Water footprint of Spain

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Virtual water is the volume of water (green and/or blue) used to produce a good or service (Allan, 1993, 2003).

1 kg wheat …….. 1,300 litres water
1 kg beef ……. 16,000 litres water

Water Footprint is the total volume of water (green and blue) that is used to produce the goods and services consumed by an individual or community (about 70% for food) (Hoekstra and Hung, 2002).

USA …… 2,480 m^3/capita/year
Spain ….. 2,325 m^3/capita/year
India …….. 980 m^3/capita/year
China ……. 700 m^3/capita/year

It requires about 1 m^3 of water to produce a kilo of grain.

If the kilo of grain is imported to a water short region,

then that economy saves the economic and political stress of mobilising about 1 m^3 of water.

Virtual water reduces the demand on local water resources (green and blue) thereby:

alleviating impacts on the local water used to provide:

1. Ecological services
2. Other more lucrative uses

From

“More crops and jobs per drop”

Towards

“More cash and nature per drop”

Today water crisis,
and most hydrological conflicts,
are not caused by physical scarcity of water.
They are mainly due to poor water management.

Spain

Spain ~100 km^3/year (Chapagain and Hoekstra, 2004):

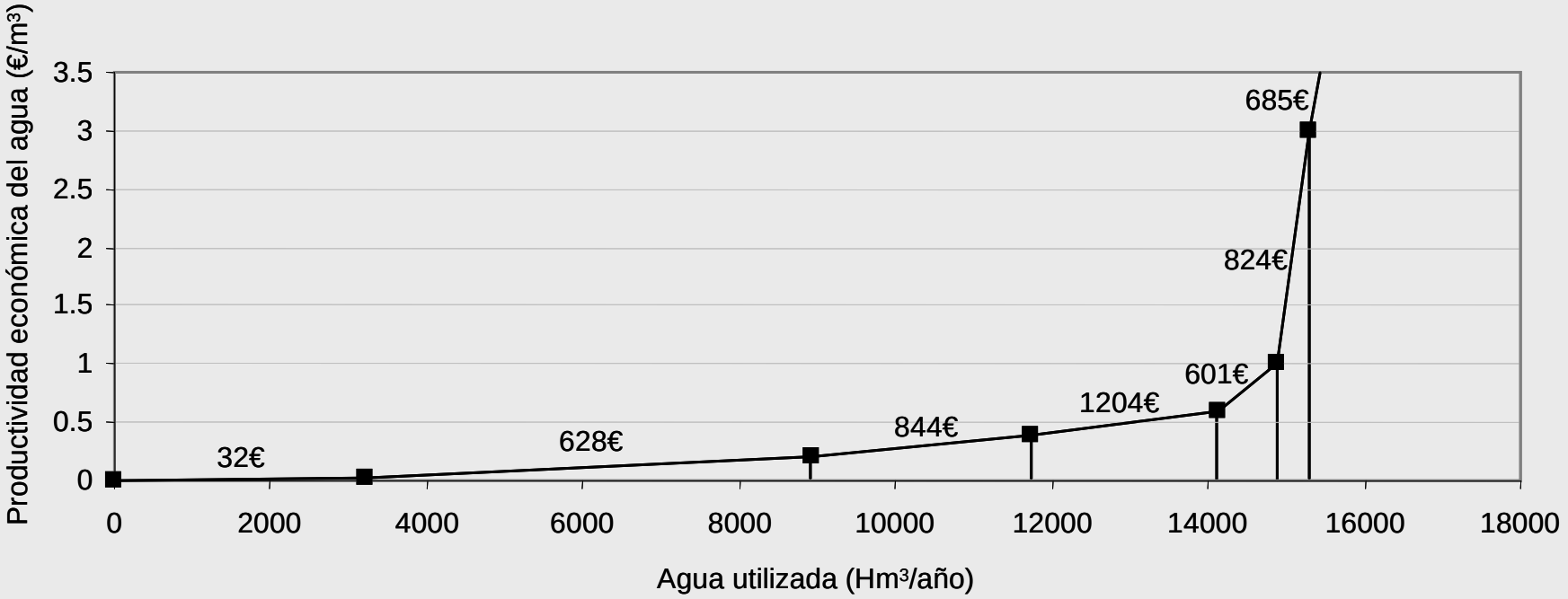
5% urban water supply

80% food production → 27 km^3/year imports (cereals)

15% industrial products → 17 km^3/year exports (citrus fruits, vegetables, olive oil)

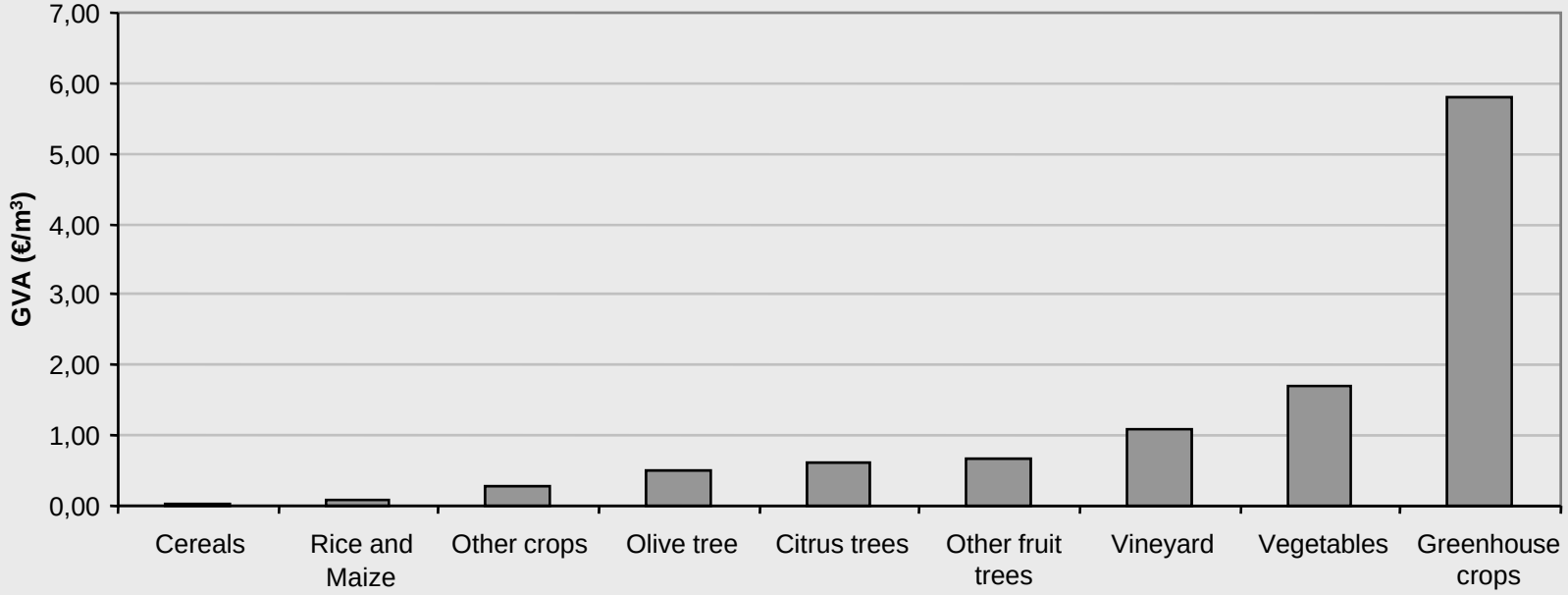
2. Water Footprint of Spain

Economic value produced by the different types of irrigated agriculture in Spain.
Data for 78% of the hectares.



Source: Aldaya et al. (2008)

Water apparent productivity (Gross Value Added per cubic metre –GVA/m^3) per crop type in irrigated agriculture in Spain for the year 2001-2002. Data for 78% of the irrigated area.



Source: based on data from the Spanish Ministry for the Environment (2007)

The Water Footprint,
both hydrological and economic,
is crucial for a better allocation of
water resources

Water Footprint analysis of Spain

1. Green and blue water (rainfed and irrigated agriculture)
2. Blue water (surface and groundwater)
3. Consider economic aspects
4. Allow for climatic variability over time (average rainfall, dry and humid)
5. European level: River basin scale (WFD)
6. Interdisciplinary team

Thank you