



WHY MOUNTAINS MATTER FOR FORESTS AND BIODIVERSITY

A CALL FOR ACTION ON THE SUSTAINABLE DEVELOPMENT GOALS (SDGs)



Mountain Partnership

BIODIVERSITY AND FORESTS IN MOUNTAINS: A CALL FOR ACTION ON THE SUSTAINABLE DEVELOPMENT GOALS (SDGs)

Mountains cover 25 percent of the world's land surface, and directly support 22 percent of the world's population living within mountain regions. Sustainable mountain development should be a global priority given the multitude of ecosystem goods and services that mountains provide; among the most important is water for half of humanity for drinking, irrigation and energy production. These ecosystem services – as well as the mountain peoples – who are at the same time custodians and direct beneficiaries, are particularly vulnerable to the impacts of climate change and natural disasters. The degradation of these essential mountain ecosystem services will have a direct impact on downstream regions and human well-being.

Following the call for sustainable mountain development in Chapter 13 of Agenda 21, the action plan endorsed by the 'Earth Summit' in 1992, and the recent Rio+20 outcome document, "The Future We Want", **mountains –as a cross-cutting issue– need to be covered by the SDGs, especially the goals where mountains play a crucial role for global sustainable development. These include goals related to poverty, water, food, energy, environmental sustainability, climate change and natural disasters.**

The following actions¹ are needed to protect fragile mountain ecosystems and communities in particular in developing countries:

- Recognize that mountain areas have poorer infrastructure, less market access and harsher conditions for agriculture than lowland areas and that mountain communities are disproportionately poor;
- Recognize that mountain communities as well as the populations living in downstream areas depend on mountain forests and other mountain ecosystems for a wide range of ecosystem goods and services, including water, timber and non-timber forest products (including medicinal plants), energy, natural hazard mitigation as well as for recreational, spiritual and cultural purposes;
- Recognize that mountains are important centres of agro-biodiversity, hosting some of the world's foremost agricultural gene pools including a high genetic diversity of crops, livestock, and wildlife, as well as knowledge about traditional management practices that are essential to food security in times of rapid climate change;



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- Recognize the high concentration of biodiversity hotspots in mountain regions, including high ecosystem diversity, species richness and number of endemic and endangered species;
- Recognize the need to stop and prevent the further loss and degradation of mountain ecosystems including forest ecosystems, that will have a negative impact on human well-being;
- Strengthen the sustainable use and conservation of mountain ecosystems and address the underlying drivers of ecosystem loss by ecosystem-based adaptation and managing forests sustainably;
- Create and implement adequate policies and frameworks, including at the trans-boundary level;
- Provide incentives for investments in sustainable development in mountain countries including for biodiversity and agro-biodiversity conservation and sustainable forest management, taking into account commitments under relevant frameworks such as the Convention on Biological Diversity and its Programme of Work related to Mountain Biological Diversity;
- Support the establishment of mountain-related targets and indicators for goal areas related to environmental sustainability/biodiversity/forests:

REFERRED GOAL	PROPOSED TARGETS	PROPOSED INDICATORS
Environmental Sustainability/ Biodiversity	"By 2030, mountain ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 percent of degraded ecosystems."	Number of countries incorporating mountain-specific ecosystem-based adaptation approaches into relevant sectoral and national development strategies/plans. The proportion of degraded mountain ecosystems restored, ecosystem resilience built and the contribution of biodiversity to carbon stocks enhancement.
	"By 2030, at least 17 percent of terrestrial areas of particular importance for biodiversity and ecosystem services such as mountains, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes."	Percentage of mountain regions dedicated to ecological networks. Percentage of mountain regions covered by protected areas.
	"By 2030, achieve a significant reduction of mountain biological diversity loss at global, regional and national levels, through the implementation of the main objectives of the Convention on Biological Diversity (CBD)."	Number of countries implementing the Programme of Work on Mountain Biological Diversity of the Convention on Biological Diversity in the context of their national and sub-national priorities.
Environmental Sustainability/ Forests	"By 2030, increase the use of mountain forests under sustainable forest management by at least 50 percent."	Number of sustainable management plans for mountain ecosystem resources such as forests incorporated.
	"By 2030, the rate of loss of all natural mountain habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced."	Rate of loss, degradation and fragmentation of natural mountain habitats including forests.

¹ While the recommendations specifically refer to mountain regions, they might also apply to other regions.

MOUNTAIN FORESTS AND BIODIVERSITY: KEY FACTS AND FIGURES

Mountain forests deliver ecosystem goods and services to millions of individuals in mountain communities and adjacent lowland areas. Globally, 23 percent of the world's forests are located in mountain regions, covering over 9 million square kilometers. Mountain forests and other mountain biodiversity hotspots provide many benefits, such as erosion control, improved water quality and quantity, carbon fixation, recreation and aesthetic appeal, timber, fuel wood and non-timber forest products. Over 650 million people in developing countries live in mountainous regions.

Clean water for downstream users: Mountain forests strongly influence the quality and quantity of water supplies to mountain and lowland communities and industries – by intercepting precipitation, improving soil infiltration and through bioremediation of water. Many urban areas across the world depend on water provided by mountain forests. In East Africa, all the water used in the dry season for drinking and energy generation in Dar es Salaam (a city with over 4 million inhabitants) comes from the Uluguru mountain cloud forests; and in New York, over 9 million residents rely on high-quality water from the Catskill Mountains watershed. The Andean cloud forests, the intact cloud forests of the Selva de Florencia Natural National Park, measuring just over 1000 ha in extent, provides water for 60,000 inhabitants.

Protecting against natural hazards: Forests are hugely valuable for the protection they provide against natural hazards. They act as physical barriers, preventing or slowing down rockfalls, landslides, debris flows and avalanches. Forest roots stabilize the soil and prevent erosion and reduce the risk of floods. For example, the maximum surface run-off during heavy rains in the Austrian Alps is 40 – 80 percent lower in forests than pastures. Forests are dynamic systems and are generally excellent value for the money compared to similar technical measures that achieve the same protection.

High biodiversity and source of livelihoods: 25 out of 34 of the world's biodiversity hotspots are situated entirely or partially within mountain regions. Mountain regions provide refuge to many endemic or threatened plant species and animals. Mountain regions host a high genetic diversity of crops, livestock, and mountain communities engage in traditional management practices which act as insurance against different pressures and changes. Mountain forest ecosystems and other biodiversity hotspots provide many communities with "safety nets" for their livelihoods, and are sources of wood, feed, food and other economically important non-timber forest products. In Central Bhutan the contribution of non-timber forest products to household nutrition is 20 percent, and to household incomes 19 percent.

Recreation and spiritual values: Mountains and their biological diversity provide attractive landscapes that have become a magnet for tourism and often provides income-generating opportunities for local communities and inhabitants – if managed sustainably. Mountains are also important centres of spirituality and renewal.

Mountain forests and biodiversity face growing demand from local, regional and international users, and many mountain ecosystems good and services are threatened. The conversion of mountain forest or scrubland into agricultural land has major impacts, including increased run-off and elevated erosion. In tropical and sub-tropical areas, the clearing of mountain forests can be especially damaging due to high rainfall, increasing the frequency and scale of natural disasters. Unsustainable large-scale mechanized clearings and illegal logging in mountain forests are reducing forest cover and transforming primary forest into other land uses. For example, only between 5 percent – 20 percent of original cloud forest remain in most areas of the tropical Andes.

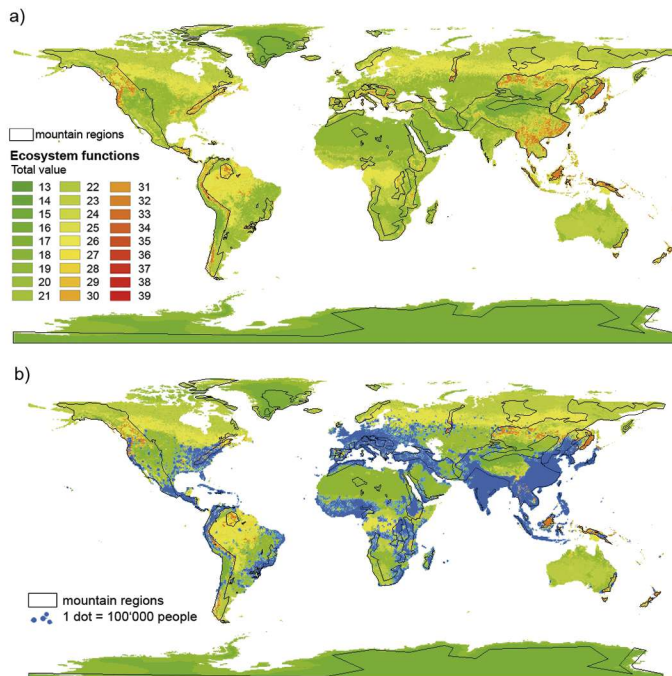


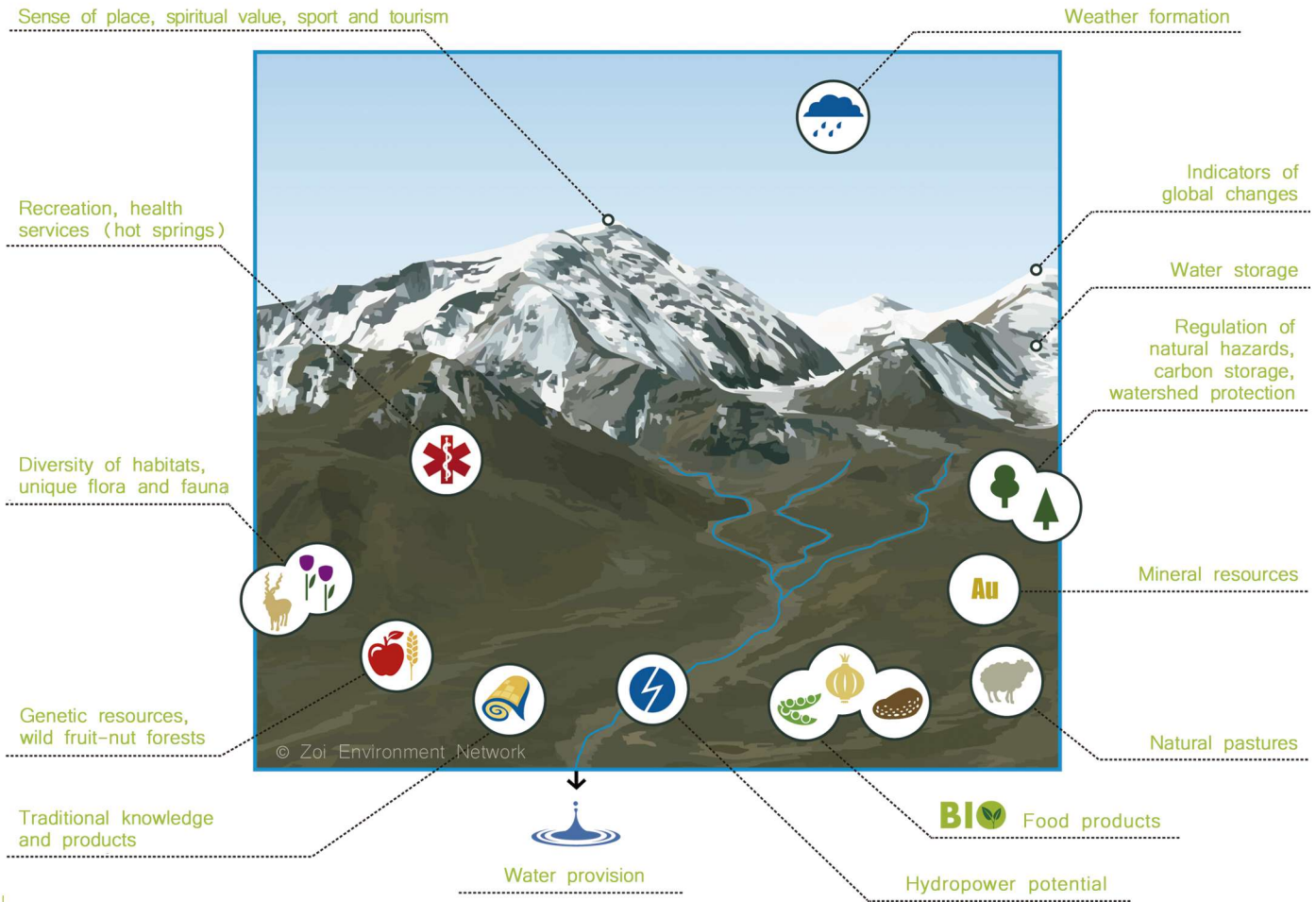
Figure a): Huge capacity of mountain regions to provide ecosystem services. Figure b): High demand for ecosystem services particularly by lowland area. (Source: Grêt-Regamey A, Brunner SH, & Kienast F, 2012, Mountain ecosystem services: Who cares? Mountain Research and Development, 32(S1):S23-S34)

Reforestation efforts can exacerbate water scarcity in catchments and lead to biodiversity losses, if slow-growing trees are replaced with faster-growing species and varieties with higher water use. Other pressures on mountain forests and other biodiversity-rich ecosystems include encroaching urbanization, more frequent wildfires and infrastructure development projects (such as roads, dams, hydropower plants and tourism infrastructure).

Sustainable forest management principles should be applied in managing the world's mountain forests and their multiple benefits. The solutions applied are not one-size-fits-all and will vary widely between regions. However, all should involve the stewardship and use of forests in ways that maintain their biodiversity, productivity, regeneration capacity in order to meet present and future ecological, economic and social functions. Sound policies for mountain forests are essential, including secure, long-term land tenure rights for communities and other forest users.



MOUNTAIN ECOSYSTEM GOODS AND SERVICES



Contributing Organizations:

