

Glossary

Blue water – fresh surface and groundwater (Hoekstra and Chapagain, 2008).

Blue virtual-water content (V_b) – volume of surface and groundwater consumed as a result of the production of a good or service (m^3/ton). Consumption refers to the volume of freshwater used and then evaporated or incorporated into a product. It also includes water abstracted from surface or groundwater in a catchment and returned to another catchment or the sea. It is the amount of water abstracted from ground- or surface water that does not return to the catchment from which it was withdrawn (Hoekstra et al., 2009).

Crop water requirement (CWR) – is defined as the total water needed for evapotranspiration, from planting to harvest for a given crop in a specific climate regime, when adequate soil water is maintained by rainfall and/or irrigation so that it does not limit plant growth and crop yield ($mm/time\ period$) (Allen et al., 1998).

Effective rainfall (P_{eff}) – the portion of the total precipitation that is retained by the soil so that it is available for crop production ($mm/time\ period$) (FAO, 2009).

Environmental flow (EF) – is the water regime provided within a river, wetland or coastal zone to maintain ecosystems and their benefits (Dyson et al., 2003).

Environmental flow (or water) requirement (EFR or EWR) – refers to the quantity, quality and timing of water flows required to sustain freshwater and estuarine ecosystems and the human livelihoods and well-being that depend on these ecosystems (The Brisbane Declaration, 2007).

External water footprint (WF_e) – is defined as the annual volume of water resources used in other countries or regions to produce goods and services consumed by the inhabitants of the country or region concerned ($km^3/year$, $m^3/capita/year$) (Hoekstra and Chapagain, 2008).

Food security – Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (WFS, 1996). A situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (SOFI, 2001) (FAO, 2009).

Green virtual-water content (V_g) – of a product is the volume of rainwater that evaporated during the production process. This is particularly relevant for agricultural or forestry products, where it refers to the total rainwater evapotranspiration (from fields and plantations) plus the water incorporated into the harvested crop or wood (Hoekstra et al., 2009).

Green water – rainwater stored in the soil as soil moisture, also called soil water. Eventually, this part of precipitation evaporates or transpires through plants. Green water can be made productive for crop growth (but not all green water can be taken up by crops, because there will always be evaporation from the soil and because not all periods of the year or areas are suitable for crop growth) (Falkenmark, 1995; Hoekstra et al., 2009).

Gross value added (GVA) – is the value of goods and services produced in an economy at different stages of the productive process (million €). The gross value added at market prices is equal to the gross output (value of production) minus the intermediate consumption.

Internal water footprint (WF_i) – is defined as the use of domestic water resources to produce goods and services consumed by inhabitants of a country or region (km³/year, m³/capita/year) (Hoekstra and Chapagain, 2008).

Net Income – is equal to the income that a firm or a nation has after subtracting costs and expenses from the total revenue. Net income is an accounting term. It refers to the GVA plus subsidies and taxes, minus the consumption of fixed capital and salary payments, rentals and interests.

Value of production – is defined as the total economic value received for the commodities sold in the market (total €).

Virtual-water content (V) – the virtual-water content of a product (a commodity, good or service) is the volume of freshwater used to produce the product, measured at the place where the product was actually produced (production-site definition) (m³/tonne) (Allan, 1997; Hoekstra and Chapagain, 2008). The use of the term “embedded water” as a “virtual water” synonym could be misleading since the word “embedded” seems to refer to the actual water content of the finished product.

Virtual-water flow or trade – The virtual-water flow between two geographically delineated areas (e.g. two nations) is the volume of virtual water that is being transferred from the one to the another area as a result of product trade (Hoekstra et al., 2009).

Water footprint (WF) – is an indicator of water consumptive use that looks at both direct and indirect water use of a consumer or producer (Hoekstra, 2003). The water footprint of an individual, community or business is defined as the total volume of freshwater that is used to produce the goods and services consumed by the individual or community or produced by the business (km³/year, m³/capita/year). Water use is measured in terms of water volumes consumed (evaporated) and/or polluted per unit of time. A water footprint can be calculated for a particular product, for any well-defined group of consumers (e.g. an individual, family, village, city, province, state or nation) or producers (e.g. a public organization, private

enterprise or economic sector). The water footprint is a geographically explicit indicator, not only showing volumes of water use and pollution, but also the locations (Hoekstra et al., 2009).

Water scarcity taking EWR into account – refers to the proportion of water consumption with respect to water available to human use. Water available to human use is equal to the total amount of water available in the basin minus the estimated environmental water demand (the water needed by the ecosystem to sustain its integrity) (Smakhtin et al., 2004). Water scarcity occurs where there are insufficient water resources to satisfy long-term average requirements (EEA, 2009).

References

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