Diversified Long-term Growth: A Winning Portfolio for Mountain Research

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Diversified Long-term Growth: A Winning Portfolio for Mountain Research

The diversity of membership in the Mountain Research Initiative (MRI) is one of its principal assets. This diversity is now exemplified in MRI's Science Leadership Council, composed of active mountain researchers from around the world and charged with leading the MRI. The first major task of the Science Leadership Council was the development of MRI's Strategic Plan, a document that makes explicit what has been implicit for years in MRI's activities. The Strategic Plan provides a common vision, a focused mission, a set of guiding principles, long-term goals, and more specific and measurable objectives. It provides the framework for MRI's most recent grant application to the Swiss National Science Foundation and similarly guides the progress of the MRI toward its vision.

A successful network

In October 2016, the Mountain Research Initiative (MRI) will celebrate its 15th year of existence. Since its inception, the MRI has been supported by the Swiss National Science Foundation (SNSF), its host institutions (the Swiss Federal Institute of Technology Zurich and, since 2007, the University of Bern), and, for specific projects, the Swiss Agency for Development and Cooperation. During this time, MRI has sought to weave various research threads into a coherent picture of global change in mountain areas. MRI's long-term growth has been, and will continue to be, the result of its ever-increasing and wisely leveraged human and thematic diversity.

From a handful of biophysical researchers in 2001, the MRI has grown to over 10,000 members in disciplines ranging from the biophysical to the social and political sciences. As part of MRI's recent proposal to the SNSF, we quantified this diversity (Figure 1) using data on expertise contained in our member database. Only about one quarter of MRI's members (2743 of 10,462 members at the time of the analysis) have shared information about their expertise. Although we would like to have all members include their expertise in their member profile (members can do so at any time at http://mri.scnatweb.ch/en/people), a sample of this size probably gives a reasonable estimate for the whole population. An MRI member can list multiple domains of expertise, and of the 2743 respondents, nearly half (1303) indicated expertise in both the social and biophysical realms, with 931 indicating expertise only in biophysical topics and 539 only in social topics. Figure 1 shows that, taken together, responses are more or less evenly split between the biophysical and social realms.

In 2013, the MRI capitalized on this wealth and diversity of expertise by inviting leading mountain scientists from around the world to form the MRI Science Leadership Council (SLC). At the current time, the SLC has 26 members from 16 countries on 5 continents (Figure 2). The SLC is itself quite diverse, with 12 women and 14 men covering disciplines including climatology, hydrology, ecology, economics, political science, and anthropology (see http://mri.scnatweb.ch/en/the-mri/team/scientific-leadership-council for more information on SLC members). The SLC joins forces with MRI's Swiss co-principal investigators (who submitted MRI's proposal to the SNSF) to accomplish MRI's mission.

The SLC not only advises the MRI Coordination Office but also, and more importantly, leads the research community toward the vision of the MRI enunciated in its Strategic Plan. It is probably good that groups of people can work together proximately, thinking that they agree about ultimate ends but without ever actually specifying those ends explicitly. However, it is hard to run a long-term program such as MRI without such explicit agreement. For that reason, the very first task of the SLC, starting in Kandersteg, Switzerland, in October 2014, was to develop the basic building blocks of MRI's Strategic Plan, namely a vision, mission, principles, goals, and objectives.

Vision

MRI's vision is an image of the world that MRI wishes to achieve (for more details, see its website).

> *MRI envisions a world in which society recognizes mountain regions as distinct social–ecological systems that provide unique and essential resources, and in which researchers and practitioners work together to manage and enhance the social, environmental, and economic capital of mountain environments.*

Although the vision should not need to be explained, it is worth emphasizing several features. First, the concept of "mountain social–ecological systems" is central to MRI: it is MRI's "unique selling point." Many other entities focus on research into elements of mountain systems (eg snow hydrology and mountain forestry), but MRI emphasizes the aggregation of these research themes into whole-system knowledge. And although MRI works most closely with researchers, it also seeks to promote cooperation with the world of practice with the ultimate goal of sustainability, that is, the maintenance and enhancement of environmental, social, and economic capitals essential to long-term sustainability (UNECE 2009).

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FIGURE 1 Distribution of expertise among a sample of MRI members. Biophysical disciplines are grouped on the right, and human and social disciplines on the left.

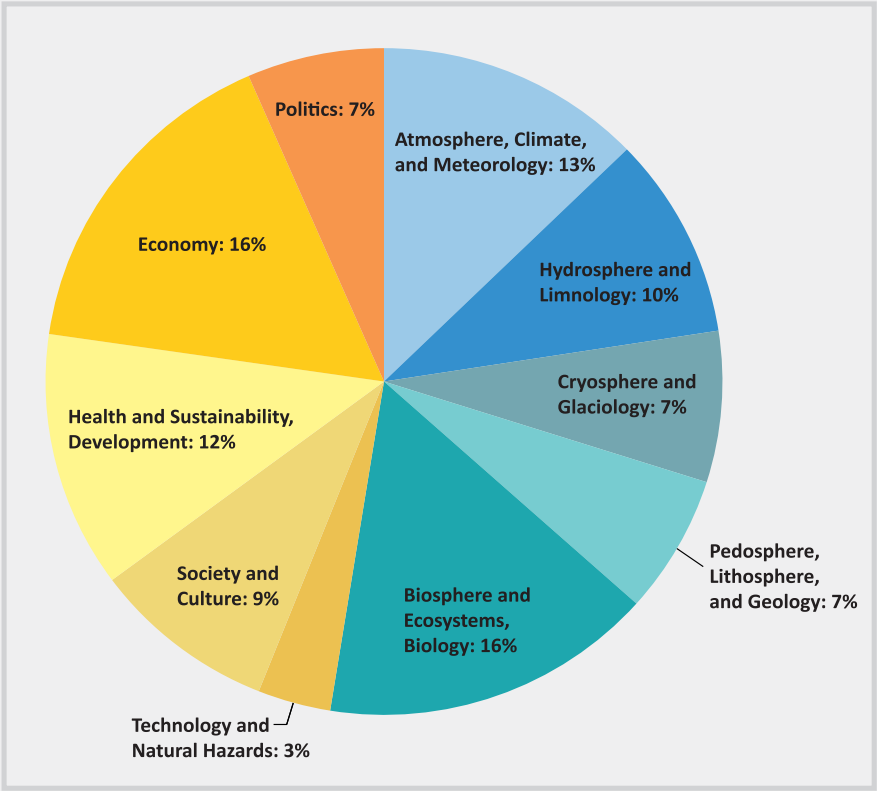
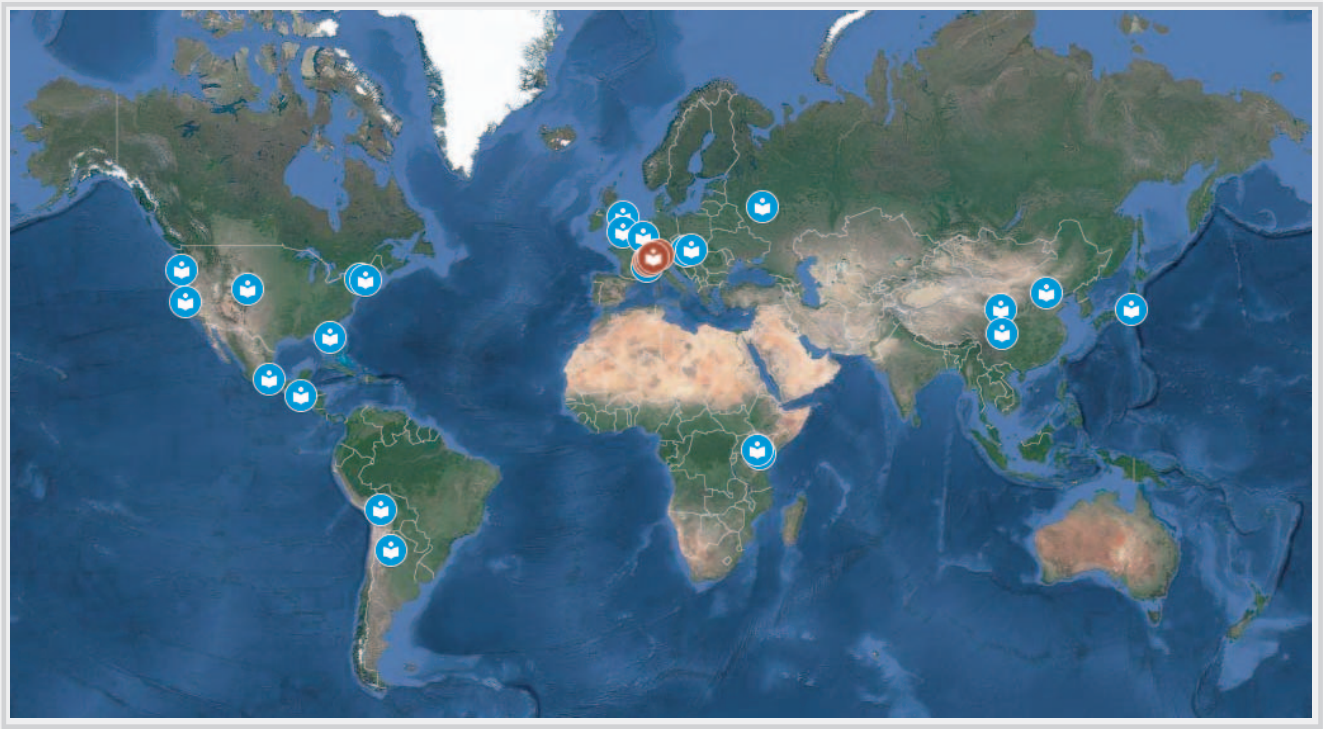


FIGURE 2 Work location of the 26 current members of the MRI SLC (blue) and MRI's 5 co-principal investigators (red). (Sources: Google maps and own data)



Mission

MRI's mission is its unique reason for existence:

> *The MRI's mission is to promote and facilitate research and scientific community development on global change in mountain regions to achieve sustainable mountain social–ecological systems.*
>
> *Sustainable mountain social–ecological systems will depend on a combined approach to understanding and effecting change in these environments. The MRI Coordination Office implements projects that link researchers with diverse disciplinary, geographic, and cultural backgrounds to explore areas of mutual interest and define possibilities for common action. The Coordination Office strives to keep the research community informed, and works with research organizations and funding agencies to ensure that mountain global change topics are recognized and addressed. It also supports common actions through targeted funding and communications and administrative support.*

A vast amount of what the Coordination Office does is the linking of researchers from diverse backgrounds in a search for common action. The office is constantly seeking alignment among the members of MRI, so that working together yields more for each participant than what that person alone could produce.

Principles

MRI's principles are the core values and philosophies that guide its actions.

- ***Mountain regions are social–ecological systems;*** *The MRI focuses on mountain regions as social–ecological systems (Ostrom 2009), building on a systemic approach across space, time, and disciplines that seeks to understand both the function of individual system elements and the cumulative effects of their interaction.*
- ***Knowledge is produced in many forms by many people;*** *MRI recognizes the importance of different kinds of knowledge gained through different modes of experience and seeks to promote synergies arising from the juxtaposition of these different kinds of knowledge.*
- ***Knowledge has a social role;*** *MRI values knowledge not just for its explanatory power for researchers but also for its larger social role in discovering routes toward sustainable mountain regions.*
- ***The great diversity within the mountain research community is an asset;*** *Mountain researchers are, like the mountains themselves, scientifically, culturally, and generationally diverse.*
- ***The progress of global change research in mountains requires both leadership and facilitation;*** *MRI seeks first of all to facilitate interactions among researchers in order to create networks that can accomplish more than individual researchers can achieve on their own, and at the same time MRI judiciously exerts leadership through its programs to keep them within the broad bounds of its vision and mission.*

Goals and objectives

MRI's goals and objectives are, respectively, the desired end results of its actions, and specific and concrete targets achievable in the near future (ie in about the next 5 years).

- ***Researchers working on global change in mountain regions form a more coherent and interactive community*** *through the SLC, global networking, regional networks, and communications.*
- ***MRI has processes that lead the community to identify and develop critical research topics*** *through Synthesis Workshops and common projects with Future Earth, an international research platform providing the knowledge and support to accelerate transformations to a sustainable world.*
- ***Mountain observations become more systematic, comprehensive, and pertinent*** *through the Global Network of Mountain Observatories and projects with the Group on Earth Observations as well as those funded through the Belmont Forum.*
- ***The MRI community achieves a robust and common understanding of mountain social–ecological systems*** *through a community-wide education program and common projects with other researchers interested in remote areas.*
- ***Training of the next generation of researchers interested in global change in mountains is promoted*** *through compilation of information about existing mountain-centric curricula, support for early-career researchers, and development of webinars on key topics.*
- ***The visibility of mountain concerns within existing scientific organizations is enhanced*** *through engagement in existing events and with global networks such as the Intergovernmental Panel on Climate Change and the Group on Earth Observations, and through the planning for Perth IV, a major mountain global change conference planned for 2020.*
- ***MRI engages in pertinent policy processes*** *through the Sustainable Mountain Development for Global Change Program of the Swiss Agency for Development and Cooperation and via key policy venues identified by the SLC.*

The Strategic Plan has already served MRI well as the conceptual framework for the current proposal to the SNSF. Beyond this proximate utility, the elements of the Strategic Plan align and leverage the diversity of the MRI staff, the members of the SLC, MRI's active members, and its entire mailing list so that we can collectively exert a *force* through a *distance*, which, if you remember your basic physics, accomplishes *work*!

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