

The state and prospects of water resources in Asia: a case for a new sustainability approach?

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Fresh water is a key natural resource which is becoming increasingly scarce. At present, almost 6 000 km³ of fresh water per annum is needed to satisfy the needs of all water related sectors globally. The most water demanding sector is agriculture, which on its own takes almost 70% (!) of fresh water, mainly for irrigation. Other sectors – households, industry and hydropower – account for remaining 30 % of the global water use.

Asia has already at present by far the largest water use of all the continents– almost 3 500 km³ of fresh water per annum, most of it needed for irrigation and agricultural production. Expected population growth in Asia over coming decades and therefore increasing food demand, together with changing dietary habits in many of the fast growing Asian countries towards more water intensive food stocks, mean sharply growing water use over the next couple of decades. Meeting this increasing water demand in Asia over the next couple of decades present perhaps one of the biggest “sustainability challenges” of the planet.

Decreasing water resources availability in the future will be caused not only by global warming related processes such as changing monsoon rainfall patterns and glacial melting, but also due to salinity problems, caused by rapidly increasing salt intrusion due to sea level rise and coastal land subsidence. In Bangladesh, as well as in several Mekong delta countries, increasing salinity of surface waters has already become one of the major causes of severe fresh water shortages for agriculture and for large coastal megacities.

Water resources for human use will become more and more scarce also as a consequence of “indirect causes”, such as possibility of future large scale legislation concerning sustaining of environmental flows or the minimum river flow requirements to assure necessary health standards.

Large future development of new dams and reservoirs, especially in South East Asia, will bring along new and complex issues of transboundary water management and transboundary water governance.

In this presentation, several most up to date scenarios for water resources availability and for water demand for Asian continent will be discussed, together with a number of plausible, integrated Earth system visions and solutions about how to prevent possibility of a looming water crisis in some parts of the Asia during coming decades.