



RESEARCH  
PROGRAM ON  
Forests, Trees and  
Agroforestry

# FTA 2020 Science Conference

Forests, trees and agroforestry  
science for transformational change

14-18 | 21-25  
September 2020

A decorative graphic on the left side of the page, consisting of several overlapping, 3D-style rectangular blocks in various colors (orange, teal, red, olive, light green, purple) that resemble a stack of books or a staircase. The blocks are arranged in a descending staircase pattern from top-left to bottom-right.

# Book of Abstracts

Corrigendum of 10.03.2021

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# The decision context for nature-based solutions in a Peruvian watershed: Adaptation in people's minds and on the ground

Nature-based solutions (NBS) are receiving increasing attention for adapting to change climate and reducing its impacts on water resources. There is a growing interest and awareness of the value of managing, conserving and restoring ecosystems for their role in regulating water, protecting soils and increasing the resilience of social–ecological systems in watersheds. In the Peruvian mountains, some adaptation programs emphasize NBS options, such as the conservation of cloud forests, the restoration of forest cover, and the conservation or restoration of wetlands and grasslands. At the same time, other adaptation programs focus on technological and infrastructure options based on bricks-and-mortar, such as dams, reservoirs and water treatment facilities. In between, traditional options have been used for centuries by local communities to address water problems by combining NBS and small-scale infrastructure. The different options have a potential for providing water adaptation benefits but they differ greatly, for example, in terms of equity (e.g. when a dam benefits mostly urban and powerful actors) and co-benefits (e.g. scenic beauty, carbon sequestration or wild plant supply). Decision-making on adaptation options is challenging because of the lack of knowledge on the effectiveness of different solutions and because of the diverging opinions on their relevance among decision-makers. Using mixed methods, this study analyzes options for adaptation and water management in the Andes in Peru. We propose a critical analysis of decision contexts and the implications of adaptation options for ecosystem services and equity. We identify different doctrines and preferences for technological or NBS options and relate them to stakeholder worldviews. The contrasting discourses on adaptation options can be associated with different conceptions of equity and different opinions on the role of government, communities and the private sector in water management. We also explore whether some options are favored by decision rules and power relations. Analyzing the interactions between stakeholders and ecosystem services and understanding the trade-offs between ecosystem services can help explain the different positions in favor of or against NBS. This research highlights the importance of power relationships in adaptation decision-making, as such relationships favor the values and knowledge of some stakeholders and give priority to their preferred adaptation options.

## KEYWORDS

Adaptation, climate change, nature-based solution, water, mountain

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