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Water footprint as a tool for integrated water resources management

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In a context where water resources are unevenly distributed and, in some regions precipitation and drought conditions are increasing, enhanced water management is a major challenge to final consumers, businesses, water resource users, water managers and policymakers in general. By linking a large range of sectors and issues, virtual water trade and water footprint analyses provide an appropriate framework to find potential solutions and contribute to a better management of water resources.

The water footprint is an indicator of freshwater use that looks not only at direct water use of a consumer or producer, but also at the indirect water use. The water footprint of a product is the volume of freshwater used to produce the product, measured over the full supply chain. It is a multi-dimensional indicator, showing water consumption volumes by source and polluted volumes by type of pollution; all components of a total water footprint are specified geographically and temporally. The water footprint breaks down into three components: the blue (volume of freshwater evaporated from surface or groundwater systems), green (water volume evaporated from rainwater stored in the soil as soil moisture) and grey water footprint (the volume of polluted water associated with the production of goods and services). Closely linked to the concept of water footprint is that of virtual water trade, which represents the amount of water embedded in traded products. Many nations save domestic water resources by importing water-intensive products and exporting commodities that are less water intensive. National water saving through the import of a product can imply saving water at a global level if the flow is from sites with high to sites with low water productivity. Virtual water trade between nations and even continents could thus be used as an instrument to improve global water use efficiency and to achieve water security in water-poor regions of the world.

The virtual water trade together with the water footprint concept could thus provide an appropriate framework to support more optimal water management practices by informing production and trade decisions and the development and adoption of water efficient technology. In order to move towards better water governance however a further integration of water-related concerns into water-related sectoral policies is paramount. This will require a concerted effort by all stakeholders, the willingness to adopt a total resource view where water is seen as a key, cross-sectoral input for development and growth, a mix of technical approaches, and the courage to undertake and fund water sector reforms. We are convinced that the water footprint analysis can provide a sufficiently robust fact base for meaningful stakeholder dialogue and action towards solutions.