Integrated assessment and mapping of provisioning services for sustainable management of natural resources, the case of Lake Hawassa Basin, Ethiopia: a supplementary report

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Lake Hawassa Basin (LHB)-the study area is known for its rich and diverse aquatic and terrestrial natural resource base. However, the prevailing environmental and social problems, such as land degradation, deforestation, pollution, resource exploitation, etc. impacted the existing provisioning services (PS), and the effect becomes remarkable unless sound management is in place. The study aimed at the assessment and mapping of PS to suggest development options for decision-makers. The study employed various methods including primary and secondary data collection, including existing Land Use Land Cover (LULC), desk review, stakeholder consultations, site visits, expert judgment matrix, and ArcGIS v10.1. The study results include 6 PS identified and prioritized from the existing 14 PS, mapping of the spatial pattern of the selected 6 PS at the basin scale, and alternative development options recommended for the decision-making process conducted by decision-makers and development partners to ensure efficient management of ecosystem services in LHB. The importance of this study, as well as the simplicity and user-friendly nature of the methods and approach adopted, enables interested parties to replicate while conducting similar studies in different places within the country or globally. The intervention of adopting this study approach helps also to avoid or minimize the aforesaid biophysical and socioeconomic environmental problems and ensure development activities planned or implemented in the respective study area are environmentally friendly, and socially acceptable, through sustainable management of natural resources. In this regard, decision-makers and development partners shall provide adequate consideration for this study approach and the result of demonstrating basin scale spatial variability of PS. This plays a vital role in the sustainable management of natural resources as well as provisioning services existing in the study area to benefit the community members, ensure human well-being, and secure the livelihood of the people residing within or around the Lake Hawassa Basin.

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