed agriculture, high import volumes lead to a significant share (5 %) in the EU's external Water Scarcity Footprint.



Iran

Iran is exposed to high water scarcity. Nearly 750,000 wells are in operation, 330,000 of them illegally. The agricultural sector consumes 95 % of all water. If water use remained at this level, Southeastern Iran would become completely deserted within less than 25 years affecting 50 million people. The EU's Water Scarcity Footprint in Iran largely relates to **nut imports**, mostly pistachios.[6]

Pakistan

Researchers predict that Pakistan might become the most water-stressed country in the region as its population (208 Mio.) is expected to double within 50 years. 95 % of all available freshwater is used for agriculture. The EU's Water Scarcity Footprint in Pakistan is comprised of **65 % of rice** and **18 % of cotton** as well as **16 % sugar cane** imports for bioethanol production. Since 2000, rice and sugar cane imports into the EU have been increasing. In Southern Punjab unrests are on the rise due to shortage of canal water and dependence on pumping of groundwater and increasing costs for irrigation. Poor maintenance and old irrigation techniques pose challenges to meet water requirements at farm level. New technologies like System of Rice Intensification (SRI) and agroecological farming have the potential to lower water use in rice production by around 15-30 %.[4]

Sudan

In Sudan EU's Water Scarcity Footprint comprises

85 % Raw sugar

8 % Bioethanol

7 % other products

India

In India, **cotton and yarn imports** contribute to almost half of the EU's Water Scarcity Footprint, followed by **rice (29 %)** and **sugar cane (10 %)**. The bulk of India's cotton is grown in dry regions, where the amount of water needed for cotton production is twice as high as the world average due to droughts, higher temperature and inefficient irrigation. Still, the government subsidises water intensive crops such as cotton and sugar cane. This triggers unsustainable water use. India has the world's fastest rate of groundwater decline. Due to significant economic risks, cotton areas in particular display the highest rates of smallholder farmers' suicides. At the same time, India provides 2/3 of the world's organic cotton, an important alternative with the potential to protect nature and people's livelihoods.[7]

Mozambique

Over the last ten years, **sugar** exports to the EU-28 have tripled. **Sugar cane** cultivation is highly water-intensive. The drainage or conversions of wetlands to plantations affect water cycles, and therewith local farming and food systems. Especially in semi-arid regions in the south west, swamps and wetlands are of high importance to local communities during dry seasons.[9]

Turkey

More than half of Turkey's land area is used by agriculture. The EU's Water Scarcity Footprint is caused mainly by **cotton (80 %)** and **nut (15 %)** imports. The country is the world's leading hazelnut exporter, whose production requires a very high irrigation. Droughts, several decades of publicly funded surface irrigation and private groundwater irrigation schemes have increased water scarcity. Annual water withdrawals are expected to exceed 20 % of the annual renewable water supply, Turkey is at risk of suffering water stress in the next decade.[5]