Protecting and restoring rivers during a period of global transitions and transformations

Protéger et restaurer les fleuves à une époque de transitions et de transformations mondiales

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Climate change will drive a set of global transitions that will have dramatic impacts on the health, connectivity and productivity of the world's rivers. Currently, approximately one-third of the world's rivers remain free-flowing. The energy transition, featuring a dramatic expansion of renewable electricity generation, is projected to include a doubling of global hydropower capacity, a level of hydropower development that would result in the damming of half of the remaining large free-flowing rivers in the tropics—those rivers with the highest value in terms of ecosystem services for people and greatest richness of freshwater species. Further, the frequency and magnitude of floods are projected to increase in much of the world due to climate change, particularly in the tropics and sub-tropics. Alongside shifts in land use and population growth, this increase in flood risk is likely to drive a large increase in investment in dams and levees, decreasing river-floodplain connectivity along rivers that depend on that connectivity for their productivity. Finally, rivers—through their flows of water, sediment and nutrients—directly support at least 1/3 of global food supplies. Global transitions in food production, driven by shifts in climate, population and competing land uses, have the potential to drive further changes to the world's rivers. In short, over the coming decades, the world's policies and investment flows will be focused on these transitions in energy, adaptation and food production, and all of these will have profound influences on the world's rivers. Those who seek to protect and sustainably manage rivers will need to work directly with these transitions to minimize negative impacts but, importantly, to also seize potential opportunities. For example, the comprehensive integration of Nature-based Solutions into flood management has the potential to achieve multiple objectives of flood-risk reduction and river conservation and restoration.

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ABSTRACT

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KEYWORDS

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