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The Basin Management Methodology for Integrated Water Resources Management and Development

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Abstract : The challenges of water management are aggravated by global change, which implies high complexity and associated uncertainty; water management is difficult because water networks cross domains (natural, societal, and political), scales (space, time, jurisdictional, institutional, knowledge, etc.) and levels (area: patches to global; knowledge: a specific case to generalized principles). In this context, we need to apply natural and non-natural measures to manage water and soil. The Basin Management Methodology considers multifunctional measures of natural water retention and erosion control and soil formation to protect water resources and address the challenges related to the recovery or conservation of the ecosystem, as well as natural characteristics of water bodies, to improve the quantitative status of water bodies and reduce vulnerability to floods and droughts. This method of water management focuses on the positive impacts of the chemical and ecological status of water bodies, restoration of the functioning of the ecosystem and its natural services; thus, contributing to both adaptation and mitigation of climate change. This methodology was applied in 7 interventions in the sub-basin of the Shullcas River in Huancayo-Junín-Peru, obtaining great benefits in the framework of the participation of alliances of actors and integrated planning scenarios. To implement the methodology in the sub-basin of the Shullcas River, a process called Climate Smart Territories (CST) was used; with which the variables were characterized in a highly complex space. The diagnosis was then worked using risk management and adaptation to climate change. Finally, it was concluded with the selection of alternatives and projects of this type. Therefore, the CST approach and process face the challenges of climate change through integrated, systematic, interdisciplinary and collective responses at different scales that fit the needs of ecosystems and their services that are vital to human well-being. This methodology is now replicated at the level of the Mantaro river basin, improving with other initiatives that lead to the model of a resilient basin.

Keywords : climate-smart territories, climate change, ecosystem services, natural measures, Climate Smart Territories (CST) approach
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