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Hydro-economic modeling of the role of forests on water resources production in Andalusia, Spain

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The development of more refined information tools is a pre-requisite for supporting decision making in the context of integrated water resources management. Among these tools, hydro-economic models are favoured because they allow integrating the ecological, hydrological, infrastructure and economic aspects into a coherent, scientifically-informed framework. We present a case study that assesses physically the water resources of forest lands of the Andalusia region in Spain and conducts an economic environmental income and asset valuation of the forest surface water yield. We show how, based on available hydrologic and economic data, we can develop a comprehensive water account for all the forest lands at the regional scale. This forest water environmental valuation is part of the larger RECAMAN project, which aims at providing a robust and easily replicable accounting tool to evaluate yearly the total income an capital generated by the forest land, encompassing all measurable sources of private and public incomes (timber and cork production, auto-consumption, recreational activities, biodiversity conservation, carbon sequestration, water production, etc.). Only a comprehensive integrated tool such as the one built within the RECAMAN project may serve as a basis for the development of integrated policies such as those internationally agreed and recommended for the management of water resources.