A service and value based approach to estimating environmental flows

An important challenge of Integrated Water Resources Management (IWRM) is to balance water allocation between different users and uses. While economically and/or politically powerful users have relatively well developed methods for quantifying and justifying their water needs, this is not the case for ecosystems – the silent water user. Therefore, ecosystems are frequently omitted from water allocation decision-making. In IWRM, environmental flows may serve to represent water for ecosystems. As ecosystems, in turn, provide services to people, providing for environmental flows is not exclusively a matter of sustaining ecosystems but also a matter of supporting humankind/livelihoods. One reason for the marginalisation of environmental flows is the lack of operational methods to demonstrate the inherently multi-disciplinary link between environmental flows, ecosystem services and economic value. This paper aims at filling that gap by presenting a new environmental flows assessment approach that explicitly links environmental flows to (socio)-economic values by focusing on ecosystem services. This Service Provision Index (SPI) approach is a novel contribution to the existing field of environmental flows assessment methodologies. The SPI approach is a pragmatic and transparent tool for incorporating ecosystems and environmental flows into the evaluation of water allocation scenarios, negotiations of trade-offs and decision-making in IWRM.

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