Mountains are hotspots of global biodiversity

Mountains are hotspots of global biodiversity as they host more than half of the world’s biodiversity hotspots. They are also important centres of agro-biodiversity, with mountains representing an important genetic resource in assuring food security for a growing world population. Mountain biodiversity provides essential goods and services such as freshwater, plant genetic resources, and ecosystem goods and services.

Mountains are rich in endemic species, i.e., species that occur nowhere else. In fact, over 10% of the world’s plants are endemic.

- The proportion of protected mountain areas has increased eight-fold in the last 40 years.
- 6 of the 8 centres of agro-biodiversity for domesticated plants (‘Vavilov Centres’) are found in mountain areas.

Examples of policy implications

- The UN Convention on Biological Diversity, with its Work Programme on Mountain Biodiversity, provides a framework for action. Its implementation was confirmed by CBD COP 10.

- The international Treaty on Plant Genetic Resources provides rules that governments access, use, and benefit from genetic resources, including those in mountains.

- At the national level, policy action for biodiversity conservation should include valuation, capacity development, and participation.

- If financing criteria can be achieved through payment for environmental services (PES), community conservation, or the establishment of conservation landscapes.

At the World Summit on Sustainable Development (WSSD) in 2002, mountains were recognised for the first time as major ecosystems important at the global scale. The introduction of Chapter 13 on fragile mountain ecosystems into Agenda 21 brought highest political attention to mountains that contrasted with their usual marginalisation. Twenty years later, mountain matters more than ever but they are still treated as marginal. However, globalization and climate change have shown many political and economic leaders and humanists in general that mountains are crucial providing ecosystem goods and services.

In view of Rio+20, mountains need to be considered as a key core, both for governing the world economy and for identifying and implementing those critical ecosystems that will help to achieve true global sustainable development for the aim of a better future on earth. The TFAA, and their recognition in key instruments and processes – particularly in the three UN conventions on climate change, biodiversity and desertification – need to be emphasised.

Mountains also embody key global issues such as migration and urbanisation, food security, land degradation, conflicts, water supply, energy production, transport and waste management, biodiversity conservation and protected areas, tourism, the management of natural resources and climate hazards. However, their physical remoteness does not mean that mountain people and their environments should be overlooked by humanity. On the contrary, socially and culturally modern understanding and cooperation regarding mountains, the challenge of global sustainable development will not be achieved.

Moving Mountains to Rio 2012 and beyond

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Why mountains matter

Mountains provide key services and goods for all human- kind while also facing important challenges that threaten sustainable development at the global level. Sustainable Mountain Development (SMD) should have a place at the United Nations World Summit on Sustainable Develop- ment in Rio de Janeiro in 2012.

Mountains

- cover 27% of the Earth’s land surface
- are home to 12% of the world’s population, who live in an often stunning but also harsh and even inhospitable envi- ronment
- provide key resources such as minerals, timber, and the plant genetic resources of major food crops
- are major destinations for tourism, the fastest growing industry worldwide
- contain more than half of the world’s biodiversity hotspots.

However, mountains also

- include one-quarter of the world’s poorest and hungered people, who deserve the benefit of special efforts to re- duce poverty
- are among the regions most sensitive to and already affected by climate change, their ecosystems act as early indicators, for example through rapid glacier melting, with consequences for beyond mountain boundaries
- suffer from widespread and degradation that endangers livelihoods and triggers disasters which also affects lowland areas.

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Mountains provide opportunities for regional and global collaboration

Countries with mountain regions have different backgrounds in terms of population, economy, and culture, but they often face similar challenges. Mountain systems frequently cross several country borders and thus present many opportunities for transboundary collaboration. Co-operating and speaking with one voice will make it possible to address more effectively the challenges and opportunities of mountains in the context of global and climate change.

- 53 countries have over half of their territory in mountains.
- A smaller but still important proportion of mountain lands (25%-50%) is found in another 46 countries.
- Many countries have a much smaller proportion of mountains but are critically dependent on mountain goods and services such as freshwater and clean air.

- Transboundary collaboration has become more important in recent years for road and rail construction, water management, biodiversity conservation, and establishment of regional knowledge centres.

Examples of policy implications

- Promote dialogue among different mountain areas, actors and stakeholders.
- Share knowledge and experience among mountain regions and with isolated areas.
- Provide a voice to mountain people, particularly marginalized groups.
- Strengthen the establishment of mountain-specific institutions, laws and mechanisms to foster sustainable development.
- Enhance global political, economic and societal commitments to mountain dwellers and mountain ecosystems.

Mountains are a home, a source of income, and a place of diverse cultural heritage

Almost 1.35 billion people live in mountains. Their specific and diverse cultures are a world heritage, increasingly threatened by globalization. Many mountains have long been regarded by mountain people and others as sacred places by over a billion people in Asia. They provide space for recreation and have been considered by mountain people and others as sacred places.

- Mountains have a disproportionately high share of poor people on a global basis.
- Mountains provide a great diversity of land use systems that have helped to create impressive and labour-intensive cultural landscapes, e.g. terrace farming in rice terraces.
- Mountains are considered sacred in many parts of the world. Mount Kailash in China is considered the most sacred place by over a billion people in Asia.
- Mountains have an estimated share of 15-20% of global tourism, the world’s fastest growing industry. Tourism is an increasingly important source of growth and employment in many developing countries, including Least Developed Countries (LDCs), many of which are mountain countries.

Examples of policy implications

- Give the high poverty rate in many mountain regions, efforts are required to increase the income of mountain dwellers; diversification of livelihoods is an option for achieving this end.
- Policies and instruments need to be developed that stimulate investment in mountain infrastructure, promote local capacity building, and create links with the national and global economies.
- In tapping the potential of tourism for employment, economic growth, and poverty alleviation, a fair share of income must be secured for the local population and respect must be shown for local development agendas.
- Particular attention needs to be given to preserving mountain ecosystems, as they are the key lifeblood capital for future mountain generations.

Mountains are the water towers of the world

The world’s major rivers originate in mountains. More than half of humanity relies on freshwater from mountains for drinking, domestic purposes, irrigation, industry, and hydropower. Water is the world’s most important source of green and renewable energy, supplying nearly growing cities and centres of population in and around mountains. Due to climate change, less water will be available at times when it is needed most, while floods may increase in some places. These large-scale processes will impact on the development of mountain regions and have a negative effect on food security in many places.

- In arid areas mountains contribute 80 to 100% of the total runoff from river basins; in these regions, mountain water is extremely important for economic development, since mountain waters are also important in areas of higher rainfall during summer.
- 1.35 billion people – 20% of the total population – live in the basins of the 10 largest rivers in the Hindu Kush-Himalaya region. Rapid economic development in this region increasingly depends on mountain waters.

Examples of policy implications

- Despite increasing water scarcity, cooperation over water has been far more common that conflict; of all international river basins, 67% were cooperative and only 28% were conflictual. Efforts are needed to sustain or improve this situation.

- Recognize that careful management of mountain water is a global priority in a world heading towards a water crisis.

- Undertake major efforts to improve the management of mountain waters by:
  - Using water more efficiently for domestic and industrial purposes and for irrigation;
  - Revising river basins in order to achieve cooperation over water use.
  - Increasing water storage capacity at all levels, from local community reservoirs to large-scale dams.
  - Strengthening institutional arrangements such as water treaties, conventions, or collaborative basin management protocols, in order to share water equitably within or between nations.
  - Building on lessons learnt from existing arrangements such as the Rhine Commission or the Mekong Basin Commission.

Projected reduction in available water

<table>
<thead>
<tr>
<th>Decade</th>
<th>2015-2025</th>
<th>2025-2050</th>
<th>2050-2085</th>
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<tbody>
<tr>
<td>Global</td>
<td>-0.5%</td>
<td>-1.0%</td>
<td>-1.5%</td>
</tr>
<tr>
<td>Region</td>
<td>-1.5%</td>
<td>-3.0%</td>
<td>-4.5%</td>
</tr>
</tbody>
</table>

Percentage of mountain area per country

<table>
<thead>
<tr>
<th>Region</th>
<th>0-10%</th>
<th>10-25%</th>
<th>25-50%</th>
<th>50-75%</th>
<th>&gt;75%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td>35%</td>
<td>45%</td>
<td>15%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Region</td>
<td>40%</td>
<td>40%</td>
<td>20%</td>
<td>5%</td>
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