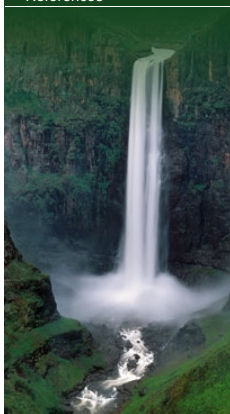# Orange-Senqu
River Awareness Kit

THE RIVER BASIN | PEOPLE AND THE RIVER | GOVERNANCE | RESOURCE MANAGEMENT

Resource Management

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➡ The Value of Water:

Costs of Ecosystem Services

According to Freeman (1993) and Matete (2004), "ecological value is estimated from the utility humans derive from using ecological services. […] It then follows that the basis for deriving measures of economic value of the environment and goods and services it provides is their effects on human welfare".

It is easy to take ecosystem services for granted, especially when there is a disconnection between the end product and the services. We rely on ecosystem services to survive and have to recognise their importance in terms of function and economic value.

Economic valuation of ecosystem services allows for the benefits of ecosystem services to be quantified and justified. This is a hotly debated topic with a number of studies providing value estimations for a number of essential services, resulting in a wide range of values for the same services. The table below is a summary of the range of economic values that have been assigned to aquatic ecosystem services on a global scale, and more specifically in developing countries (Forslund *et al.* 2009).

Table: Economic values of aquatic ecosystem services reported in recent literature.

Type of value	Service provided	Range of economic values reported in the literature	
		Global estimate (USD/ha/year)	Developing countries (USD/ha/year)
Direct Use	Water for people	45-7500	50-450
	Fish/shrimp/crabs (non-recreational)	20013	6-750
	Fertile land for flood-recession agriculture and grazing	40-520	3-370
	Wildlife (for food)	40-520	0.02-320
	Vegetables and fruits	40-470	1-200
	Fibre/organic raw material	4513	1-40
	Medicine plants Inorganic material	25-160	0.1-63
Indirect Use	Chemical water quality control (purification capacity)	60-6700	20-1400
	Flood mitigation	15-5500	2-1700
	Groundwater replenishment	10-90	10-90
	Erosion control	20-120	20-120
	Carbon trapping (sequestration)	130-270	2-2000
	Microclimate stabilisation		1026
Potentially all (direct and indirect use, option, bequest and existence	Recreation and tourism (incl. fishing and hunting)	230-3000	20-260
	Biodiversity conservation		0.6-3600
	Cultural/religious/historical /symbolic activities	30-1800	8026
Total Economic Values*		120-370	30-2900

*Source: (Emerton & Kekulandala (2002), Turpie et al. (1999), Emerton et al. (2002), Iftikhar (2002), Emerton (1994), IUCN (2001), Emerton et al. (1999), Rosales et al. (2003), Gerrard (2004), De Groot (1992), Kirkland (1988), Thibodeau & Ostro (1981), Schuyt & Brander (2004), Busk (2002), Chowdhury (2003), Rogers et al. (1998), Sadoff et al. (2003), Karanja et al. (2001), Seyam et al. (2001), Acharya (2000), Woodward & Wui (2001), Brown (1991), MRCS (1998), Ringler & Cai (2003), Pyo (2002), Seild & Moraes (2000), Schuyt & Jansen (1999), Christensen (1982), Sathirathai (1998), Bann (1997), Drew et al. (2005), Costanza et al. (1997).) As quoted in **Forslund et al. 2009***

* Values as assigned by the literature, not a sum of ranges minimums and maximums

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Explore the sub-basins of the Orange-Senqu River
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