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Transnational governance in mountain regions: Progress and prospects

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ABSTRACT

The number of transnational governance mechanisms specifically relating to mountains is limited. Using the three axes of the framework developed by [Balsiger and VanDeveer \(2012\)](#) – agency, substance, and territoriality – this paper reviews progress in this domain and looks forward. It introduces themes for transnational governance of mountains in the context of the Rio conferences of 1992 and 2012 and then presents progress with regard to governance arrangements in different regions of the world, first, for biodiversity and related issues and, second, for sustainable (mountain) development. As well as state actors, many nonstate actors are involved in these arrangements; these actors are discussed. The paper concludes with conclusions regarding transnational governance in mountain areas to date and identifies future actions in the realms of monitoring, research and policy.

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1. Introduction

The scope of the field of transnational governance is very wide, encompassing institutions at many scales, addressing an immense range of issues, and involving a great diversity of actors (e.g., [Hale and Held, 2011](#)): it “is embedded in particular geopolitical structures and hence enveloped in multiple and interacting institutional webs” ([Djelic and Sahlin-Andersson, 2006](#): 4). It is therefore a complex phenomenon, and this paper will not seek to summarize the literature, as this has been done recently by, for example, [Margulis and Porter \(2013\)](#). In the closely related field of regional environmental governance, [Balsiger and VanDeveer \(2012: 7–8\)](#) have proposed that each governance arrangement can be described according to three axes: (1) agency, ranging from formal intergovernmental coordination to “informal arrangements such as transnational networks of state and nonstate actors”, (2) substance,

varying from single issues to sustainable development, and (3) territoriality, ranging from groups of nation-states to ecologically defined regions. These axes “are conceptualized as continuous ranges”, and the “positioning of any governance arrangement may evolve over time”. [Balsiger and Prys \(2014\)](#) note that such arrangements may be spatially contiguous or non-contiguous (e.g., between states that are not adjacent). Nevertheless, when empirical examples of regional governance arrangements are situated in the three-dimensional space generated by the three axes, there are few ecoregional, multi-actor, cross-sectoral examples: most have a jurisdictionally defined territorial application area, are intergovernmental, and focus on single issues. As discussed in this paper, transnational governance arrangements in mountain regions are an exception to this general rule.

The word ‘transnational’ refers to something that extends beyond national borders. Topographic features that often define these borders – as well as administrative boundaries

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within nation-states – are rivers and mountain ridges. These two sets of features are also linked: mountain ridges define the margins of many river basins or watersheds (except along coasts, their boundary at sea level) and therefore, in topographic terms, defining the boundaries of river basins is relatively simple. Furthermore, when rivers – and their basins – are shared between multiple national jurisdictions, these often recognize shared interests or, conversely, there is potential for conflict. Significant resources have been invested in compiling quantitative evidence in this field at the global scale, such as the International River Boundaries Database (<https://www.dur.ac.uk/ibru/resources/irbd/>), the Shared River Basin Database (<http://www.prio.no/Data/Geographical-and-Resource-Datasets/Shared-River-Basin-Database/>), and the Transboundary Freshwater Dispute Database (<http://www.transboundarywaters.orst.edu/database/DatabaseIntro.html>). These show that transnational river basins cover about 45% of the Earth's land surface and host about 40% of the global population; and that a large number of transboundary water agreements have been enacted since the late 19th century. There is an extensive literature on these (e.g., [Brochmann, 2012](#); [Gerlak et al., 2011](#)).

In all of the above contexts, mountains (and mountain ranges) contrast significantly with rivers (and river basins). First, while mountain ridges can be quite easily identified using topographic criteria, this is less true for mountain ranges, as perceptions of what is 'mountain' – and, particularly, where terrain changes at lower altitudes from 'mountain' to something else – vary and, until recently, there have been no widely agreed topographic criteria used to define mountains ([Debarbieux and Rudaz, 2015](#)). This situation has changed to some extent in recent years through the use of digital elevation models, allowing definition, mapping, and description of mountains and their characteristics at the global ([Kapos et al., 2000](#); [Blyth et al., 2000](#)) and regional (e.g., [European Commission, 2004](#); [European Environment Agency, 2010](#)) scales. However, while these definitions of mountains – which show that they cover about 24% of the Earth's land surface and host about 12% of the global population ([Huddleston et al., 2003](#)) – have been accepted by intergovernmental organizations and used as a starting point for a number of studies and reports, they have not yet been used to delimit the areas to which transnational governance mechanisms apply, as discussed below. Second, both the number of transnational governance mechanisms specifically relating to mountains and the related literature remain quite limited in number, as discussed by [Debarbieux and Rudaz \(2015\)](#), elsewhere in this special issue, and below. Notably, while [Balsiger and Prys \(2014\)](#) identify freshwater as a category of regional environmental agreements, they do not differentiate mountains as a separate category.

The purpose of this paper is to review progress relating to transnational governance in mountain regions and to look forward. It draws on the other papers in this special issue of *Environmental Science and Policy* as well as wider literature from a wide range of disciplines. Following this introduction, and with reference to the framework of [Balsiger and VanDeveer \(2012\)](#), the article first introduces themes for the transnational governance of mountains, with two sub-sections addressing key themes that have been emphasized

in this international mountain context over the past two decades. The first focuses primarily on biodiversity, often in connection with other issues; the second primarily on sustainable development. Next, key nonstate actors operating at various levels are presented and discussed. The final section of the paper presents conclusions regarding possible paths for transnational governance in mountain regions.

2. Substance: themes for transnational governance of mountains

At the 1992 United Nations Conference on Environment and Development (UNCED), mountains emerged as a specific theme on the global environment and development agenda through the inclusion of a specific chapter (number 13) on 'Managing fragile ecosystems: Sustainable mountain development' in 'Agenda 21', the plan of action approved by the majority of the world's heads of state or government ([Debarbieux and Price, 2008](#)). Three conventions (the 'Rio conventions') were also signed at UNCED: the Convention on Biological Diversity (CBD), the United Nations Framework Convention on Climate Change (UNFCCC), and the United Nations Convention to Combat Desertification (UNCCD). In terms of their scope, these conventions and Chapter 13 intersect in various ways. Thus, Chapter 13 starts by noting that "Mountains are an important source of water, energy and biological diversity", and in 2004, the Conference of Parties to the CBD approved a programme of work on mountain biodiversity. The UNFCCC recognizes that "developing countries with fragile mountainous ecosystems are particularly vulnerable to the adverse effects of climate change". While the UNCCD and related meetings have not specifically considered mountains, it has been estimated that dryland mountains account for 35% of the global area of mountains and a similar proportion of their inhabitants ([FAO et al., 2011](#)). Particularly in arid and semi-arid areas, but also at the global scale, mountains have been recognized as vital sources of freshwater ([Viviroli et al., 2011](#)).

These issues are brought together in 'The Future We Want', the final document of the 'Rio + 20' UN Conference on Sustainable Development ([United Nations General Assembly, 2012](#)), which recognizes that "the benefits derived from mountain regions are essential for sustainable development. Mountain ecosystems play a crucial role in providing water resources to a large portion of the world's population; fragile mountain ecosystems are particularly vulnerable to the adverse impacts of climate change, deforestation and forest degradation, land use change, land degradation, and natural disasters; and mountain glaciers around the world are retreating and getting thinner with increasing impacts on the environment and human well-being" (para 210) and calls for "greater efforts towards the conservation of mountain ecosystems, including their biodiversity" (para 212).

In addition to the themes of water, sustainable development, biodiversity, and climate change, a further theme of regional, and sometimes global, relevance has long been associated with mountain areas: peace and security. "With few exceptions, the most numerous and obdurate conflicts in the world today occur in mountain zones" ([Starr, 2004](#): 169); a

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