Theme 3: Mountain Ecosystem Services

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The World Mountain Forum (WMF) is a platform for mountain stakeholders (scientists, civil society, private sector, communities and policy makers) to discuss Sustainable Mountain Development issues and drive action that helps harness the potential of mountains as pillars of sustainable development and at the same time increasing the mountain communities' capacity to adapt to the various environmental, economic and social changes that are happening around the world.

1. Water towers

Mountains provide critical and indispensable goods and services to a significant proportion of humankind. More than half of humanity relies on the fresh water that accumulates in mountains and up to 80% of the planet's fresh surface water comes from mountains (FAO).

In the southern Asia, about 1.3 billion people rely on freshwater obtained directly or indirectly from the Hindu Kush Himalayan (HKH) mountain systems. Nearly 80% of the water of the Rio Grande comes from the Rockies and the Sierra Madre mountains and 60% of the Rio Negro comes from Andes.

This is possible due to the phenomenon known as the "*orographic effect*". Mountains form a barrier to incoming air masses.

Forced to rise, the air cools and precipitation is triggered. Mountain waters are then captured at high altitudes and are carried under gravity via the stream network or groundwater aquifers to the lowlands supplying populations centres with natural freshwater sometimes reaching people located hundreds to thousands of kilometres from the original point where the water it was captured.

This ability to capture and distribute freshwater both in time and space has earned mountain the name of "*Water Towers*".

Some acronymes:

SMD: Sustainable Mountain Development
SMD4GC: Sustainable Mountain Development for global change
WMF: World Mountain Forum
PES: Payment for Ecosystem Services
HKH: Hindu-Kush Himalaya
SDGs: Sustainable Development Goals

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#WMF_2016

2. Craddle for biodiveristy

Freshwater is not the only ecosystem service we get from mountains though. Ecotourism in mountains for instance constitutes a growing industry earning considerable income to economies especially in the developing word. This is possible because of two factors that are inherent to mountains.
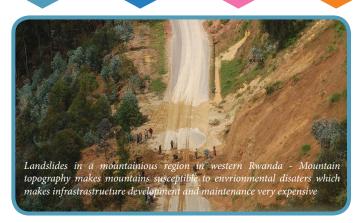
On the first hand, their topography and elevation make mountains spectacular objects in nature that inspire awe and admiration to everybody. This attracts many tourists both professional climbers and recreational amateurs and the income thus generated constitutes a considerable contribution to national economies especially in the developing world. Kilimanjaro for instance earns Tanzania about $50 million a year, which accounts for about 45% of all the income generated by the country's 15 national parks (TANAPA, 2005).

On the other hand, this very topography of mountains offer vertical environmental gradients for life otherwise only seen over several thousands of kilometres of latitudinal distance and this gives rise to opportunities for additional diversification of life, leading to unbeaten biodiversity. Thus, mountains have this reputation of being the "*cradles of life*" and refuges of biodiversity. Indeed, half of the world's biodiversity hotspots are concentrated in mountains and they are very rich in endemic species.

3. Forgotten treasure

Despite their disproportionate contribution to development through their services, mountains are among the most disadvantaged regions at global scale. There are many development challenges in mountain regions but the most pressing ones include lack of infrastructure and low representation of mountain communities in the political arenas. Mountains' unique susceptibility to various environmental changes has led to degradation of these beautiful landscapes and their biodiversity is being eroded day in day out.
Adding to that, lack of proper planning has led to overexploitation of some mountain ecosystem services where for instance tourism which is supposed to contribute to development in these areas leads to disastrous consequences both both in terms of adverse environmental and social impacts.

Landslides in a mountainious region in western Rwanda - Mountain topography makes mountains susceptible to envrionmental disaters which makes infrastrastructure development and maintenance very expensive

4. What can we do?

Given the importance of mountains both in terms of their ecological value and their ecosystem services, it is a matter of global urgency to develop adequate policy instruments and institutional frameworks to harness mountain services so they become a major driver of sustainable development both in mountain areas and their immediate forelands.
This can be achieved through devising schemes that enhance sustainable exploitation of mountain services, supporting proper planning which takes into consideration all elements of sustainability and adopts an integrated way, and through development of adapted PES schemes that link mountain communities as keepers of these services to lowlands dwellers who benefit from them.

5. Discussions during the World Mountain Forum 2016

During the 3rd World Mountain Forum (#WMF_2016) that will be held in Mbale, Uganda in October 2016; mountain ecosytem services will feature as one of the themes of the forum. It is expected the discussions to be held under this session will result into actionable recommendations to different SMD stakeholders to help enhance and sustain these services that millions of people and entire economies depend on.
The main agenda of the session has been structured according to the three pillars of the WMF, namely:

1) Knowledge sharing and capacity building
☞ **What is the quantiy and value of mountain ecosystem services?**

2) Promotion of policy dialogue
☞ **How can we enhance linkages between mountain ecosystem services and Sustainable Development Goal 15, especially its targets 15.1 and 15.4?**

3) Supporting on-ground action
☞ **How can we encourage investments into mountain landscapes to secure sustainable supply of ecosystem services ?**
☞ **What are landscape management practices that enhance the supply of mountain ecosystem services and how do we implement them?**