Changing Landscapes and Degrading Ecosystems: The role of biodiversity for sustaining ecosystem services

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Introduction

The Hindu Kush Himalaya (HKH) are a global asset for biodiversity and ecosystem services. With an area of more than 4 million square kilometre, this terrestrial mountain biome is one of most diverse and rich in biodiversity, cultural diversity with mosaic of ecosystems that provides ecosystem services to one third of the humanity. With expansion of human activities the fragile ecosystems and the associated biodiversity of the HKH is facing major challenges. Maintaining the social and ecological resilience in the HKH is a major contributions towards achieving the sustainable development goals.

Key Messages

- The mountain ecosystem of the HKH is a global asset for biodiversity.
- The ecosystems of the HKH are dynamic coupled socio-ecological system, under stress due to natural and human induced processes and witnessing changes unprecedentedly.
- Regional efforts are needed to enhance the resilience of the system to extreme events and contribute towards sustainable development.

Policy Messages

- The HKH is a common pool resource bridging strong nexus between regional water, energy, and food securities and the future lies on effective regional synergy through science-policy linkages.

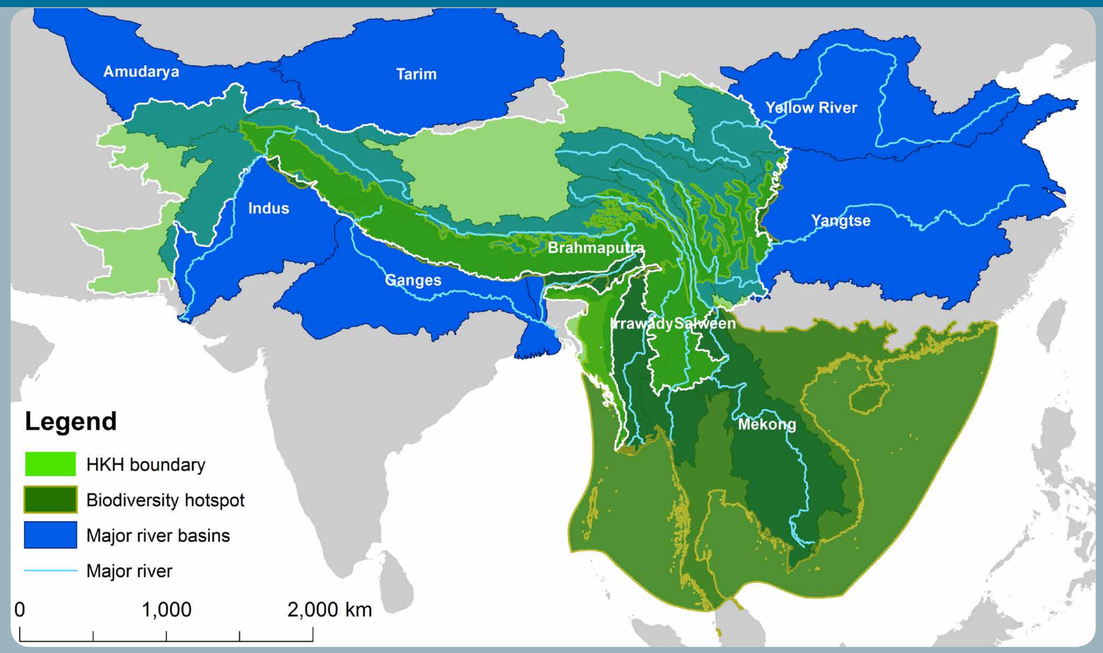


Figure 1. Map showing four global biodiversity hotspots and ten river basins

Figure 3. Population trend of greater one-horned rhinoceros in Nepal.

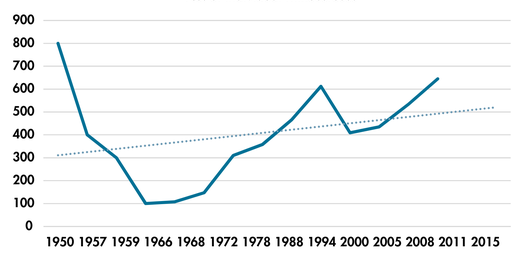
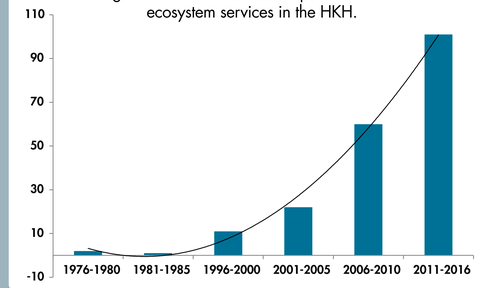
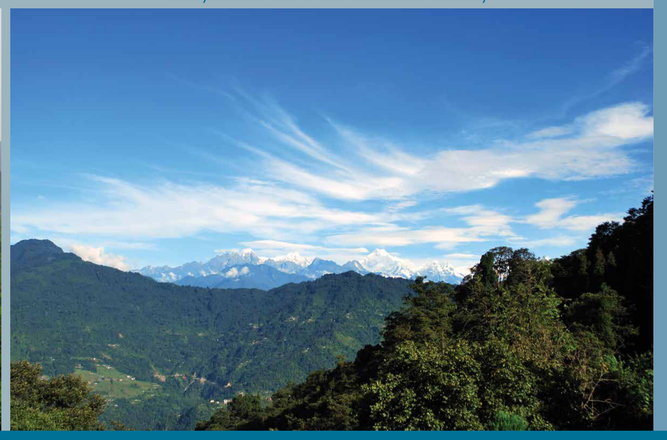


Figure 4. Trend in number of publications on ecosystem services in the HKH.



Agroecosystem is an important source for food security.

Mountain ecosystems are pristine and culturally rich that supplies ecosystem services to one third of the humanity.



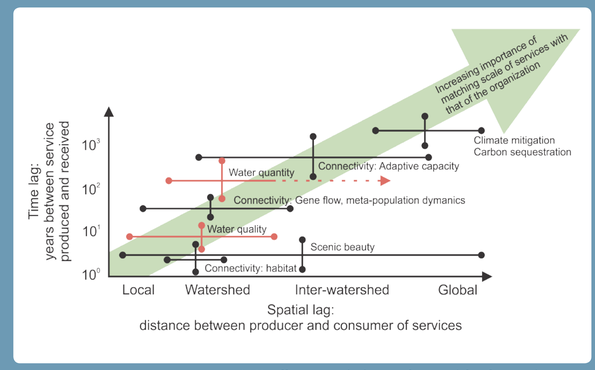


Figure 2. Ecosystem services (ES) affect people long after and far from where management decisions are made.

Highlights of the assessment

- At least 353 new species including 242 plants, 16 amphibians, 16 reptiles, 14 fish, 2 birds and 2 mammals, and at least 61 new invertebrates have been discovered in the Eastern Himalayas between 1998 and 2008, equating to an average of 35 new species finds every year.
- In many instances, still 70 to 80% of the total population are living in the rural areas and majority (60-85%) are still directly or indirectly dependent on these services for their subsistence living.
- With the current level of deforestation, by 2100 only about 10% of the land area of the Indian Himalaya will be covered by dense forest (>40% canopy cover) and almost a quarter of the endemic species could be wiped out.
- Hence, there is an urgent need of developing regional strategy to enhance the basic knowledge of socio-ecological system and contribute achieving the sustainable development goals.